



T.H.R.C.E.

TULANE HYPERTENSION AND RENAL CENTER OF EXCELLENCE

Summer 2004

Volume 3, Issue 2



COBRE Program completes second year

The NIH-funded Tulane Center of Biomedical Research Excellence (COBRE) in Hypertension and Renal Biology recently wrapped its second year. Due to a NIH-abbreviated calendar year of ten months, the second year was an intense one for our junior faculty investigators. Nevertheless, we have made excellent progress in our studies and several papers reporting on projects directly supported by the COBRE have been published. Renovations are now currently underway for the future home of the Imaging, Analytical, and Molecular Core laboratories, which will expand the available research space to our Center-affiliated researchers. As construction progresses, we are eagerly awaiting the opening of our Center's first designated lab space.

In addition, funds were also available to support several postdoctoral fellows and graduate students as well as to support Summer Research Experiences for medical students. During the past year, two of our postdoctoral fellows submitted successful NRSA applications from NIH, one fellow received an National Kidney Foundation fellowship, and one fellow received a postdoctoral fellowship from the American Heart Association.

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Center sponsors Summer Student Program 2004

The Tulane Hypertension and Renal Center of Excellence is pleased to host our Summer Student Program again. For the course of 10-12 weeks, students work with the Center's researchers and clinicians. Summer students are exposed to the nature of a career path in research and have the opportunity to attend the T.H.R.C.E. conferences. While the majority of our summer students are Tulane medical students, we also have students representing Tulane's uptown campus, Howard University, Harvard University, Tuskegee University, and Ponce School of Medicine.

Tulane Hypertension and Renal Center of Excellence 2004 Summer Students

- ◇ Astrid Gutierrez, Drs. Navar/Prieto, mentors
- ◇ Matthew Patterson, Dr. Mitchell, mentor
- ◇ Candice Pridjian, Dr. Puschett, mentor
- ◇ Kashley Hampton, Dr. DeSalvo, mentor
- ◇ Andy Menke, Dr. Muntner, mentor
- ◇ Rosie Vargas, Dr. Dreisbach, mentor
- ◇ Henry Hefler, Dr. McNamara, mentor
- ◇ Robert Newsom, Dr. R. Johnson, mentor
- ◇ Kevin Wellen, Dr. Majid, mentor
- ◇ Becky Stevenson, Drs. Navar/Ortiz, mentors
- ◇ Angela Bailey, Drs. Navar/Ortiz, mentors
- ◇ Richard Kelly, Drs. Navar/Ortiz, mentors
- ◇ Blake Stevenson, Dr. R. Johnson, mentor
- ◇ Junaid Bhutto, Dr. Majid, mentor
- ◇ Buck Farmer, Drs. Navar/Ortiz, mentors

Dr. Samir El-Dahr elected to American Society of Clinical Investigation



Dr. Samir El-Dahr was recently elected to the prestigious American Society of Clinical Investigation (ASCI). Founded in 1908, the ASCI is an honor society for physician-scientists and is comprised of over 2,700 members who were elected because of their outstanding records of scholarly achievement in biomedical research. Tulane has eight current members of ASCI. Dr. El-Dahr is a mentor on the COBRE grant and an investigator on the HEF project. We extend our congratulations for his achievement.

COSEHC Annual Meeting, August 25-27 in New Orleans



It's not too late to register for the Consortium for Southeastern Hypertension Control (COSEHC) 11th annual scientific sessions in New Orleans August 25-28, "Targeting Cardiovascular Protection: Beyond Blood Pressure Control." This year's annual National Scientific Sessions will be held in at the Hotel Monteleone. The program Co-Chairs are Edward Frohlich, MD, Ochsner Clinic Foundation and L. Gabriel Navar, PhD, Tulane. This year's meeting brings together an internationally renowned faculty who are experts in their respective fields and are able to translate the science to clinical applications. Didactic and workshop sessions have been designed to provide ample time for interactive dialogue and discussion, and scheduled poster sessions will provide an opportunity for discussing the many new and exciting findings. The meeting's theme, "**Targeting Cardiovascular Protection: Beyond Blood Pressure Control**" conveys the reality that to evaluate and treat the patient with an elevated arterial pressure is a more complex challenge than previously thought. The patient with an elevated blood pressure is predisposed to other major cardiovascular and renal risk factors and structural and functional derangements associated with the disease. To Learn more about COSEHC and the Annual Scientific Sessions, visit the COSEHC website: www.cosehc.org. We urge you to register and participate in the meeting; we look forward to seeing you there. In addition to the scientific sessions, COSEHC will host a free community event on Wednesday, August 25 from 6:00-8:00 p.m at the New Orleans Centre next to the Superdome and will feature expert cardiologists conducting group discussion sessions. The community health fair will also feature numerous stations for free blood pressure screenings, nutrition consultations, and much more.

Dr. Lisa Harrison-Bernard receives ASH Young Scholars Award



Lisa Harrison-Bernard, PhD, was honored this year at the American Society of Hypertension (ASH) meeting in New York City on May 19th with receipt of the Young Scholars Award. Each year the ASH selects up to three outstanding young investigators in hypertension related research and honors them with this award. Dr. Harrison-Bernard gave a lecture presenting the research for which the award was given at the Nineteenth Annual Meeting. Dr. Harrison-Bernard is a graduate of the COBRE grant. We extend our congratulations to Dr. Harrison-Bernard for her achievement.

Recent Publications

Dokholyan RS, Albert CM, Appel LJ, Cook NR, **Whelton PK**, Hennekens CH. A trial of omega-3 fatty acids for prevention of hypertension. *American Journal of Cardiology*. 2004;93:1041-1043.

Erlinger TP, **Muntner P**, Helzlsouer KJ. WBC count and the risk of cancer mortality in a national sample of U.S. adults: results from the Second National Health and Nutrition Examination Survey mortality study. *Cancer Epidemiology Biomarkers Prevention*. 2004 Jun;13(6):1052-6.

Eustace JA, Astor B, **Muntner P**, Ikizler TA, Coresh J. Prevalence of acidosis and inflammation and their association with low serum albumin in chronic kidney disease. *Kidney International*. 2004 Mar;65(3):1031-1040

Feng MG, Li M and **Navar LG**. T-type calcium channels in the regulation of afferent and efferent arterioles in rats. *Am J Physiol Renal Physiol* 286: F331-F337, 2004.

Ichihara A, **Kobori H**, Nishiyama A, and **Navar, LG**. Renal Renin-Angiotensin System. In: *Kidney and Blood Pressure Regulation*, edited by Suzuki H and Saruta T. Basel: Karger, 2004, p. 117-130.

Johnson FK, Durante W, Peyton KJ, and **Johnson RA**. Heme oxygenase-mediated endothelial dysfunction in DOCA-salt, but not in spontaneously hypertensive rat arterioles. *Am J Physiol Heart Circ Physiol* 286: H1681-H1687, 2004.

Kobori H, Nishiyama, A. Effects of tempol on renal angiotensinogen production in Dahl salt-sensitive rats. *Biochem Biophys Res Commun*. 315: 746-750, 2004

Kobori H, **Prieto-Carrasquero MC**, **Ozawa Y**, and **Navar LG**. AT1 receptor mediated augmentation of intrarenal angiotensinogen in angiotensin II-dependent hypertension. *Hypertension* 43: 1126-1132, 2004.

Krousel-Wood MA, **Muntner P**, **He J**, **Whelton PK**. Primary prevention of essential hypertension. *Medical Clinics of North America*. 2004;88:223-238.

Krousel-Wood M, Thomas S, **Muntner P**, Morisky D. Medication adherence: a key factor in achieving blood pressure control and good clinical outcomes in hypertensive patients. *Current Opinions of Cardiology*. 2004 Jul;19(4):357-362.

Majid DSA, Nishiyama A, **Jackson KE**, Castillo A. Inhibition of nitric oxide synthase enhances superoxide activity in canine kidney. *Am J Physiol Regulatory Integrative Comp Physiol* 287: R27-R32, 2004.

Muntner P, Gu D, Wu X, Duan X, Wenqi G, **Whelton PK**, **He J**. Factors Associated With Hypertension Awareness, Treatment, and Control in a Representative Sample of the Chinese Population. *Hypertension*. 2004;43:578-585.

Muntner P, **He J**, Cutler JA, Wildman RP, **Whelton PK**. Trends in blood pressure among children and adolescents. *Journal of the American Medical Association*. 2004 May 5;291(17):2107-13.

Navar, LG. The intrarenal renin-angiotensin system in hypertension. *Kidney Int* 65: 1522-1532, 2004.

Recent Publications

Nishiyama A, Yoshizumi M, Rahman M, **Kobori H, Seth DM**, Miyatake A, Zhang GX, Yao, L, Hitomi H, Takatomi S, Kiyomoto H, Kimura S, Tamaki T, Kohno M, and Abe Y. Effects of AT1 receptor blockade on renal injury and mitogen-activated protein activity in Dahl salt-sensitive rats. *Kidney Int* 65: 972-981, 2004.

Prieto-Carrasquero MC, Harrison-Bernard LM, Kobori H, Ozawa Y, Hering-Smith KS, Hamm LL, and Navar LG. Enhancement of Collecting Duct Renin in Angiotensin II-Dependent Hypertensive Rats. *Hypertension* 44: 1-6, 2004.

Vehaskari VM, Stewart T, Lafont D, Soyey C, **Seth D**, Manning J. Kidney angiotensin and angiotensin receptor expression in prenatally programmed hypertension. *Am J Physiol Renal Physiol*. 2004 Aug;287(2): F262-7.

Vupputuri S, **Batuman V, Muntner P**, Bazzano LA, Lefante JJ, **Whelton PK, He J**. The risk for mild kidney function decline associated with illicit drug use among hypertensive men. *American Journal of Kidney Diseases*. 2004 Apr;43(4):629-35.

Whelton PK, He J, Muntner P. Prevalence, awareness, treatment and control of hypertension in North America, North Africa and Asia. *Journal of Human Hypertension*. 2004;0:1-7.

Whelton PK, Beevers DG, Sonkodi S. Strategies for improvement of awareness, treatment and control of hypertension: Results of a panel discussion. *Journal of Human Hypertension*. 2004;0:1-3.

Whelton PK, He J. Blood pressure reduction clinical trials. In: Manson JE, Buring JE, Ridker PM, Gaziano MJ, eds. *Clinical Trials in Heart Disease*. 2nd ed. Philadelphia, PA: Elsevier Saunders; 2004:282-296.

Whelton SP, **He J, Whelton PK, Muntner P**. Meta-analysis of observational studies on fish intake and coronary heart disease. *American Journal of Cardiology*. 2004 May 1;93(9):1119-23.

Tulane COBRE Receives Research Recognition Award from Health Sciences Center

Tulane Hypertension and Renal Center of Excellence members were recognized at the Health Sciences Center Research Recognition Awards on June 15, 2004. The ceremony acknowledged the strong growth in research competitiveness of Tulane faculty. Dr. L. Gabriel Navar, co-director of the Center, was recognized under two categories: Top Ten Research Awards and Top Ten New Research Awards for outstanding achievement and commitment to excellence in total competitive research funding for the year 2002-2003. Dr. Albert Dreisbach, Dr. Fruzsina Johnson, Dr. Paul Muntner, and Dr. Ihor Yosypiv each received the First Competitive Research Award. The investigators mentioned above are all junior investigators on the National Institutes of Health funded COBRE grant.

Tulane Investigators Participate in International, National, and Regional Meetings

presentations

Experimental Biology 2004, Washington, D.C., April 17-21, 2004

- ◇ TT Green, **LG Navar**. "Renal hemodynamic responses to cyclooxygenase-2 inhibition in NaCl restricted rats"
- ◇ **MZ Haque**, FZ Nomanbhoy, AZ Castillo, **DZ Majid**, "High salt intake delays the hypertensive response to chronic angiotensin II in mice lacking gp91 subunit of NAD(P)H oxidase"
- ◇ **KE Jackson**, MW Moehlen, **FK Johnson**, **LG Navar**, and **RA Johnson**, "Endogenous carbon monoxide alters water/ sodium excretion independent of renal hemodynamics"
- ◇ **H Kobori**, **Y Ozawa**, **MC Prieto-Carrasquero**, and **LG Navar**, "Angiotensin II type 1 receptors-mediated augmentation of intrarenal angiotensinogen in angiotensin II-infused hypertensive rats"
- ◇ **L Kopkan**, **A Castillo**, **D Majid**, "Superoxide anion influences renal hemodynamic and excretory function in Angiotensin II dependent hypertension"
- ◇ **H Licea**, **LM Harrison-Bernard**, MI Oliverio, TM Coffman, and **LG Navar**. "Hypotension persists in mature AT1A receptor deficient mice."
- ◇ **DS Majid**, **KS Jackson**, AZ Castillo, "Urinary 8-isoprostane excretion increases during nitric oxide inhibition in anesthetized beagles"
- ◇ **KD Mitchell**, GD Ali, JJ Mullins, "Renoprotective effects of neuronal nitric oxide synthase in transgenic rats with inducible malignant hypertension" poster presentation
- ◇ **KD Mitchell**, DG Ali, and JJ Mullins, "Renoprotective effects of neuronal nitric oxide synthase in transgenic rats with inducible malignant hypertension" oral presentation
- ◇ **AL Opay**, JJ Mullins, and **KD Mitchell**, "Cox-2 inhibition normalizes blood pressure in Cyp1a1-Ren2 transgenic rats with inducible malignant hypertension" poster presentation
- ◇ **K Pandey**, **K Arise**, RN Garg, **HN Nguyen** "Mutation in the cytoplasmic domain of natriuretic peptide receptor-A impair receptor endocytosis and trafficking"
- ◇ ML Khurana, **KL Arise**, **HL Nguyen**, EL Vellaichamy, **K Pandey**, "Ligand-dependent down-regulation of guanylyl cyclase/natriuretic peptide receptor-A"
- ◇ **ME Patterson**, JJ Mullins, and **KD Mitchell**, "Superoxide anion contributes to the increased blood pressure and renal vascular resistance in transgenic rats with inducible malignant hypertension" poster presentation
- ◇ **MC Prieto-Carrasquero**, **LM Harrison-Bernard**, **KS Hering-Smith**, **H Kobori**, **LL Hamm**, and **LG Navar**. "Angiotensin II stimulates renin protein expression in cortical collecting duct (CCD) cells"
- ◇ **Minolfa Prieto-Carrasquero** and Medical students **Matthew E. Patterson** and **Allison L. Opay** (Advisor: **KD Mitchell, PhD**) were awarded a 'Caroline tum Suden/Frances A. Hellebrandt Professional Opportunity Award'
- ◇ Medical student **Allison L. Opay** (Advisor: **KD Mitchell, PhD**) was also a pre-doctoral finalist for the '2004 Excellence in Renal Research Award' sponsored by the Renal Section of the American Physiological Society.
- ◇ **Minolfa Prieto-Carrasquero** was awarded Second Place Predoctoral in the American Physiological Society Renal Section Excellence in Renal Research Award.
- ◇ **Minolfa Prieto-Carrasquero** was also awarded the Recognition Award for Meritorious Research by a Young Investigator by the American Physiological Society Water & Electrolyte Homeostasis Section

Finnish Society of Hypertension, Helsinki, Finland, April 2004

- ◇ **PK Whelton**, "Impact of lifestyle and dietary intervention on cardiovascular disease and mortality" - Keynote Address

Sixteenth Annual Tulane Health Sciences Research Days, New Orleans, LA, April 29, 2004

- ◇ **MZ Haque**, Basic Research Award in Integrated Biology, "Delayed and attenuated hypertensive responses to chronic angiotensin II in NAD(P)H gp91(phox) deficient mice fed on high salt diet"

Presentations continued

Presentations

- ◇ **K Hering-Smith**, W Shao; FR Schiro, **MS Awayda**, and **LL Hamm** "PAR-2 Receptors Stimulate Sodium Transport in Collecting Duct Cells"
- ◇ **ME Patterson**, Dean of School of Medicine Award for Excellence in Research and Presentation by a Medical Student, (Advisor: **KD Mitchell, PhD**), "Superoxide anion contributes to the increased blood pressure and renal vascular resistance in transgenic rats with inducible malignant hypertension"
- ◇ **MC Prieto-Carrasquero**, **LM Harrison-Bernard**, **KS Hering-Smith**, **H Kobori**, **LL Hamm**, and **LG Navar**. "Angiotensin II stimulates renin protein expression in cortical collecting duct (CCD) cells"

Annual Meeting of the Pediatric Academic Societies, San Francisco, CA, May 2004

- ◇ V Diavolitis, Z Saifudeen, and **SS El-Dahr**. "p53 and p73 share target genes during kidney development"
- ◇ Ihor Yosypiv, "Angiotensin II stimulates ureteric bud cell branching morphogenesis in vitro via transactivation of epidermal growth factor receptor" poster presentation

American Society of Biochemistry and Molecular Biology and International Union for Biochemistry and Molecular Biology 8th Conference, Boston, MA, June 12-16, 2004

- ◇ **K Pandey**, "GOA sequence is required for endocytosis of guanylyl cyclase natriuretic peptide receptor-A"

FASEB Summer Research Conference, Renal Microcirculatory and Tubular Dynamics: Molecules to Man, Pine Mountain, GA, June 26-July 1, 2004

- ◇ **MZ Haque**, "Delayed and attenuated hypertensive responses to chronic angiotensin II in NAD (P)H subunit, GP91PHOX deficient mice fed on high salt diet", featured poster presentation
- ◇ **LG Navar**, "Role of T-Type calcium channels in the renal vasculature" oral presentation
- ◇ **A Nishiyama**, "Renal Interstitial fluid ATP responses to arterial pressure and the tubuloglomerular feedback activation during treatment with a calcium channel blocker" featured poster presentation
- ◇ **LM Harrison-Bernard**, "Functional localization of AT1 receptor subtypes in the renal microvasculature" oral presentation
- ◇ **M Prieto-Carrasquero**, "Angiotensin II (ANG II) stimulates renin in collecting duct cells" featured poster presentation
- ◇ **DSA Majid**, "Interaction between nitric oxide and ROS in control of renal hemodynamics and sodium excretion"
- ◇ **T Green**, "Renal Hemodynamic responses to cyclooxygenase-2 inhibition in sodium-restricted rats"

Invited Speakers:

LL Hamm, Telluride Sciences Research Center, "Novel Activation of ENaC by Proteases"

LG Navar, Symposium Honoring Arthur C. Guyton: *The Man and His Science*, Washington, D.C., "Tubular and Vascular Interactions in Control of Renal Hemodynamics and Sodium Excretion" April 20

LG Navar, University of Utah, School of Medicine, Salt Lake City, UT. Nephrology Seminar, "Regulation of intrarenal Ang II in hypertension: A role for intratubular Ang II." May 5

LG Navar, University of Utah, School of Medicine, Salt Lake City, UT. Physiology Seminar, "Role of renal interstitial ATP in the regulation of renal microvasculature." May 6

LG Navar, Clinical Research Institute of Montreal, Canada. Hypertension Group Seminar. "Regulation of intrarenal angiotensin II in hypertension." May 12

LG Navar, Endothelial Function Working Group meeting, Boston, MA. "Endothelial actions on the kidney: renal measures." June 25

LG Navar, FASEB Summer Conference, Pine Mountain, GA. "Role of T-type calcium channels in the renal vasculature." June 27

K Pandey, New York Medical College, Valhalla, NY, Department of Pharmacology, "Genetic Alteration in Guanylyl cyclase/natriuretic peptide receptor-A define novel targets for hypertension and cardiovascular disease states"

T.H.R.C.E.

CONFERENCES

Thursday, March 18

Patrice Delafontaine, MD
Tulane University Health Sciences Center
"IGF-1, Angiotensin II, and Cardiovascular Disease"

Thursday, April 1

Nazih Nakhoul, MD
Tulane University Health Sciences Center
"Ammonium Transport by Renal Rh Glycoproteins"

Thursday, April 15

Fady Botros, Ph.D
New York Medical College
"The Role of Heme Oxygenase in the Development of Renovascular Hypertension"

Tuesday, April 27

Alberto Nasjletti, MD
New York Medical College
"Role of 20-Hydroxyeicosatetraenoic Acid and Other Cytochrome P450-Derived Eicosanoids in Regulation of Vascular Reactivity to Constrictor Stimuli"

Thursday, May 6

J. Harold Helderman, MD
Vanderbilt University
"Transplantation Tolerance"

Thursday, May 13

Jiang He, MD
Tulane University Health Sciences Center
"Hypertension in China"

Thursday, May 27

Dewan S.A. Majid, Ph.D
Tulane University Health Sciences Center
"Reactive oxygen species in the renal actions of angiotensin II"

Thursday, June 10

Xiaoyan Zhou, MD, Ph.D
Ochsner Clinic Foundation
"Differential Effects of Pharmacological Interventions on Glomerular Dynamics in L-NAME/SHR Model"

Thursday, June 24

Eric Simon, MD
Tulane University Health Sciences Center
"Mechanisms of cell migration in proximal tubule cells after oxidant stress"

Thursday, July 15

Claude Bouchard, Ph.D.
Pennington Biomedical Research Center
"The Obesity Epidemic: Gluttony, Sloth, or Nature?"

Thursday, July 29

Donald A. Kohan, MD, PhD
University of Utah
"Smart mice and uncovering the role of intrarenal endothelin in hypertension "

Recent Awards

- ◇ **SS El-Dahr**, PI, NIH RO1 DK56264-05 "Inducible Dysplastic Nephropathy in B2-Deficient Mice" Renewed for 4 more years, 5/1/04-4/30/08.
- ◇ Hao Fan, MD, PhD, PI, **SS El-Dahr**, Mentor, AHA Southeast affiliate fellowship grant, "Transcriptional Regulation of the Bradykinin B2 Receptor Gene by Angiotensin II" 7/1/04-6/30/06
- ◇ Christine Bellew, MD, **SS El-Dahr**, Mentor National Kidney Foundation, NY Fellowship Grant, "Gene-Environment Interactions in Renal Development" 7/1/04-6/30/06
- ◇ **Miguel Graciano**, PhD, **LG Navar**, mentor, National Kidney Foundation Fellowship, July 2004
- ◇ **Keith Jackson**, PhD, **LG Navar**, **R. Johnson**, mentors National Research Service Award (NRSA), 2004
- ◇ **Rudy Ortiz**, PhD, **LG Navar**, mentor, National Research Service Award (NRSA), April 2004
- ◇ **Minolfa Prieto-Carrasquero**, PhD, **LG Navar**, mentor, American Heart Association Southeastern Affiliate Postdoctoral Fellowship, April 2004
- ◇ **Fady Botros**, PhD, **LG Navar**, mentor, 2005 COSEHC Cardiovascular Post-Doctoral Fellowship Award

Other Announcements

The Hypertension Center welcomed two major visitors to Tulane during this past period. **Alberto Nasjletti, MD**, (New York Medical College) presented the Mayerson-DiLuzio lecture for the Department of Physiology on April 26th, 2004. Dr. Nasjletti also acted as a substitute member of the COBRE External Advisory Committee during his visit, meeting individually with several junior faculty investigators. Dr. Nasjletti presented a special seminar as a part of the THRCE conference series, titled, "Role of 20-Hydroxyeicosatetraenoic Acid and Other Cytochrome P450-Derived Eicosanoids in Regulation of Vascular Reactivity to Constrictor Stimuli."

Claude Bouchard, PhD, Executive Director of the Pennington Biomedical Research Center, Baton Rouge, LA, presented a talk for the THRCE on July 15, 2004, titled, "The Obesity Epidemic: Gluttony, Sloth, or Nature?", indicating the consequences of obesity on cardiovascular disease and hypertension. His presentation focused on the factors contributing to obesity, including genetics, behavioral, environmental, and biochemical factors.

news



T.H.R.C.E.

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The directors invite faculty members interested in participating in the activities of the T.H.R.C.E. to submit your name, phone number, fax number, and e-mail address to the Program Coordinator by e-mail at khender@tulane.edu or regular mail to the address provided. Also, please forward all information (awards, publications, presentations) to this email address for inclusion in the next newsletter.