Greetings from the WHRC!!

The Fall looks to be very busy for all of us with students, fellows, clinics, grants, grants, and more grants!

One exciting piece of news is that we will have Dr. Marjorie Jenkins, Texas Tech University Health Sciences Center, giving the WHRC seminar on January 14, 2014. She wears many hats, but MJ is currently Mrs. Avery “Janie” Rush Endowed Chair of Excellence in Women’s Health and Oncology, Associate Dean for Women in Health and Science, and Director and Chief Scientific Officer for the Laura W. Bush Institute for Women’s Health. She will be discussing her work in incorporating sex and gender differences in Medical School curricula. We’ll provide more information on the seminar closer to her visit.

Hope you have a productive Fall and enjoyable holidays with family and friends!

Janie

WHRC Seminar

Dr. Marjorie Jenkins, M.D

Associate Dean for Women in Health and Science
Director and Chief Scientific Officer, Laura W. Bush Institute for Women’s Health

January 13th, 4 pm; Room 6a

In this Issue:

Message from the Director 1
Spotlight on Research 2
Highlights from the WHRC 3-6
Recent Publications 7-8

Our Mission: Women have health care issues that are different from men. Recent research indicates that there are sex differences in the incidence, outcome, and physiological and pathophysiological mechanisms responsible for various diseases. Mississippi has the dubious honor of having one of the highest incidence rates of cardiovascular disease, obesity, diabetes, hypertension, end-stage renal disease, high risk pregnancy, pre-eclampsia (pregnancy induced hypertension), infant mortality and poor child health outcomes in the United States. The Women’s Health Research Center (WHRC) was established in 2009 at the University of Mississippi Medical Center (UMMC) to accomplish the major goal of fostering excellence in basic and clinical research in issues that affect women’s health across their lifespan.
Dr. Gene L. Bidwell, III, PhD, Assistant Professor of Neurology, is an Ole Miss graduate who received his PhD in Biochemistry from the University of Mississippi Medical Center. He also completed a Postdoctoral Fellowship in Biochemistry at UMMC that was funded by the Department of Defense Breast Cancer Research Program. Dr. Bidwell is a member of the American Heart Association, the American Physiological Society, and the American Association for Cancer Research. He is the coauthor of twenty articles in peer-reviewed journals and is co-inventor on six patents or provisional patents.

Dr. Bidwell’s background is in drug delivery, and his graduate and postdoctoral work involved the development of a thermally targeted delivery system for cancer therapy. His previous work utilized a thermally responsive drug carrier to deliver small molecule chemotherapeutics and novel peptide drugs to solid tumors using heat-targeting in rodent models of breast and brain tumors.

Since joining the Department of Neurology in 2011, Dr. Bidwell has been working to extend his drug delivery technology to other diseases outside of the cancer field. In one project funded by a UMMC intramural grant, Dr. Bidwell’s lab is developing cell penetrating protein-based drug carriers for delivery of anti-angiogenic or anti-bacterial agents into the cornea after topical application to the eye. In a second project funded by the American Heart Association, Dr. Bidwell, in collaboration with Dr. Eric George, Dr. Joey Granger, and Dr. Barbara Alexander, is working to develop novel protein and peptide-based therapeutics to treat preeclampsia. In this project, Dr. Bidwell’s team is fusing therapeutic peptides or small proteins to a bioengineered protein carrier for intravenous administration in preeclamptic patients. The protein carrier serves two functions. It stabilizes the small peptide therapeutics from degradation and renal clearance, and it prevents them from crossing the placenta and entering fetal circulation. Their goal is to develop drugs that can be maternally restricted, which will treat the maternal hypertension but not pose a risk to the developing fetus.
Dr. Marjorie Jenkins, MD FACP will present the next WHRC seminar on January 13th at 4 pm in 6A. Dr. Jenkins is Director and Chief Scientific Office of the Laura W. Bush Institute for Women's Health and is the Associate Dean for Women in Health and Science. Dr. Jenkins’ academic career focuses on the cultivation of multidisciplinary research and education efforts in sex and gender-based medicine (SGBM) and through these efforts the promotion of personalized care for men and women. She is also the program director of a multimillion dollar breast cancer prevention grant and her research area is translational cancer immunotherapy.

Dr. Jenkins received her MD from East Tennessee State University and completed her residency in Internal Medicine at the University of Cincinnati. She is a graduate of the Drexel University Executive Leadership in Academic Medicine (ELAM) program. She develops and oversees peer-reviewed seed grant programs along with educational initiatives such as creating four-year healthcare professional curricula in SGBM, working across the institution to expand inter-professional SGBM curriculum model integration and directing a unique web-based SGBM continuing medical education certification program, “Y Does X Make a Difference”, geared toward practicing physicians and nurses. As a sex- and gender-specific women’s health expert with over a decade of experience she continues to provide specialty patient consultations and assist organizations in the development of strategies to engage women’s health consumers through integration of sex and gender evidence-based medicine into clinical practice. She serves nationally in a variety of positions such as an executive council member of the Sex and Gender Women’s Health Collaborative, she is a member of the WH Task Force of the National Board of Medical Examiners, a founding board member for the Academy of Women’s Health, and serves as an expert panel member for the HRSA Women’s Health Curricula: Report on Interprofessional Collaboration Across the Health Professions.
Several trainees from the WHRC presented invited oral presentations at the 3rd International Society of Hypertension New Investigators’ Symposium that was held in New Orleans, LA in September 2013. These include from the Department of Physiology Dr. Keisa Mathis, an Instructor in Dr. Mike Ryan’s laboratory, Dr. Suttira (Joy) Intapad, an Instructor in Dr. Barbara Alexander’s laboratory, and Dr. Paula Warrington, an Instructor in Dr. Joey Granger’s laboratory. Also invited to present their work in an oral format were Dr. Ana Palei, a post-doctoral fellow in Dr. Joey Granger’s laboratory. From the department of Pharmacology Dr. Lorena Amaral, a post-doctoral fellow in Dr. Babbette Lamarca’s laboratory and Ellen Gillis, a graduate student in Dr. Jennifer Sasser’s laboratory also presented invited oral presentations at the meeting.

The New Investigators’ Symposium is a full day event that provides a forum for new (under 40 years of age) scientists and clinicians in training who have an interest in hypertension and cardiovascular disease. The event was organized and sponsored by the ISH New Investigator Committee (NIC) and was held in collaboration with the Council for High Blood Pressure Research (CHBPR) of the American Heart Association at the time of their 2013 Scientific Sessions.

Dr. Paula Warrington, PhD, received an ISH New Investigator Committee Travel Grant 2013 based on her presentation at the conference. The keynote speaker was Dr. Jane Reckelhoff, Ph.D., a Billy S. Guyton Distinguished Professor, Professor of Physiology and Director of Women's Health Research Center who provided a motivational talk for young investigators in science entitled, “OMG! From Sequester and Beyond: Am I Going to Make it as a Scientist?”
Several members of the WHRC recently received recognition for significant extramural research funding at UMMC. These include the following: Dr. Micheal Lehman, PhD, Professor and Chair of Neurobiology and Anatomical Sciences received the Bronze Level Award, Dr. Merry Lindsey, PhD, Professor of Physiology received the Silver Level Award, and Dr. Michael Garrett, PhD, and Dr. Babette LaMarca, PhD, both Associate Professors of Pharmacology received the Gold Level Award. The Bronze Level Award recognizes researchers who have received $250,000 to $500,000 in grant totals, the Silver Level Award recognizes researchers who have received $500,000 to $1 million in grant totals, and the Gold Level Award recognizes researchers who have received over $1 million in total grant funding. Congratulations to our top researchers!

Dr. Rodrigo Maranon, PhD, of Physiology was selected as one of the top 5 best abstracts submitted to the annual Council for High Blood Pressure Research (HBPR) Meeting held in New Orleans, LA in September. He also received a New Investigator Travel Award from the Council for HBPR Trainee Advocacy Committee.
Dr. Jane Reckelhoff, PhD, a Billy S. Guyton Distinguished Professor, Professor of Physiology and the Director of Women’s Health Research Center received the 2013 Harriet Dustan Award presented at the Annual Council for High Blood Pressure Research (HBPR) Scientific Sessions held in New Orleans, LA in September. This award honors the memory of Harriet Dustan, an outstanding clinician and investigator who served as President of the American Heart Association and the founding Editor-in-Chief of Hypertension.

Dr. Neeta Mehta, PhD, an Associate Professor in the School of Dentistry, was recently awarded a community based dental partnership program to provide dental assessment, diagnoses, and treatment for HIV/AIDS participants in the service area. Clinical services will be provided at the Jackson Medical Mall clinics of the University of MS Medical Center. These services will be predominately by dental residents and students with faculty participation and oversight as part of the Aids Drug Assistance Program.

Women’s health issues are underfunded and understudied. Help support women’s health research by making a tax-deductible contribution. Contact the Development Office at UMMC at 601-815-7473 for more information.
Emerging evidence supports a potential therapeutic role of relaxin in fibrotic diseases, including chronic kidney disease. Relaxin is a pleiotropic hormone, best characterized for its role in the reproductive system; however, recent studies have demonstrated a role of relaxin in the cardiorenal system. Both relaxin and its receptor, RXFP1, are expressed in the kidney, and relaxin has been shown to play a role in renal vasodilation, in sodium excretion, and as an antifibrotic agent. Together, these findings suggest that the kidney is a target organ of relaxin. Therefore, the purpose of this review is to describe the functional and structural impacts of relaxin treatment on the kidney and to discuss evidence that relaxin prevents disease progression in several experimental models of kidney disease. In addition, this review will present potential mechanisms that are involved in the therapeutic actions of relaxin.


One of the major functions of the kidney is to maintain constant renal blood flow and glomerular filtration rate in response to increases in renal perfusion pressure. This phenomenon is referred to autoregulation and involves two independent mechanisms: tubular glomerular feedback and myogenic response. The latter, the renal myogenic response, involves constriction of the preglomerular vasculature to increases in transmural pressure. Over the last three decades, there has been substantial evidence that demonstrates that the myogenic response plays an important role in protecting the kidney from hypertension-induced renal injury. Furthermore, impairment of the renal myogenic response allows the transmission of systemic pressures to the glomerular capillaries leading to the development of glomerular injury and progressive proteinuria during hypertension. This review article discusses the role of the myogenic response in the pathogenesis of renal disease in various genetic and experimental rodent models that develop hypertension-induced renal injury.

Manipulation of serotonin (5HT) during early development has been shown to induce long-lasting morphological changes within the raphe nuclear complex and serotonergic circuitry throughout the brain. Recent studies have demonstrated altered raphe-derived 5HT transporter (SERT) immunoreactive axonal expression in several cortical target sites after brief perinatal exposure to selective 5HT reuptake inhibitors such as citalopram (CTM). Since the serotonergic raphe nuclear complex projects to the olfactory bulb (OB) and perinatal 5HT disruption has been shown to disrupt olfactory behaviors, the goal of this study was to further investigate such developmental effects in the OB of CTM exposed animals. Male and female rat pups were exposed to CTM from postnatal day 8-21. After animals reach adulthood (>90 days), OB tissue sections were processed immunohistochemically for SERT antiserum. Our data revealed that the density of the SERT immunoreactive fibers decreased ~40% in the OB of CTM exposed male rats, but not female rats. Our findings support a broad and long-lasting change throughout most of the 5HT system, including the OB, after early manipulation of 5HT. Because dysfunction of the early 5HT system has been implicated in the etiology of neurodevelopmental disorders such as autism spectrum disorders (ASDs), these new findings may offer insight into the abnormal olfactory perception often noted in patients with ASD.