

Pharmacology News

Volume 3, Issue 1
October 2013

TULANE UNIVERSITY SCHOOL OF MEDICINE DEPARTMENT OF PHARMACOLOGY

Message from the Chair, Dr. David W. Busija

We have had a busy six months in the Department of Pharmacology. We continue to revitalize the department with the renovation of laboratory space and the acquisition of new equipment. Dr. Ricardo Mostany completed construction of his multiphoton microscope, and we have purchased a Seahorse Bioscience XF24 for measurement of glycolytic and mitochondrial metabolism in cells (see articles and photos). We recruited 26 students to our Masters in Pharmacology Program who are adjusting to New Orleans. Four Ph.D. students graduated in May including (the now) Drs. Christine Gagliardi, Brittini Scruggs, Shijia Zhang, and Amrita Datta. Twenty-six Masters students also graduated in May. Edward Pankey, M.D., successfully defended his dissertation in June.



On April 26, 2013 we hosted a reception to honor the memory of Dr. Krishna Agrawal, previous chairman of the Department of Pharmacology, and to acknowledge the establishment of the **Dr. Krishna C. Agrawal Education Fund** for the support of graduate students. Dr. Agrawal's wife, Mrs. Mani Agrawal, son, Mr. Sunil Agrawal, and daughters, Mrs. Lina Agrawal Young and Nira Agrawal, as well as many

friends and colleagues attended the reception.

In March 2013, we were privileged to have Dr. Hal Broxmeyer present the Fred Schueler Lecture. Dr. Broxmeyer is internationally recognized for his laboratory studies establishing the first proof of concept that led to the collection, storage, and utilization of umbilical cord blood for transfusion which is now a routine procedure.

Seahorse XFe24 Analyzer

To improve the quality and diversity of our research programs, the Department of Pharmacology, together with the Department of Medicine, purchased a Seahorse XFe24 Analyzer. *Franck Mauvais-Jarvis*, M.D./Ph.D., the new Price-Goldsmith Professor in Nutrition Research in the Division of Endocrinology and Metabolism who has been recruited by *Drs. Vivian Fonseca* and *Lee Hamm*, will also be a user of the Seahorse Analyzer.

The Seahorse Analyzer allows for real-time measurements of energy utilization in living cells, simultaneously quantifying mitochondrial respiration and glycolysis. It offers a simple method to study substrate utilization, mitochondrial function, and energy expenditure of cells in microplates. This technology affords a reliable way to study cellular metabolism without the use of large numbers of cells, flasks, electrodes, dyes, radioactive materials, or lysis of cells typical of other methods. The ability to measure the metabolic phenotype of cells by simultaneously measuring respiration and glycolysis in real-time, and the shift between the two pathways under pathological states, enables us to connect physiological traits of cells with genomic and proteomic data to generate new insights into disease states such as obesity, diabetes, cancer, and cardiovascular and neurodegenerative function.

Dr. Busija attended a workshop on Mitochondrial Biology and the use of the Seahorse Analyzer in Copenhagen, Denmark from August 24 to September 3. Several faculty, post-doctoral fellows, students, and staff participated in the Seahorse training on campus on June 25 and 26.

Dr. Charles Leffler from the University of Tennessee-Memphis will present the James Fisher Lecture on October 18, 2013 and *Dr. Jan-Åke Gustafsson* from the University of Houston will present the Fred Schueler Lecture on March 14, 2014. Dr. Leffler will discuss novel strategies, including inert gases, which protect the neonatal brain against injury. Dr. Jan-Åke Gustafsson will discuss his accomplishments in the field of nuclear receptors including his discovery of estrogen receptor beta. We will continue our regular seminar program on Fridays at noon throughout the year featuring many outside speakers.

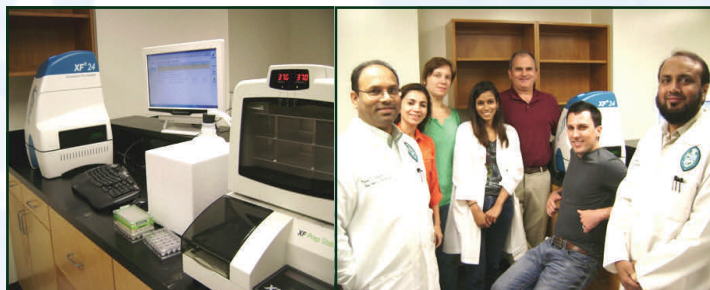
We were honored to host a visit from *Dr. Gary Gibbons*, the Director of the National Heart, Lung, and Blood Institute on September 22 - 23, 2013. Several of us have served on NIH Study Sections with Dr. Gibbons, and Dr. Milton Hamblin invited him to visit our expanding department. Dr. Gibbons discussed NIH funding issues and met with research faculty. Dr. Gibbons was Director of the Cardiovascular Institute and Chairman of Physiology at the Morehouse School of Medicine in Atlanta, GA, before moving to NIH. He is the first African American Director of NHLBI.

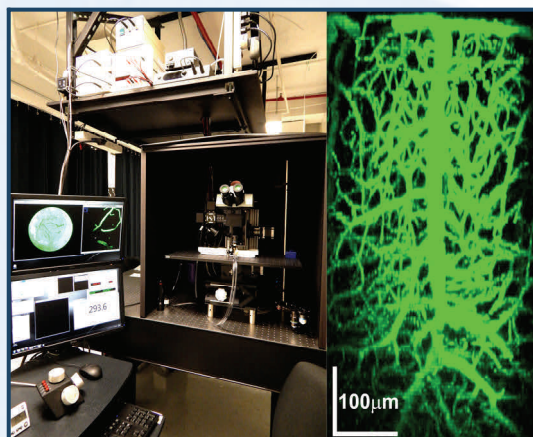
I am especially proud of the fact that the faculty of the Pharmacology Department applied for a total of 11 grants from a variety of funding sources since our last newsletter.

The Dr. Krishna C. Agrawal Education Fund

in Pharmacology is an endowed pool of resources to support students in the Department of Pharmacology. To read the biography of Dr. Krishna please go to: <http://tulane.edu/som/departments/pharmacology/agrawalfund.cfm>

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, at 504-314-7380 or mmckeown@tulane.edu. Tulane University, School of Medicine Office of Development #8745, 1430 Tulane Ave., NOLA 70112.





In early July, **Dr. Ricardo Mostany's** *in vivo* two-photon microscope recorded its first images. The image, displayed above, was captured by **Rebecca Voglewede**. Dr. Mostany built the microscope on the left. On the right is a side view of a 3D reconstruction of a 300 x 300 x 600 μm (x, y, and z axis) volume showing the brain vasculature. The blood vessels were filled with fluorescent dextran and images were taken every 5 μm up to 600 μm deep in an anesthetized mouse.

Faculty News

Dr. David Busija

- *Invited Talk*: "Mitochondrial mechanisms in the cerebral vasculature in health and disease." Cerebrovascular Research Update Symposium, May 2-3, 2013, Iowa City, IA.
- *Submitted grant*: NIH

Dr. Stephen Braun

- *Reviewer*: study section "The Impact of Microgravity on Fundamental Stem Cell Properties", CASIS (the Center for the Advancement of Science in Space). CASIS represents NASA to develop research for the U.S. National Laboratory on the International Space Station.

Dr. Bruce Bunnell

- *Grant Award*: "Distinguishing adipose stromal vs. stem cells by serial transplantation, 10/1/12 – 9/30/13 from NIH-NIDDK, 1 R21 DK094254.
- *Invited Talks*: (1) "Adipose-derived cells: Standardization and Application", MSC 2013, Adult Stem Cell Therapy and Regenerative Medicine, Cleveland,

OH. (2) "Cancer Stem Cells", BEST Science Teachers Workshop, New Orleans, LA.

- *Reviewer*: (1) 10 NIBIB K Review Panel, NIH, Bethesda, MD; (2) IMST 15 Cell, Molecular, and Computational Biology Review Panel, NIH, Bethesda, MD; (3) Regenerative Medicine, Maryland Department of Health, Baltimore, MD; (4) Ad-hoc Member, Therapeutic Approaches for Genetic Diseases Study Section, NIH, Bethesda, MD.

Dr. Milton Hamblin

- *Invited Talk*: "Gender-related differences in vascular estrogen receptor signaling." 7th Gulf Coast Physiological Society Meeting, Mobile, AL, May 31-June 1, 2013.
- *Poster Presentation*: "Sex Differences in Estrogen Receptor/LOX-1 Signaling in Mouse Aortic Smooth Muscle Cells." 10th Anniversary Interdisciplinary Women's Health Research Symposium, Bethesda, MD, October 23-25, 2013.

Dr. Prasad Katakam

- *Moderator*: Gulf Coast Physiological Society meeting in Mobile, Alabama, May 31, 2013.
- *Poster Presentation*: "Insulin Promotes Hypoxic Vascular Injury in Insulin Resistance", AHA Council for High Blood Pressure Research Conference, New Orleans, Sept. 11-14, 2013.
- *Reviewer*: AHA-Vascular Endothelial Biology 3 Peer Review Study Group, Spring 2013 review session.
- *Submitted grants*: AHA, ADA, and two private donor agencies.

Dr. Jean-Pyo Lee

- *Invited Talk*: "Multimodal human neural stem cell-based brain repair for cerebral ischemia in a mouse model", UKC 2013 Biology Technical Symposium: Neuroscience, Stem Cells, Immunology and Developmental Biology, New York/New Jersey, Aug. 8, 2013.

Dr. Sarah Lindsey

- *Invited Talk*: "The Novel Estrogen Receptor GPR30 Activates cAMP Signaling in Vascular Smooth Muscle Cells", Rapid Responses to Steroid Hormones", 8th International Meeting, Sept. 19-21, Erie, PA.
- *Poster Presentation*: "Bisphenol A Inhibits GPR30-mediated Dilation of Mesenteric Resistance Arteries." AHA Council for High Blood Pressure Research Conference, New Orleans, Sept. 11-14, 2013.
- *Submitted grants*: NIH and AHA

Dr. Debasis Mondal

- *Grant Award*: Co-investigator with Dr. Abdel-Mageed in a recently funded NIH/NCATS grant (UH2/UH3): "Targeting Tumor-Derived exRNA-Containing Microvesicles by High Throughput Screening". This is a 5-year award with a total budget of ~\$4.2 Million.
- *Peer Review Panel Member*: FY 2013 Prostate Cancer Research Program for the Department of Defense: Molecular Biology Genetics.
- *Submitted grants*: DoD, NIH (NCI), NIH (NCCAM)

The Sixteenth Annual James W. Fisher Lectureship in Pharmacology

The Pharmacology Department is pleased to host **Dr. Charles W. Leffler**, the invited speaker for this year's Fisher Lecture. Dr. Leffler is a Distinguished Professor in the departments of Physiology and Pediatrics at the University of Tennessee Health Sciences Center, and Director of the Laboratory for Research in Neonatal Physiology. His research focuses on control of the cerebral circulation, primarily the autocrine/paracrine control of the newborn cerebral microvasculature during physiologically stressful and pathological situations and the underlying cellular mechanisms. Dr. Leffler's lab investigates autocrine and paracrine communication within the vessel wall, with specific current focus on the endogenous gasotransmitters, carbon monoxide, and hydrogen sulfide. This and other information regarding Dr. Leffler's research can be found at <http://physiol.uthsc.edu/~leffler/>.



The Fisher Lecture will be held **Friday, October 18, 2013 at 12:00 PM in the Tulane School of Medicine Room 6065**. The title of Dr. Leffler's talk is, **"Gasotransmitter Regulation of Neonatal Cerebrovascular Circulation."**

Faculty News, continued from page two

Dr. John McLachlan

- *Invited Talk*: "Non-traditional models for studying endocrine disrupting environmental chemicals", Tenth International Symposium on Recent Advances in Environmental Health Research, Jackson State University, September 16, 2013, Jackson, MS.
- *Invited Participant*: Fifteen members of the Children's Environmental Health Network met in Washington DC on September 20, 2013 to chart the next twenty years of research and policy. This organization strives to make children's health and the environment a national priority. The meeting convened pediatricians, foundation leaders, policy makers, scientists and leaders of Latino and African American environmental groups.

Dr. Howard Mielke

- *Grant*: Significant donation from private donors, Ronald and Ling Chen, June 6, 2013, to extend urban lead activities allowing the third survey of the chemical quality of New Orleans.
- *Chaired session*: "Urban Medical Geology: Integrating Geologic and Anthropogenic Processes (URBAN)", 5th International Conf. on Medical Geology, Aug. 27, 2013, Washington DC.
- *Invited Talk*: "Linking early lead poisoning and later violent/aggressive behavior", Montefiore Lead Conference at the Montefiore Medical Center in Bronx, NY, Nov. 1, 2013. Presentation summary: "Despite economic woes and hard times, since the early 1990's rates of violent crime and aggravated assault have undergone remarkable declines; could early childhood exposure play a role? Advances in neuroscience and environmental chemistry are revolutionizing our understanding about violent behavior—and ways to prevent it."
- *Invited Participant*: Alaska study of the predator-prey-vegetation trophic cascades influence on patterns of life/landscape, part of the Alaska Geographic program at Denali, Alaska, July 19-25, 2013.
- *Outreach Collaborations*: Met with Xavier students on July 8th to discuss urban environmental health disparities as a member of "Enhancing Diversity of Environmental Biology", an NSF funded project designed to encourage students to pursue graduate training. Students did field collections to explore the topic of childhood exposure and the environment.

Dr. Ricardo Mostany

- *Invited Speaker*: "Age-related structural plasticity of cortical neurons: Does the aging brain learn differently from the young brain?" Tulane University Department of Physiology Seminar Series, June 17, 2013.
- *Submitted grant*: NIH R01.

Life Events



On April 24, 2013, **Dr. Sarah Lindsey** and her family welcomed beautiful twin girls, *Stella and Esther*.



Karter Avery made his debut appearance on Aug. 3, 2013 to **Korey Walter** and family.

Trainee News

Somhrita Dutta, a Neuroscience graduate student working with **Dr. Busija**, successfully passed her qualifying exam on July 10, 2013. Her abstract: "mTOR pathway mediates diazoxide preconditioning in cultured neurons" was accepted for oral presentation at the *Society for Neuroscience* meeting in San Diego in November. She also received a travel award from the Tulane Office of Graduate and Postdoctoral Studies to attend this meeting.

Angellica Gordon, an undergraduate student working with **Dr. Busija** and **Dr. Katakam**, was a finalist for her abstract: "Insulin promotes vascular injury in insulin resistance" at the 4th Annual Technical Papers & Posters Competition at the 25th Anniversary of HENAAC Conference, *Great Minds in STEM*, New Orleans, Oct. 3-5, 2013 co-sponsored by Tulane University.

George Lasker, a student in the Tulane Physician Scientist Program working with **Dr. Kadowitz**, presented "Targeting Soluble Guanylate Cyclase for the Treatment of Erectile Dysfunction" in the Pharmacology Department Seminar Series on August 16, 2013.

Dr. Edward Pankey, a student in the Tulane Physician Scientist Program working with **Dr. Kadowitz**, successfully defended his Ph.D. dissertation: "The Role of Soluble Guanylate Cyclase in the Regulation of Tone in the Pulmonary Vascular Bed in the Intact Rat Chest" on April 30, 2013.

Dr. Ibolya Rutkai, a postdoctoral fellow working with **Dr. Busija**, will present a poster "Enhanced cerebrovascular response to mitochondrial depolarization following middle cerebral artery occlusion" at the *Society for Neuroscience* meeting in San Diego in November. She received a travel award from the Tulane Office of Graduate and Postdoctoral Studies to attend this meeting.

Rebecca Voglewede, a Neuroscience graduate student working with **Dr. Mostany**, was awarded the *Louisiana Board of Regents Graduate Fellowship*, which includes full tuition and a stipend for four years beginning in August of 2013.

Pharmacology Representatives elected to General Medical Faculty Committees

Name	Position	Term
Debasis Mondal	GMF, Chair	2013 - 2014
Sarah Lindsey	Faculty Advisory Committee	2013 - 2016
Prasad Katakam	Nominating Committee	2013 - 2016
Milton Hamblin	University Senate	2013 - 2016
Craig Clarkson	Curriculum Committee	2012 - 2015
Phillip Kadowitz	Personnel and Honors Committee	2011 - 2014
Barbara Beckman	Grievance Committee	2011 - 2014
Barbara Beckman	Personnel and Honors Committee	2012 - 2015



It's a small world after all:
Dr. Sarah Lindsey's sister, *Meghan*, married *Benjamin Kunen* who received his Masters of Science Degree in Pharmacology in May 2013 and is now a first year medical student at Tulane. They were married on July 27, 2013.

Publications

White, M.D., Chan, L., Antoon, J.W., **Beckman, B.S.** Targeting Ovarian Cancer and Chemoresistance Through Selective Inhibition of Sphingosine Kinase-2 with ABC294640. *AntiCancer Research* 2013, 33(9).

Zhang, S., Espandar, L., Imhof, K.M.P. and **Bunnell, B.A.** (2013) Differentiation of Human Adipose-derived Stem Cells along the Keratocyte Lineage in vitro. *Clinical and Experimental Ophthalmology*, 4(270).

Scruggs, B.A., Zhang, X., Bowles, A.C., Gold, P.A., Semon, J.A., Fisher-Perkins, J.M., Zhang, S., Bonvillain, R.W., Myers, L., Li, S.C. Kalueff, A.V. and **Bunnell, B.A.** (2013) Multipotent stromal cells alleviate inflammation, neuropathology, and symptoms associated with globoid cell leukodystrophy in the twitcher mouse. *Stem Cells*, in press. PMID:23606584.

Russell, K.C., Tucker, H.A., **Bunnell, B.A.**, Andreoff, M., Schober-Ditmore, W., Strickler, K., Gaynor, A.S., Lin, S., Lacey, M.R. and O'Connor, K.C. (2013) Variation in cell-surface expression of neuron-glia antigen 2 (NG2) and melanoma cell adhesion molecule (CD146) in marrow-derived mesenchymal stem cells enables enrichment of a proliferative phenotype. *Tissue Engineering*, 19:2253-66.

Wagner, D.E., Bonvillain, R.W., Jensen, T., Girard, E.D., **Bunnell, B.A.**, Finck, C.M., Hoffman, A.M. and Daniel J. Weiss, D.J. (2013) Can Stem Cells be Used to Generate New Lungs? Ex Vivo Lung Bioengineering with Decellularized Whole Lung Scaffolds. *Respirology*, 18:895-911.

Bonvillain, R.W., Scarritt, M.E., Pashos, N.C., Mayeux, J.P., Meshberger, C.L., Betancourt, A.M., Sullivan, D.E. and **Bunnell, B.A.** (2013) Non-human Primate Lung Decellularization and Recellularization Using a Specialized Large-organ Bioreactor. *JoVE*, in press.

Scruggs, B.A., Semon, J.A., Zhang, X., Zhang, S., Bowles, A.C., Pandey, A.C., Imhof, K.M.P., Kalueff, A.V., Gimble, J.M. and **Bunnell, B.A.** (2013) Age of the donor reduces the ability of human adipose-derived stem cells to produce hepatocyte growth factor and alleviate symptoms in the experimental autoimmune encephalomyelitis mouse model. *Stem Cells and Translational Medicine*, 2:797-807.

Semon, J.A., Zhang, X., Pandey, A.C., Alendete, S.A., Maness, C., Zhang, S., Scruggs, B.A., Lin, A.F., Sharkey, S.A., Beuttler, M.M., Gimble, J.M. and **Bunnell, B.A.** (2013) Administration of murine stromal vascular fraction or adipose-derived stem cells ameliorate chronic experimental autoimmune encephalomyelitis. *Stem Cells and Translational Medicine*, 2:789-796.

Lindsey SH, da Silva AS, Silva MS, Chappell MC. (2013) Reduced Vaso-relaxation to Estradiol and G-1 in Aged Female and Adult Male Rats is Associated with GPR30 Downregulation. *Am J Physiol Endocrinol Metab.* 305 (1):E113-8.

Zahran S, **Mielke, HW**, McElmurry, SP, Filippelli, GM, Laidlaw, MAS, Taylor, MP. Determining the relative importance of soil sample locations to predict risk of child lead exposure. *Environment International* 60:7-14.

Gerlach SL, Göransson U, Kaas Q, Craik DJ, **Mondal D**, Gruber CW. A systematic approach to document cyclotide distribution in plant species from genomic, transcriptomic, and peptidomic analysis. *Biopolymers.* 2013 Sep;100(5):433-437.

Gerlach SL, Yeshak M, Göransson U, Roy U, Izadpanah R, **Mondal D.** Cycloviolacin O2 (CyO2) suppresses productive infection and augments the antiviral efficacy of nelfinavir in HIV-1 infected monocytic cells. *Biopolymers.* 2013 Sep;100(5):471-479.

Kandil E, Tsumagari K, Ma J, Abd Elmageed ZY, Li X, Slakey D, **Mondal D**, Abdel-Mageed AB. Synergistic inhibition of thyroid cancer by suppressing MAPK/PI3K/AKT pathways. *J Surg Res.* 2013 Oct;184(2):898-906.

Upal Roy, Christine Bulot, Kerstin Honer zu Bentrup, and **Debasis Mondal.** Specific Increase in MDR1 Mediated Drug-Efflux in Human Brain Endothelial Cells Following Coexposure to HIV-1 and Saquinavir. *PLOS ONE.* 2013 (Accepted).

Johnston DG, Denizet M, **Mostany R**, Portera-Cailliau C. Chronic in vivo imaging shows no evidence of dendritic plasticity or functional remapping in the contralesional cortex after stroke. *Cerebral Cortex.* 2013 Apr;23(4):751.

Wappler EA, Institoris A, Dutta S, **Katakam PV**, **Busija DW.** Mitochondrial dynamics associated with oxygen-glucose deprivation in rat primary neuronal cultures *PLoS One.* 2013 May 2;8(5):e63206.

Katakam PV, Wappler EA, Katz PS, Rutkai I, Institoris A, Domoki F, Gáspár T, Grovenburg SM, Snipes JA, **Busija DW.** Depolarization of mitochondria in endothelial cells promotes cerebral artery vasodilation by activation of nitric oxide synthase. *Arterioscler Thromb Vasc Biol.* 2013 Apr;33(4):752-9.

Cristina Carvalho, Paige S. Katz, Somhrita Dutta, **Prasad VG Katakam**, Paula I. Moreira, **David W. Busija.** Increased susceptibility to β -amyloid toxicity in rat brain microvascular endothelial cells under hyperglycemic conditions, *Journal of Alzheimer's Research*, in press. PMID: 23948922

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

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Chair: Dr. David W. Busija

Department Administrator: Debbie Sanders

Newsletter Preparation: Sewann Ratleff, Nancy Busija

Newsletter Oversight: Dr. Barbara Beckman, 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.

New Faces

Habib R. Ansari, Ph.D., post-doctoral fellow, joined the laboratory of *Dr. Milton H. Hamblin*. He is delineating the mechanisms involved in estrogen receptor-mediated signaling in vascular complications. **Venkata NLR ("Ram") Sure**, M.S., Pharmacology Ph.D. student, works in

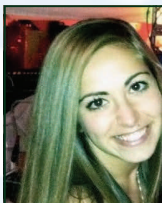


Ram Sure

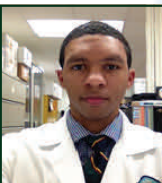
Dr. Katakam's laboratory. Ram received his B.A. Degree from Jawaharlal Nehru Technological University, Kakinada, India and his M.A. from the National Institute of Pharmaceutical Education and Research in Ahmedabad, India. **Rebecca Budish**, B.S., works in *Dr. Lindsey's* lab. She received her B.S. in Neuroscience in May, completed the Neuroscience Summer Research Program and started the Neuroscience Master's Degree program in the fall. **Korey A. Walter**, a recent graduate of University of Louisiana at Lafayette with a B.S. in Biology works in *Dr. Busija's* lab.



Dr. Ansari



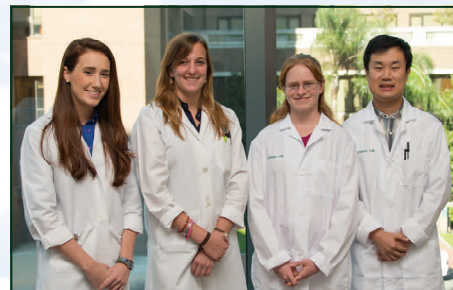
Rebecca Budish



Korey Walter

Korey previously worked for Dr. Matrougui and Dr. Kadowitz as a volunteer before being employed by Dr. Busija. **Nell Pounder**, M.S., has been working as a Medical Research Technician in *Dr. Lindsey's* lab since July 2012. She received her B.S. in Chemical Engineering in 2005 from the University of Oklahoma, and completed graduate studies in Bioengineering at the University of Illinois, Urbana in 2007.

Emma Trimmer, M.S., received her Master's Degree from the Tulane Neuroscience Program in May. She works for *Drs. Mostany and Lindsey*. **Dr. Liu Liu**, M.D., Ph.D., graduated from the Tulane Physiology Department and started his postdoctoral training in *Dr. Lindsey's* lab in July. **Rebecca Voglewede**, B.S., who works in *Dr. Mostany's* lab is a student in the Tulane Neuroscience Ph.D. Program.



Left to right: Rebecca Voglewede, Emma Trimmer, Nell Pounder, and Dr. Liu Liu

Masters of Science in Pharmacology Students - Class of 2014

Bailin Alexander, Burlington, VT; B.A., Biology, UVM. His abstract "Bilateral Inferior Petrosal Sinus Sampling Using Desmopressin: A Single Center Experience" has been selected for formal presentation at the Radiological Society of North America conference in December 2013. Bailin enjoys traveling and running in his spare time.

Tyler Baker, Birmingham, AL; graduated from Auburn. He has volunteered at several hospitals and assisted care facilities and is interested in EM. Tyler enjoys fishing, cycling and bowling in his spare time.

Adam Bess, Los Angeles, CA; BS, Biology has volunteered at MD Anderson in Houston and Olympia Medical Center in CA. He is interested in genetics and reads for leisure.

Tristan Dao, from Metairie, LA is an LSU alumnus. He intends to study medical biochemistry and enjoys playing soccer and reading.

Helen Floersh, Memphis, TN; graduated from Rhodes College. She's a fitness advocate and is studying to be a certified personal trainer. Helen volunteered at two hospitals in Memphis and ran an organization that helped rebuild houses in New Orleans after Hurricane Katrina. Helen is interested in neurology, EM, and OBGYN.

Morgan Maier, Kansas City, MO; graduated from University of



2014 Pharmacology Masters Students

Left to Right: Shane Breazeale, Taylor Smith, Warren Reuland, Justin McKone, and Nancy Worley. In the background are Jared Robertson, Michael Romanelli, Paul Ehlers from the class of 2013.

Missouri-Columbia. She has volunteered at a neuroscience research center and plans to study neurology and pediatrics.

Nadia Mohammadi, Metairie, LA; BS, pre-health from Spring Hill College. Nadia coordinated fundraising events for St. Jude Children's Hospital while in college. She enjoys spending time with loved ones and is interested in dentistry.

Stella Radosta, from New Orleans, graduated from GW in D.C. She enjoys reading, is interested in pathology and has volunteered at local hospitals and Habitat for Humanity.

Warren Reuland, San Juan, Capistrano, CA; BA, Biology, Stanford University. He has volunteered in orthopedic surgery and is very interested in that branch of medicine.

He plays basketball in his spare time.

Nihal Varkey grew up in Singapore where he volunteered with several organizations. He earned his chemical engineering degree from the Univ. of Illinois at Urbana-Champaign. Nihal enjoys playing soccer and music in his spare time.

Nancy Worley, from New Orleans, is a Williams College alumna. She has volunteered at Agenda for Children and Habitat for Humanity. She is interested in orthopedics and psychiatry and also plays tennis.

Student Spotlight: Dr. Marty White

The first time I walked through the doors of the Tulane Medical School, I couldn't have imagined what lay in store. Looking for the Pharmacology department offices, I stumbled upon the anatomy lab—almost fainted—and then finally arrived at the Pharmacology door. I turned the handle and was welcomed by the program coordinator, Mrs. Debbie Sanders. She welcomed me with a warm smile and personality to which I was unaccustomed, having come from the hardened North. She told me everything I needed to know and do up front, and introduced me to a current masters student who helped orient me to the program. From that one simple gesture, I immediately realized that I was in a different kind of place. The faculty I encountered behaved in the same way: exhibiting a warm reception and excellent guidance, instilling in me the courage to tackle my endeavors. My time at Tulane has been marked by a recurring theme: this community showed me what I was capable of, guided me in the right direction, and demanded that I achieve. I struggled little because the coursework was interesting, the research opportunities were ubiquitous, and my fellow classmates soon became some of my most cherished friends.

By coming to the Masters of Science Program in Pharmacology, I was looking for a chance to delve into courses and prove to myself that I was ready for medical school. What I found though was something that was much more meaningful. The dedicated faculty bestowed upon me a deeper,

more intricate knowledge of the science of pharmacology and experimental medicine. I was well prepared for medical school and for the critical thinking and analysis I currently employ everyday as a physician. This was not just another pre-med hoop to jump through; rather, it was a re-direction and re-shaping of my pre-medical dreams into a post-medical reality. It set in motion a forward progression that has seen several publications, completion of medical school and the beginning of a medicine residency, and marrying my Margaret right here in town. I still don't want to be anywhere else in the world!

Many doors have opened to me because of the Pharmacology Masters program: fantastic personal friendships, deep knowledge of the awesomeness of the human body, medical school and residency, scientific publications and conferences, and to greater and greater experiences in this wonderful and crazy city. I am forever grateful that I turned the handle!



Reflections on a year in the Masters of Science in Pharmacology Program

We're done already??

(Tuesday, April 30, 2013 Blog post by Namratta Sehgal)

To summarize it in one word, this year of classes and community service, of new friends and incredible mentors, of discovering who I am in a city across the country has been incredibly . . . therapeutic. I have loved the curriculum of this program, even when I have dreaded it. I think an M.S. in Pharmacology has prepared me incredibly well for a future as a medical student, because it has forced me to learn how I really learn. Some of my main academic priorities this year (aside from improving my GPA) were to manage my time better, approach class material proactively, and reflect on my decisions in order to improve my future performance. Over the course of this year (and countless exams) I have definitely worked on all of those, and I feel I am a better student now than I ever was in college. I look forward to each lecture and class, because I know that it is yet another challenge from which to learn.

In addition to the curriculum, there is the fact that this program has an amazing set of professors and staff who make each day a little easier. Through both the constant encouragement and the ever-increasing expectations our professors have for us, I think we have all grown in ways we had not anticipated. This is especially true in our electives, where we have had to learn how best to approach new material and understand it in a way that allows us the ability to explain it to our classmates. Through these different electives we have constantly been under the pressure to make connections between material that we have learned earlier, and material that is brand new to us. I leave graduate school knowing that I have the tools and a greater ability to approach scientific material with a higher level of understanding than before. I leave with a confidence in myself and my ability to learn that I had been sorely lacking as I left my undergraduate university.

Choosing to come to this program has also opened many doors to becoming involved in a community that thrives off of community service. In the 48 hours I have spent this semester volunteering (and in the ~30 hours last semester), I have sought out ways to become involved in this city through various means. Early last year I started by volunteering through events and opportunities that were presented to us: a Tulane sponsored community service day, Habitat for Humanity. As I became more comfortable with my environment (and my ability to navigate the buses), I started volunteering at KIPP and at CGHC in Algiers. Not only have I been able to explore this city and its different neighborhoods by volunteering, but I have also met so many amazing people who are committed to making a difference. In my interview for City Year New Orleans in March I was asked why I want to stay here, and I had the benefit of my experience volunteering to help provide me with that answer. This city, through the teachers, students, health-care providers, construction workers, non-profit leaders, parents, tourists and locals, has shown me what it means to be committed to service. They truly love New Orleans: that sort of love that encompasses the good and the bad. But they also love it enough to help it change and grow and serve its entire community. Everywhere I volunteer, everywhere I go, people here are passionate about making a positive change in New Orleans and in this world. I could not be more excited to stay here to work with City Year, and to continue to see how this experience will help me fulfill my desire to serve, and guide me in pursuing my goal of medical school.

With our last exam today, and this as my last official blog post, I leave graduate school just 10 months later with a whole new sense of self. I may have come here at a loss to what I was doing with my life and how I was working towards my dreams, forced to take life one slow step at a time. But I am finishing with the knowledge that that "one-step-at-a-time" approach was exactly what I needed. My future doesn't look quite as confusing right now. My next steps are a bit clearer: take the MCAT at the end of May, apply to medical schools starting in June, become an official City Year Corps Member in July, and go on from there. Who knows- maybe I'll even continue to blog about it all.