Greetings from the WHRC!!

I hope your summer is off to a good start! We are all very busy with SURE and medical students in our labs this time of year. Please mark your calendars: We are fortunate to have Dr. Virginia Miller visiting with us from Mayo Clinic, in Rochester, MN. She is going to share some of the data from the KEEPS trial on hormone replacement therapy that was just completed earlier this year.

In October, Dr. Jennifer Pollock will visit from Georgia Health Sciences University in Augusta. She will share her data on developmental programming of cardiovascular disease in a model of mild maternal deprivation syndrome. Both of these seminars are sure to get you excited and thinking!

Have a great summer! Janie

From the Director

Jane F. Reckelhoff

WHRC Seminar

Dr. Virginia M. Miller, PhD

“Personalized Medicine: Menopausal hormone treatments and cardiovascular risk for women.”

July 16th, 4 pm; Room CW 106

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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. Sean张 Didion, PhD, is a new faculty member in the Department of Pharmacology. Dr. Didion was born and raised on the South Side of Chicago and Northwestern Indiana, an Area affectionately referred to by the local Populace as “Da Region.” Dr. Didion received his PhD in Physiology from The University of Nebraska Medical Center under the mentorship of Dr. William Mayhan. Following his doctoral work, Dr. Didion moved to The University of Iowa For a postdoctoral fellowship with Dr. Frank Faraci in the Department of Internal Medicine. Dr. Didion’s initial studies at Iowa focused on the emerging role of NAD(P)H oxidase in the vasculature with later studies focusing on the functional importance of copper-zinc- and manganese-superoxide dismutase in limiting oxidative stress and vascular dysfunction in aging and hypertension.

In 2009, Dr. Didion accepted a faculty position as Assistant Professor in the Vascular Biology Center at Georgia Health Sciences University (formerly Medical College of Georgia). In 2011, Dr. Didion was recruited to the Department of Pharmacology and Toxicology at the University of Mississippi Medical Center as an Associate Professor. Dr. Didion credits the strong leadership and resolve of his current chairman, Dr. Richard Roman, and the institution as a whole, in his decision to accept his new role in the Pharmacology department. Dr. Didion is currently funded through two R01s from the National Institutes of Health’s Heart, Lung, and Blood Institute. A common theme that ties both grants together is the unraveling inflammatory mechanisms related to the vascular dysfunction that occurs hypertension and obesity. Current efforts in the laboratory have begun to identify a key role for Toll-Like Receptor (TLR)-4 in promoting hypertension and endothelial dysfunction in response to angiotensin II. In addition, emerging data from the laboratory are providing new insights into the role of interleukin-6 and -10 in the development of visceral adiposity and endothelial dysfunction in obesity.
Dr. Babbette LaMarca, PhD, an Associate Professor of OB-GYN, was presented the American Society of Hypertension Young Scholar Award at the Annual meeting held in New York City, May 19th – May 22nd. The Young Scholar Award recognizes the achievements of outstanding young investigators in the field of hypertension. Dr. LaMarca is being recognized for her achievements in elucidating mechanisms of pregnancy induced hypertension with an emphasis on immunological pathways.

Dr. Istvan Arany, PhD, a Professor in the Department of Pediatric Nephrology, recently received an IRSP award for “Optimizing the use of bardoxolone/sildenafil in nicotine-induced renal injury.” This award is part of an ongoing collaboration with Dr. Luis Juncos (Department of Medicine, Nephrology) that aims to understand the mechanisms by which smoking chronic nicotine exposure promotes renal damage so that novel therapeutic targets can be identified.

Dr. Michelle Owens, MD, an Associate Professor in the Department of OB-GYN, received the Physician of the Year Award from the Mississippi Medical and Surgical Association at the group’s annual convention May 4th-6th. Established in 1900, the MMSA is the state’s oldest and largest organization representing African-American physicians and health professionals in Mississippi.
Dr. Norma Ojeda, MD, an Assistant Professor of Pediatrics has been selected as a recipient of a 2012 American Society of Nephrology (ASN) Career Development Grant for her grant entitled “Low Birth Weight and Ischemic Kidney Injury.” The award is for $100,000 annually for two years. The goal of the ASN Career Development Grants Program is to provide funding for young faculty to foster evolution to an independent research career.

The Department of Medicine recently hosted the annual 2012 Research Day showcasing research activities of 59 departmental faculty, residents, fellows and students. Members of the WHRC recognized in the poster competition in the Basic Science/Translational Research Category include:

Dr. Licy Yanes-Cardozo, MD, was awarded First Place for her poster, “Angiotensin II Stimulates TNF-α in a Hyperandrogenic Female Rat” in the Basic Science and Translational Research Division.

Dr. Arnaldo Lopez-Ruiz, MD, was awarded Third Place in the Basic Science and Translational Research Division for his poster, “Angiotensin 1-7 Protects Against Renal Ischemia Reperfusion and its Deleterious Cardiac Effect”. Dr. Lopez-Ruiz was also the recipient of the People’s Choice Award.

Dr. Jennifer Sasser, PhD, an Assistant Professor of Pharmacology and Toxicology at UMMC and member of the WHRC, was the recipient of the New Investigator Award of the Water and Electrolyte Homeostasis Section of the American Physiological Society. Pictured (From L to R) are Dr. Sasser and Dr. Jennifer Pollock, Chair of the WEH Section.
Emily Gilbert, a graduate student in the laboratory of Dr. Michael Ryan in the Department of Physiology, is the recipient of a Pre-Doctoral Fellowship from the American Heart Association. The goal of an AHA Pre-Doctoral Fellowship is to help students initiate careers in cardiovascular and stroke research by providing research assistance and training.

Dr. Suttira Intapad, PhD, a post-doctoral fellow in the laboratory of Dr. Barbara T. Alexander in the Department of Physiology, is the recipient of a Post-Doctoral Fellowship from the American Heart Association. The goal of the AHA Post-Doctoral Fellowship is to help trainees initiate a career in cardiovascular and stroke research while obtaining significant research results under the supervision of a sponsor or mentor.

Dr. Kedra Wallace, PhD, an Instructor in the Department of OB-GYN, received notice of funding from the American Society for Reproductive Medicine (ASRM) for her grant entitled, “The Role of Hypoxia Stimulated Vasoactive Peptides in the Development of Uterine Leiomyomas”. The goals of this grant are to determine a link between uterine fibroid proliferation and hypertension in young premenopausal women.
The 125th Anniversary of the American Physiological Society (APS) was recently celebrated at the 2012 Experimental Biology Meeting held in San Diego in April. Highlights from the conference included a closing dinner honoring the outgoing APS President, Dr. Joey P. Granger; Billy S. Guyton Distinguished Professor, Professor of Physiology and Medicine, Dean of the School of Graduate Studies in the Health Sciences, and member of the WHRC.

Pictured below at the Closing Banquet are Dr. Joey Granger (front row) with members of the WHRC, and many of his current and former trainees.
EB 2012 included a new feature at this year’s conference; the Physiology In Focus, Nobel Prize in Physiology and Medicine Lecture. Organized by the President of the American Physiological Society (APS), Dr. Joey Granger, this year’s event feature Dr. Oliver Smithies, the recipient of the 2007 Noble Prize in Physiology and Medicine. Following Dr. Smithies’ lecture, the APS sponsored a “Meet the Nobel Laureate Reception” for all Trainees. Pictured with Dr. Smithies (seated) are Dr. Granger and Dr. Jennifer Sasser, Chair of the Trainee Advocacy Committee of the APS, APS trainees and members of the WHRC.

Dr. Lucio Miele, MD, PhD, Ergon Professor of Medicine & Director of the UMMC Cancer Institute recently presented Grand Rounds in the Departments of Pathology at Columbia University New York Cancer Center on May 6, 2012, and at the M.D. Anderson Cancer Center on May 4, 2012. His talk was entitled “Development of Notch inhibitors in ER+ breast cancer.” and highlighted current research in this field.

The Dahl S salt sensitive (SS) rat is an inbred genetic model that rapidly develops severe hypertension, proteinuria, glomerulosclerosis, and renal interstitial fibrosis when fed a high salt (HS) diet. However, the genes and pathways that contribute to the development of hypertension and renal disease have yet to be identified. This study demonstrates that substitution of chromosome 5 containing the CYP4A genes from the Brown Norway rat onto the Dahl S salt sensitive (SS) genetic background up-regulates the renal production of 20-HETE and attenuates the development of hypertension.


Recently, the un-phosphorylated form of signal transducer and activator of transcription-3 (U-STAT3) has emerged as a non-canonical mediator of inflammation and fibrosis that may be responsible for the effects of chronic nicotine exposure (NIC). Results from this study reveal a novel, chronic NIC-exposure-related and U-STAT3-dependent mechanism as a mediator of a sustained transcription of genes that are linked to remodeling and inflammation in the kidney during injury. This process may facilitate progression of AKI to CKD. The obtained data may lead to devising therapeutic methods to specifically enhance the protective and/or inhibit adverse effects of STAT3 in the kidney.

This study examined the effect of soy and milk protein supplementation on lipids and lipoproteins compared with carbohydrates among adults without hypercholesterolemia. Participants were assigned 40g/day supplementation of soy protein, milk protein or complex carbohydrate from wheat for 8 weeks in random order with a 3 week washout period between interventions. Results indicate that soy, but not milk protein, improves the lipid profile among healthy individuals.

Reeves RR, Adams CE, Dubert PM, Hickson DA, Wyatt SB. Are religiosity and spirituality associated with obesity among African Americans in the southeastern United States (the Jackson Heart Study)? *J Relig Health* 2012;51:32-48.

There are several lines of evidence that suggest religiosity and spirituality are protective factors for both physical and mental health, but the association with obesity is less clear. This study examined the associations between dimensions of religiosity and spirituality (religious attendance, daily spirituality, and private prayer), health behaviors and weight among African Americans in central Mississippi Jackson Heart Study participants (n = 2,378). Although no significant association between religiosity, spirituality, and weight were observed, greater religiosity and spirituality were related to lower energy intake, less alcohol use, and less likelihood of lifetime smoking. Thus, the association between religion and spirituality and weight gain deserves further investigation in studies with a longitudinal study design.