In this first newsletter of the New Year, I want to thank everyone for the many successes over the past year and wish everyone a great 2013. The 2011–12 Annual Report Summary has been uploaded to the website where many of the achievements of our faculty and trainees are highlighted. In particular, I am pleased to welcome junior faculty that have joined the Core faculty of the Center within the past two years (TanYa Gwathmey-Williams, JaNae Joyner, Hossam Shaltout, Liilia Yamaleyeva) and congratulate their success in clinical and translational research activities.

The overall strengths of the Center continue with successful team building activities for new areas of research, mentoring of junior faculty and senior post-doctoral fellows, and leveraging of core resources to facilitate pilot data. Below, I emphasize progress on many of our strategic goals from the past year.

- Re-invigorate clinical research activity and sustain translational studies

We have been successful in re-invigorating clinical research interest in cardiovascular and renal diseases and have collected preliminary data over the past year, sufficient to generate a number of grant proposals. Our human non-invasive hemodynamics laboratory that includes autonomic function testing procedures in addition to the ambulatory blood pressure tests and vascular function tests, has provided space, equipment, receptionist, technical and/or interpretive support for a variety of projects as listed below.

This growing area of clinical research highlights the overall collaborative nature of the Core Hypertension Faculty and our commitment to establishing new networks of investigators to foster translational research. Funding received in the past two years and projects planned for the current year include:

- D. Diz, Surgery-Hypertension, Claude D. Pepper Older Americans Independence Center of Wake Forest University School of Medicine. Pilot Study: Understanding and Addressing Pathways to Physical Disability in Older Persons—Magnetic Resonance Spectroscopy Assessment of Brain Transmitters Correlating with Autonomic Function in Elderly Human Subjects (Groban and Shaltout, Co-I). This project is nearly completed in terms of recruitment and data collection and was carried out with additional support from the CBI and TSI-CRU. We submitted an abstract and plan to be analyzing the entire data set over the next several months as pilot data for future grant submissions.

- T Brinkley, Sticht Center, AHA Beginning Grant in Aid, Weight Loss and Exercise in the Elderly, uses pre- and post-testing of vascular health and autonomic function in elderly subjects (Diz and Shaltout, Consultants). Will use both the...
non-invasive vascular function tests as well as the measures of autonomic function. Core faculty (Diz, Shaltout) and external institution faculty (Day, Va Tech) served as consultants and assisted in the preparation of the grant.

- J. Fortunato, Pediatrics, AHA Clinical Research Program, Autonomic Instability and Elevated Pressure in Children with POTS, uses autonomic function and tilt-testing (Diz, Sponsor; Shaltout, Consultant). Approximately 28 patients of the 40 total have been seen, in addition to implementing much of the proposed testing in the clinical diagnostic work-up of patients seen in the Peds-GI clinic. At least 6 abstracts and 1 paper are published and 3 additional manuscripts are submitted or in preparation. A continuation of the project is planned for an NIH application in FY13.

- J. Fortunato, Pediatrics, CIM Pilot Study, Autonomic Instability in Children with Nausea: Brain transmitters and cognitive function, uses autonomic function and tilt-testing along with MRS (Diz, J Burdette, H Shaltout, Co-Investigators). Started July 1, 2012 and will be in partnership with the CBI.

- C. Tegeler, Neurology, Susan Marcus Foundation, Brain Balancing in Migraines, Insomnia and Post-Traumatic Stress, uses autonomic function testing (Shaltout Co-I, Diz consultant). This project uses autonomic function testing and blood pressure measurements as objective measures for improvements in various conditions with HIRREM mirroring.

- K. Kemper, Public Health Sciences, CIM Pilot funding. Several studies used autonomic function testing and blood pressure measurements as objective measures for improvements occurring with non-verbal compassionate physician approaches, time and touch. Two journal articles are published and pilot data will be used for future grant funding.

- T. Gwathmey, Surgery-Hypertension, AHA Clinical Research Program funding on health disparities. The project uses a cohort of subjects involved in a clinical research project in P01 HD47584 to facilitate studies into racial differences in expression of renin angiotensin system components. Several abstracts have been presented, manuscripts are in preparation and additional grants are pending or planned.

- S. Castellino, Pediatric Oncology, TSI funding with P. Gallagher and A. Tallant. This project is almost complete, to determine the effect of angiotensin-(1-7) in animal models of pediatric sarcoma and to measure the heptapeptide in pediatric patients at onset of treatment for sarcoma and following successful treatment. Abstracts were presented and manuscripts are in preparation.

- C. Emory, Orthopedic Surgery. Pilot project with P. Gallagher and A. Tallant to determine the preclinical efficacy of angiotensin-(1-7) for the prevention of radiation-induced fibrosis in orthopedic oncology patients. Pilot data used in pending grant submission to the OREF.

- T. Beveridge, Physiology and Pharmacology. Pilot project with P. Gallagher and A. Tallant to determine the effect of angiotensin-(1-7) on cardiac fibrosis in models of methamphetamine abuse. Pilot data used for planned grant submission.

- Sustain and expand collaborative activities

Center Core Faculty have widespread collaborations (see previous section) and as evidenced by over 100 different co-authors on our publications this year, 90% of our grants and 72% of our publications are with investigators in many different internal departments and significant external national and international interactions. Funding of a Komen Foundation grant in breast cancer research (Tallant, Gallagher) will continue the connection between vascular growth regulation and tumor growth for FY2012. Expansion into clinical research has met with success as mentioned with pilot data gathered for several pending and planned applications for us to continue expanding this goal in 2012. We plan to hold mini-retreats designed to bring interested parties together to spur more clinical and translational projects. We added “Data Chats” sessions to encourage communication among Center Core Faculty, especially junior faculty. Both will continue into FY13.

- Continue training activities

Faculty in the Center continue to be involved in more than 17 training grants to support trainees at the undergraduate, graduate and post-doctoral level, including the training grants for veterinary trainees. Center faculty continue to participate in the education component of the TSI, both at the graduate program and pipeline program levels and continue to hold the diversity based programs now in place for 10+ years. Renewal of the T32 in Molecular Medicine and Translational Sciences, R25 GM04249 PREP and R25 HL92618 EICS, and new IRACDA and other T32 applications will be goals for the 2013 year. Development of junior faculty and post-doctoral trainees is a continuing goal and progress was achieved through the promotions of several individuals in FY12 and FY13.
TanYa Gwathmey-Williams, PhD has received an American Physiological Society (APS) Early Career Advocacy Fellowship Award. She will be able to use this award towards the 2013 Experimental Biology meeting in Boston and the Fall 2013 Science Policy Committee meeting later this year in Bethesda, MD. Gwathmey-Williams will be representing the APS by attending meetings on Capitol Hill with members of Congress to address existing and new science policies. Gwathmey-Williams was also promoted to Assistant Professor effective January 1, 2013.

Jasmina Varagic, MD, PhD has been awarded the Wake Forest School of Medicine 2013 Early Investigator in Basic Sciences Award. She will be honored at the Research Awards Day in May.

Lisa Washburn, MD has been awarded the Wake Forest School of Medicine 2013 Mid Career Investigator in Clinical Sciences Award. She will also be honored at the Research Awards Day in May.

Barry Freedman, MD gave a presentation and was recognized by the National Institutes of Health (NIH) with a certificate of appreciation at the NIH Director’s Wednesday Afternoon Lecture Series (WALS) on January 9. WALS is the highest-profile NIH lecture program where those in the biomedical and behavioral research field present the latest information on discoveries and important studies. The certification that he received from Drs. Francis Collins, director, NIH, and Griffin Rodgers, director, NIDDK, acknowledges his outstanding scientific accomplishments and his contributions to the medical research field.

Freedman’s presentation focused on the “Genomic factors impacting health in peoples of African descent.” Watch the lecture here.

Two Fellows at the Hypertension & Vascular Research Center won awards at the Division of Surgical Sciences 20th Annual Residents’ and Fellows’ Research Day last fall. Norihiro Moniwa, MD, PhD received the Fellow - Silver award in Basic Science, and JaNae Joyner, PhD received the Fellow - Silver award in Clinical Science.

John Fortunato, MD received a travel award to present at the World Congress of Pediatric, Gastroenterology, Hepatology and Nutrition in Taiwan in November 2012. His presentation was titled “Effect of Fludrocortisone Acetate on Chronic Unexplained Nausea and Abdominal Pain in Children with Dysautonomia.”

Ronny Bell, PhD, Co-Director of the Maya Angelou Center for Health Equity, received the Community Spirit Award from the American Diabetes Association (ADA) on October 22, 2012 at a ceremony in Washington, DC. The award was given in recognition of his work in understanding and addressing diabetes disparities with the American Indian/Alaska Native population. Dr. Bell was also a featured speaker and panelist at the ADA 5th Disparities Partnership Forum, which was held in conjunction with the ceremony.

JaNae Joyner, PhD (at left) was promoted to Assistant Professor effective October 1, 2012.

Liliya Yamaleyeva, MD, MS received an Young Investigator Award from The North American Society for the Study of Hypertension in Pregnancy (NASSHP). Her abstract entitled: “ACE2 deficiency enhances angiotensin II-induced vasocostriction of the uterine artery at mid-gestation in mice” was selected for an oral presentation at the 2012 Meeting of the NASSHP in September, 2012.
Center News and Recognitions, continued

Liliya Yamaleyeva, MD, MS (at left) was promoted to Assistant Professor effective September 1, 2012.

A paper titled, “Novel roles of nuclear angiotensin receptors and signaling mechanisms,” authored by TanYa Gwathmey-Williams, PhD; Ebaa Alzayadneh and Mark Chappell, PhD appeared in the American Journal of Physiology: Regulatory, Integrative and Comparative Physiology and was selected as an AJP Editor’s Choice. PubMed ID: 22170620.

Help Us Spread the Word!

Have you recently received an award, won a grant or presented a workshop or seminar? Let us know, so we can make sure everyone is aware of your accomplishments. Send information for future newsletters (and the HVRC News page on the website) to Brooks Jones at bjoness@wakehealth.edu.

Student News

Doctoral candidate Allyson Marshall has received both an Alumni Travel Award and an ASPET Travel Award to present at the Experimental Biology 2013 Conference in Boston, MA in April 2013. She will also be competing in The American Society for Pharmacology and Experimental Therapeutics (ASPET) Best Abstract Competition at the meeting.

Doctoral candidate Alison Arter received an Alumni Travel Award to present her data at the American Association of Cancer Research meeting in early 2013. Arter has also used her AACR student membership as an opportunity for outreach and volunteerism.

Society for Neuroscience - Western NC Chapter

Congratulations to Chris Schaich for winning the Mary A. Bell Award at the Western Neuroscience Society Research Day on December 6. His poster was judged best in the Systems category.

Charlotte Life Sciences Conference

The 11th annual Charlotte Life Sciences Conference was held October 25, 2012 on the campus of UNC Charlotte. The conference hosted the 6th annual graduate student poster competition, which was open to students from 20 universities throughout the Carolinas. The competition emphasized the commercialization potential of the students’ research projects, wherein students were challenged to not only explain the scientific relevance of their research, but also the importance of understanding the business aspects to the science and the strategies they would employ in order to bring their work to the marketplace.

Only 12 students were selected from qualified applications to participate in the competition, including two graduate students from the Hypertension and Vascular Research Center: Alison Arter and Chris Schaich (both from the Integrative Physiology & Pharmacology Graduate Program).

Alison Arter was awarded the 1st place prize of $1,000 for her project entitled “Angiotensin-(1-7) as a First-in-Class, Targeted Inhibitor of Triple Negative Breast Cancer Growth.”
Recent Grants

Project Title: **VisualSonics Vevo LAZR Photoacoustic Imaging System**
Principal Investigator: Bridget Brosnihan, PhD
Sponsor: Office of the Director, NIH/Shared Instrumentation Grant

Project Title: **Apelin and Angiotensin II Interactions in Human Placenta in Preeclampsia**
Principal Investigator: Liliya Yamaleyeva, MD, MS
Co-Investigators: Bridget Brosnihan, PhD; Mark Chappell, PhD; Carolyne McGee and Heather Mertz, MD
Sponsor: STaRT Pilot Award/WFSM, Surgical Sciences Research Council and the Division of Surgical Sciences

Project Title: **ACE2 Deficiency: A New Model of Maternal and Fetal Growth Restriction**
Co-Principal Investigators: Bridget Brosnihan, PhD and Liliya Yamaleyeva, MD, MS
Sponsor: NIH NHLBI

Project Title: **Brain Transmitters/Metabolites, Magnetic Resonance Spectroscopy, and Brain Connectivity: Diagnostic Strategies to Study the Effects of Non-pharmacologic Therapies for Dysautonomia and Chronic Nausea**
Principal Investigator: John Fortunato, MD
Co-Investigators: Debra Diz, PhD; Hossam Shaltout, PhD and John Burdette, MD
Sponsor: Wake Forest Baptist Center for Integrative Medicine (CIM) Award

Project Title: **Diabetic Cardiorenal Syndrome in Estrogen-Depleted Hypertensive Rats: Role of Curcumin**
Co-Principal Investigators: Jasmina Varagic, MD, PhD and Mark Chappell, PhD
Sponsor: Wake Forest University Translational Science Center

Project Title: **HIRREM™: A Noninvasive, Allostatic Methodology for Relaxation and Auto-Calibration of Neural Oscillations**
Principal Investigator: Charles H. Tegeler, MD
Sponsor: The Susanne Marcus Collins Foundation

Project Title: **The Maya Angelou Center for Health Equity is a Health Disparities Center of Excellence**
Co-Principal Investigators: Bettina Beech, DrPH and Ronny Bell, PhD
Sponsor: National Institutes of Health (NIH)

Community Service Activities

As in years past, the Hypertension & Vascular Research Center sponsored a family from the Angel Tree for a family of three. This effort, spearheaded by Dr. Ann Tallant, allows us to assist a family where at least one member of the family is or was a patient at the medical center during the past year and the family is in need of help for Christmas. Faculty and staff were instrumental in securing several gift cards, clothes and gifts for this family. Thanks to all who helped make this activity a success.

**Jenny Morris** is a champion for the Second Harvest Food Bank, overseeing collection and delivery of donations from the Center. Please drop off donations of non-perishable foods ([view and print a list of the most needed items here](#)) in the Center Office Suite on 6th Hanes, next to the coffee station.

We express our appreciation to **Nobi Sarver** for initiating and organizing the HVRC American Heart Walk Team for the Heart Walk in October 2012 and to **Jenny Morris** for assisting in the recruitment and fundraising. Participants in the 2012 walk included Nobi Sarver, Madison Sarver, Katie Adkins, Allyson Marshall, Bridget Brosnihan, Jenny Morris, Tyler Goodin, Amanda Davis, Karen Burger, Pat DePaulis, Danny DePaulis, Ellen Tommasi, Paul Tommasi, Niki Cartledge, Bradley Cartledge, Bryce Cartledge, Penny Brown, Sarah Smith, Chris Smith. The HVRC team raised $2030!

**Nancy Pirro** is sponsoring a student from Beijing as part of the WFU Friendship Family Program for international students. Daisy Jiang is a freshman at Wake Forest University.
Other Recognition Awards and Achievements

Congratulations to HVRC faculty who have served on NIH, AHA or other study sections in 2012: Azeez Aileru, PhD; Stephen J. Aragon, PhD; Emmanuel M. Awumey, PhD; Ronny A. Bell, PhD; K. Bridget Brosnihan Simmons, PhD; Mark C. Chappell, PhD; J. Mark Cline, DVM, PhD, DACVP; Leanne Groban, MD; Osvaldo Delbono, MD, PhD; Debra I. Diz, PhD; Patricia E. Gallagher, PhD; David M. Herrington, MD, MHS; Allyn C. Howlett, PhD; Jay R. Kaplan, PhD; Michael O'Shea, MD; Snezana Petrovic, MD, PhD, FASN; Mildred A. Pointer, PhD; Daniel Kim-Shapiro, PhD; Mary Sorci-Thomas, PhD; Charles Tegeler, MD; Michael E. Robbins, PhD; E. Ann Tallant, PhD; and Jasmina Varagic, MD, PhD.

Congratulations to HVRC members who have been named to the Best Doctors in America 2013 database. Our professionals on this year’s list include: Vinay Thohan (Cardiovascular Disease); Barry I. Freedman (Nephrology); Charles H. Tegeler, MD (Neurology); Sharon Castellino, T. Michael O’Shea and Lisa K. Washburn (Pediatric Specialist). Best Doctors has a database of more than 45,000 of the best physicians in America. The 2013 list represents the top 5 percent of physicians practicing in the U.S., and includes 298 physicians from Wake Forest Baptist Medical Center.

Establishment of a Vascular Core Facility

Wake Forest Baptist Medical Center researcher, K. Bridget Brosnihan, Ph.D., professor in the Hypertension and Vascular Research Center, has received nearly $1 million from the National Institutes of Health (NIH) to purchase a state-of-the-art Vevo LAZR Photoacoustics imaging system that integrates the sensitivity of light-based imaging with the resolution of high-frequency ultrasound. Supported by a total of 8 federal grants in two specialties—hypertension/atherosclerosis and cancer—Wake Forest Baptist's Hypertension Vascular Research Center (HVRC) and the Center for Biomolecular Imaging (CBI) will carry out 14 basic science projects in rodent models with the help of this imaging system.

Other Wake Forest Baptist researchers whose NIH-funded projects (through RO1 and R21 grants) that will be supported using the Vevo LAZR Photoacoustics imaging technology are: hypertension investigators Debra I. Diz, Ph.D., Ann Tallant, Ph.D., Patricia Gallagher, Ph.D., Mark C. Chappell, Ph.D., Jasmina Varagic, M.D., Liliya M. Yamaleyeva, M.D.; atherosclerosis investigators John Parks, Ph.D., and Mary G. Sorci-Thomas, Ph.D.; and cancer/angiogenesis investigators Linda Metheny-Barlow, Ph.D., William Gmeiner, Ph.D., Frank C. Marini, Ph.D., and Aaron Mohs, Ph.D.

Employee Awards and Recognitions

Ellen Tommasi has been promoted to Laboratory Supervisor, effective November 2012.

Sarah Smith has earned re-certification in the International Association of Administrative Professionals (IAAP). We thank her for her continuing excellence and many contributions to the Center throughout the years.

Congratulations to Jenny Morris for her selection to participate in the LeaderTrek100 series. We appreciate her many contributions to the Center since she joined us last spring.

Leslie T. Shields and Jessica L. VonCannon have recently marked ten years of service with the Center. JaNae Joyner, PhD and Susan Pollock have each served five years.
Recent Publications by Center Members


Recent Publications by Center Members, continued


Recent Publications by Center Members, continued


Recent Publications by Center Members, continued


Recent Publications by Center Members, continued


Nautiyal M, Shaltout HA, de Lima DC, do Nascimento K, Chappell MC, Dz Di. Central angiotensin-(1-7) improves vagal function independent of blood pressure in hypertensive (mRen2)27 rats. Hypertension. 2012 Nov;60(5):1257-65. doi: 10.1161/


Recent Publications by Center Members, continued


Schnatz PF, Nudy M, O’Sullivan DM, Jiang X, Cline JM, Kaplan JR, Clarkson TB, Appt SE. **Coronary artery vitamin D receptor expression and plasma concentrations of 25-hydroxyvitamin D; their association with atherosclerosis.** Menopause. 2012 Sep;19(9):967-73. PMID: 22617336

Recent Publications by Center Members, continued


Recent Publications by Center Members, continued


Diz Selected as 2012-2013 ELAM Fellow

Debra Diz, PhD, has been accepted into the Executive Leadership in Academic Medicine (ELAM) program as a 2012–2013 ELAM Fellow.

Diz is part of the 18th class for ELAM®, the only program in the U.S. dedicated to preparing senior women faculty for positions of leadership at academic health centers, where they can ultimately play a role in academic health organizations becoming more inclusive of different perspectives and responsive to societal needs and expectations.

In order to be accepted into the program, each Fellow must be nominated and supported by the dean or other senior official of her institution. ELAM continues to cultivate strong partnerships with participating institutions throughout the year-long fellowship. One aspect of this relationship is the curricular requirement to conduct an Institutional Action Project, developed in collaboration with the Fellows’ dean or other senior official. These projects are designed to address an institutional or departmental need or priority. “We are extremely excited to see the impact these women will have on their institutions as they work through the ELAM curriculum and develop their action projects,” explains Diane Magrane, MD, director of Drexel’s International Center for Executive Leadership in Academics. “The projects the Fellows conduct not only help them understand the challenges facing academic health centers and the skills a leader must possess to address these challenges, but also often result in concrete changes at their institutions.”

The work for the 2012–2013 class of Fellows began last May with online assignments and community building activities that continue through the end of the program in April 2013.

Welcome New Center Members

Martinson Arnan, MD
TanYa Gwathmey-Williams, PhD
JaNae Joyner, PhD
Liliya Yamaleyeva, MD

Upcoming Events

April 19: Winston-Salem AHA Heart Ball, Millennium Center in downtown Winston-Salem.
June 7: Post-baccalaureate Research Education Program (PREP) Scholar Poster Symposium.

July 26: Excellence in Cardiovascular Sciences (EICS) Summer Research Symposium 2013.
October 17–20: COSEHC 20th Annual Scientific Sessions in Charlotte, NC.
2012 Mentor of the Year: K. Bridget Brosnihan Simmons, PhD

We would like to congratulate Dr. Brosnihan as the recipient of the 2012 Mentor of the Year Award, presented by the Leadership Program of the Women’s Health Center of Excellence for Research, Leadership, Education (WHCOE). Dr. Brosnihan has participated as a WHCOE mentor since 2006, serving on the Leadership Program committee, as well as the Liaison and Special Projects committees. Dr. Brosnihan has successfully mentored and served as a role model for a number of women faculty members, who have since been promoted to a higher faculty status and had numerous successes in their individual research endeavors, thanks, in part, to Dr. Brosnihan’s outstanding guidance.

In addition to being an exemplary mentor, Dr. Brosnihan has held a number of leadership roles within the institution. She is currently the co-Director of the Molecular Medicine and Translational Science Graduate Program, Director of the Hypertension Core Laboratory, and serves on the Dean's Research Advisory Committee and the Division of Surgical Sciences Research Committee. Externally, Dr. Brosnihan has shared her talents by serving on a number of editorial boards, sits on the Board of Directors of the Inter-American Society of Hypertension, served on the Executive Committee of the Council for High Blood Pressure and is a member of the Marketing Committee for the American Heart Association. She has chaired and served on study sections for both NIH/NHLBI and the American Heart Association. In 2009, Dr. Brosnihan received the Irvine Page-Alvin Bradley Lifetime Achievement Award of the Council for High Blood Pressure of the American Heart Association.

Dr. Brosnihan’s primary area of research concerns the role of the renin-angiotensin system in pregnancy and preeclampsia. Current research focuses on rodent models, their uteroplacental unit and the interactions of the renin-angiotensin system with cytokines, growth factors and angiogenic factors.

Congratulations again to Dr. Brosnihan, 2012 WHCOE Mentor of the Year!