



2014

# Network of Minority Health Research Investigators Directory



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Investigators Directory

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## Mission Statement

The Office of Minority Health Research Coordination of the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK) has established a communication network of current and potential biomedical research investigators and technical personnel interested in minority health research, including individuals from traditionally underserved communities: African American, Hispanic American, American Indian, Alaska Native, Native Hawaiian, and other Pacific Islanders. The major objective of the network is to encourage and facilitate the participation of members of underrepresented population groups and others interested in minority health in the conduct of biomedical research in the fields of diabetes, endocrinology, metabolism, digestive diseases, nutrition, and kidney, urologic, and hematologic diseases. A second objective is to encourage and enhance the potential of the investigators in choosing a biomedical research career in these fields. An important component of this network is promotion of two-way communications between network members and the NIDDK.

Through the Network of Minority Health Research Investigators (NMRI), NIDDK will elicit recommendations for strategies to enhance the opportunities and implement mechanisms for support of underrepresented population groups and others in biomedical research. The NMRI will advance scientific knowledge and contribute to the reduction and eventual elimination of racial and ethnic health disparities.

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## NIDDK Executives



### **Griffin P. Rodgers, M.D., M.A.C.P.**

Director  
National Institute of Diabetes and Digestive and Kidney Diseases  
National Institutes of Health  
Building 31, Room 9A52  
31 Center Drive, MSC 2560  
Bethesda, MD 20892-2560  
Telephone: (301) 496-5741  
Fax: (301) 402-2125  
Email: griffinrodgers@mail.nih.gov

Dr. Griffin P. Rodgers was named Director of the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK)—one of the National Institutes of Health (NIH)—on April 1, 2007. He had served as NIDDK's Acting Director since March 2006 and had been the Institute's Deputy Director since January 2001. As the Director of NIDDK, Dr. Rodgers provides scientific leadership and manages a staff of more than 600 employees and a budget of \$2.0 billion.

Dr. Rodgers received his undergraduate, graduate, and medical degrees from Brown University in Providence, Rhode Island. He performed his residency and chief residency in internal medicine at Barnes Hospital and the Washington University School of Medicine in St. Louis. His fellowship training in hematology/oncology was in a joint program of the NIH with George Washington University and the Washington Veterans Administration Medical Center. In addition to his medical and research training, he earned a Master's degree in Business Administration, with a focus on the business of medicine/science, from Johns Hopkins University in 2005.

As a research investigator, Dr. Rodgers is widely recognized for his contributions to the development of the first effective—and now FDA-approved—therapy for sickle cell anemia. He was a principal investigator in clinical trials to develop therapy for patients with sickle cell disease and also performed basic research that focused on understanding the molecular basis of how certain drugs induce gamma-globin gene expression. He was honored for his research with numerous awards, including the 1998 Richard and Hinda Rosenthal Foundation Award, the 2000 Arthur S. Flemming Award, the Legacy of Leadership Award in 2002, and a Mastership from the American College of Physicians in 2005.

Dr. Rodgers has been an invited professor at medical schools and hospitals in France, Italy, China, Japan, and Korea. He has been honored with many named lectureships at American medical centers; has published more than 200 original research articles, reviews, and book chapters; has edited four books and monographs; and holds four patents.

Dr. Rodgers served as Governor to the American College of Physicians for the U.S. Department of Health and Human Services from 1994 to 1997. He is a member of the American Society of Hematology, the American Society of Clinical Investigation of the National Academy of Sciences, the Association of American Physicians, and the Institute of Medicine, among others. He served as chair of the Hematology Subspecialty Board and is a member of the American Board of Internal Medicine Board of Directors.



**Lawrence Y.C. Agodoa, M.D., F.A.C.P.**

Director  
Office of Minority Health Research Coordination  
National Institute of Diabetes and Digestive and Kidney Diseases  
National Institutes of Health  
Two Democracy Plaza, Room 902  
6707 Democracy Boulevard, MSC 5454  
Bethesda, MD 20892-5454  
Telephone: (301) 594-1932  
Fax: (301) 594-9358  
Email: [agodoal@mail.nih.gov](mailto:agodoal@mail.nih.gov)

Dr. Lawrence Y.C. Agodoa graduated from the Cornell University Medical College, New York, in 1971. He completed internship and residency training in Internal Medicine at the University of Washington Hospitals in Seattle and 3-year training in clinical and basic research in Nephrology and Renal Pathology.

He was appointed Chief of the Nephrology Service at the Madigan Army Medical Center, Tacoma, Washington, 1976-1981. He subsequently completed 2 years of clinical and research training in Rheumatology and Immunology, 1981-1983. In 1983, he was assigned to the Walter Reed Army Medical Center as Assistant Chief of the Nephrology Service and the Nephrology Training Program, and also appointed to the faculty of Medicine at the Uniformed Services University of the Health Sciences (USUHS), Bethesda, Maryland. In 1985, he was appointed Director of the Military Medical Research Fellowship at the Walter Reed Army Institute of Research.

In 1987, he was appointed Director of the Clinical Affairs Program in the Division of Kidney, Urologic, and Hematologic Diseases at the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK) of the National Institutes of Health (NIH), Bethesda, Maryland. He also was an intramural research scientist in the Laboratory of Cell and Molecular Biology, NIDDK, from 1987 to 1992.

Presently, he is Professor of Medicine at the Uniformed Services University of the Health Sciences, F. Edward Hebert School of Medicine, and Program Director at the NIH. His current duties include the following:

- Director, Office of Minority Health Research Coordination, NIDDK, NIH.
- Director of the Minority Chronic Kidney Disease and End Stage Renal Disease Programs in the Division of Kidney, Urologic and Hematologic Diseases of NIDDK.
- Co-Project Officer of the ESRD renal database, the United States Renal Data System (USRDS).

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## Program Planning Committee Members

### **Chair**

#### **Trudy Gaillard, Ph.D., R.N., C.D.E. (2014)**

Assistant Professor of Medicine Research  
Program Director  
Prevention of Diabetes in African Americans  
Division of Endocrinology, Diabetes, and  
Metabolism  
The Ohio State University  
495 McCampbell Hall  
1581 Dodd Drive  
Columbus, OH 43210  
Telephone: (614) 685-3363  
Fax: (614) 366-0345  
Email: trudy.gaillard@osumc.edu

### **Chair Elect**

#### **Rhonda Bentley-Lewis, M.D., M.B.A., M.M.Sc. (2015)**

Assistant Professor of Medicine  
Harvard Medical School  
Department of Medicine/Diabetes Unit  
Massachusetts General Hospital  
Bulfinch-415  
55 Fruit Street  
Boston, MA 02114  
Telephone: (617) 726-2874  
Fax: (617) 726-6781  
Email: rbentley@partners.org

### **Past Chair**

#### **Carmen Castaneda Sceppa, M.D., Ph.D. (2014)**

Associate Professor  
Health Sciences Department  
Northeastern University  
360 Huntington Avenue  
Boston, MA 02115  
Telephone: (617) 373-5543  
Fax: (617) 373-2968  
Email: c.sceppa@neu.edu

### **Members**

#### **Larry D. Alexander, Ph.D. (2015)**

Assistant Professor  
Department of Physiology  
Midwestern University  
Arizona College of Osteopathic Medicine  
19555 N. 59th Avenue, Agave 217G  
Glendale, AZ 85308  
Telephone: (623) 572-3731  
Fax: (623) 572-3673  
Email: lalex@midwestern.edu

#### **Lincoln Edwards, D.D.S., Ph.D. (2014)**

Associate Professor  
Department of Diagnostic and Biomedical  
Sciences, Room 5367  
University of Texas School of Dentistry  
Houston, TX 77054  
Telephone: (713) 486-4109  
Fax: (713) 486-4416  
Email: lincoln.edwards@uth.tmc.edu

#### **Eduardo Fricovsky, Pharm. D. (2014)**

Department of Clinical Pharmacy  
Skaggs School of Pharmacy and Pharmaceutical  
Sciences  
University of California, San Diego  
9500 Gilman Drive, MC 0675  
La Jolla, CA 92093  
Telephone: (858) 534-3714  
Fax: (858) 534-9932  
Email: esfricovsky@ucsd.edu

#### **Myra Kleinpeter, M.D., M.P.H. (2015)**

Associate Professor of Clinical Medicine  
Department of Medicine/Nephrology  
Tulane University School of Medicine  
1430 Tulane Avenue, SL45  
New Orleans, LA 70112  
Telephone: (504) 988-5346  
Fax: (504) 988-1909  
Email: mkleinp@tulane.edu

---

**Diana Obanda, Ph.D. (2015)**

Postdoctoral Research Scientist  
Department of Diabetes and Nutrition  
Pennington Biomedical Research Center  
Louisiana State University  
6400 Perkins Road  
Baton Rouge, LA 70808  
Telephone: (225) 270-9455  
Fax: (225) 763-0274  
Email: [dobanda@alumni.lsu.edu](mailto:dobanda@alumni.lsu.edu)

**Heather Tarleton, Ph.D., M.S., M.P.A.P. (2015)**

Assistant Professor  
Loyola Marymount University  
One LMU Drive, MS 8160  
Los Angeles, CA 90045  
Telephone: (310) 338-4247  
Email: [heather.tarleton@lmu.edu](mailto:heather.tarleton@lmu.edu)

**Janelle D. Vaughns, M.D. (2014)**

Division of Anesthesiology and Pain Medicine  
Assistant Professor of Anesthesiology and  
Pediatrics  
Children's National Medical Center  
111 Michigan Avenue, N.W.  
Washington, DC 20010-2970  
Telephone: (202) 476-4165  
Fax: (202) 476-5999  
Email: [jvaughns@cnmc.org](mailto:jvaughns@cnmc.org)

**NIDDK Representatives**

**Lawrence Agodoa, M.D., F.A.C.P.**

Director  
Office of Minority Health Research  
Coordination  
National Institute of Diabetes and Digestive and  
Kidney Diseases  
National Institutes of Health  
Two Democracy Plaza, Room 902  
6707 Democracy Boulevard, MSC 5454  
Bethesda, MD 20892-5454  
Telephone: (301) 594-1932  
Fax: (301) 594-9358  
Email: [agodoal@mail.nih.gov](mailto:agodoal@mail.nih.gov)

**Winnie Martinez**

Program Officer  
Office of Minority Health Research  
Coordination  
National Institute of Diabetes and Digestive and  
Kidney Diseases  
National Institutes of Health  
Two Democracy Plaza, Room 906A  
6707 Democracy Boulevard, MSC 5454  
Bethesda, MD 20892-5454  
Telephone: (301) 435-2988  
Fax: (301) 594-9358  
Email: [martinezw@mail.nih.gov](mailto:martinezw@mail.nih.gov)

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## Oversight Committee Members

### **Chair**

#### **Lewis Roberts, M.D., Ph.D. (2014)**

Associate Professor of Medicine  
Departments of Gastroenterology and  
Hepatology  
Mayo Clinic  
200 First Street, S.W.  
Rochester, MN 55905  
Telephone: (507) 538-4877  
Fax: (507) 284-0762  
Email: roberts.lewis@mayo.edu

### **Chair Elect**

#### **Leonor Corsino, M.D. (2015)**

Assistant Professor  
Department of Medicine  
Division of Endocrinology, Metabolism, and  
Nutrition  
Duke University School of Medicine  
Duke University Medical Center  
Box 3451  
Durham, NC 27710  
Telephone: (919) 684-3841  
Fax: (919) 668-1559  
Email: corsi02@mc.duke.edu

### **Past Chair**

#### **José Romero, Ph.D. (2014)**

Associate Physiologist  
Assistant Professor of Medicine  
Division of Endocrinology  
Department of Medicine  
Harvard Medical School/Brigham and Women's  
Hospital  
221 Longwood Avenue, EBRC-201  
Boston, MA 02115  
Telephone: (617) 732-4948  
Email: jromero@partners.org

### **Members**

#### **Luis Cubano, Ph.D. (2015)**

Professor  
Department of Anatomy and Cell Biology  
Universidad Central del Caribe  
P.O. Box 60327  
Bayamon, PR 00960  
Telephone: (787) 365-6704  
Email: lacoadrugs@gmail.com

#### **Clarissa Jonas Diamantidis, M.D., M.H.S. (2015)**

Assistant Professor of Medicine  
Division of Nephrology  
University of Maryland Medical Systems  
22 S. Greene Street, Room N3W143  
Baltimore, MD 21201  
Telephone: (410) 328-5720  
Email: cdiamantidis@medicine.umaryland.edu

#### **Alejandro Diez, M.D., F.A.S.N. (2015)**

Research Investigator  
Division of Nephrology  
The Ohio State University  
395 W. 12th Avenue, Ground Floor  
Columbus, OH 43210  
Email: alejandro\_diez@yahoo.com

#### **Robert Ferry, Jr., M.D. (2014)**

Le Bonheur Chair of Excellence in  
Endocrinology  
Professor and Chief  
Division of Pediatric Endocrinology and  
Metabolism  
Le Bonheur Children's Hospital  
University of Tennessee Health Science Center  
50 N. Dunlap Street, CFRT 511R  
Memphis, TN 38103-2800  
Telephone: (901) 287-6221  
Email: bob@uthsc.edu

#### **Cynthia Ann Jackson, Ph.D. (2014)**

Associate Professor of Physiology  
Department of Biology  
Alabama A&M University  
7113 Sunnywood Drive  
Nashville, TN 37211  
Telephone: (205) 332-2540  
Fax: (615) 953-6599  
Email: femscientist@gmail.com

#### **Ariana Pichardo-Lowden, M.D. (2015)**

Assistant Professor of Medicine  
Department of Internal Medicine  
Penn State Hershey Medical Center  
500 University Drive  
Hershey, PA 17033  
Telephone: (717) 531-8395  
Fax: (717) 531-5726  
Email: apichardolowden@hmc.psu.edu

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**Marion Sewer, Ph.D. (2014)**

Associate Professor  
Skaggs School of Pharmacy and  
Pharmaceutical Sciences  
University of California, San Diego  
9500 Gilman Drive, MC 0704  
La Jolla, CA 92093-0704  
Telephone: (858) 8220-5283  
Email: msewer@ucsd.edu

**Ad Hoc Members**

**Shirley Blanchard, Ph.D.**

Associate Professor  
Creighton University  
2500 California Plaza  
Omaha, NE 68178  
Telephone: (402) 280-5921  
Fax: (402) 280-5962  
Email: sblancha@creighton.edu

**Virginia Sarapura, M.D.**

Associate Professor  
Departments of Medicine/Endocrinology  
Anschutz Medical Campus  
University of Colorado Denver  
12801 E. 17th Avenue, MS 8106  
Aurora, CO 80045  
Telephone: (303) 724-3931  
Fax: (303) 724-3920  
Email: virginia.sarapura@ucdenver.edu

**NIDDK Representatives**

**Lawrence Agodoa, M.D., F.A.C.P.**

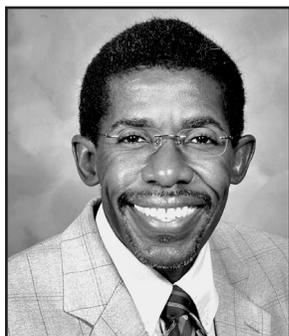
Director  
Office of Minority Health Research  
Coordination  
National Institute of Diabetes and Digestive  
and Kidney Diseases  
National Institutes of Health  
Two Democracy Plaza, Room 902  
6707 Democracy Boulevard, MSC 5454  
Bethesda, MD 20892-5454  
Telephone: (301) 594-1932  
Fax: (301) 594-9358  
Email: agodoal@mail.nih.gov

**Winnie Martinez**

Program Analyst  
Office of Minority Health Research  
Coordination  
National Institute of Diabetes and Digestive  
and Kidney Diseases  
National Institutes of Health  
Two Democracy Plaza, Room 906A  
6707 Democracy Boulevard, MSC 5454  
Bethesda, MD 20892-5454  
Telephone: (301) 435-2988  
Fax: (301) 594-9358  
Email: martinezw@extra.niddk.nih.gov

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## NMRI Members



### **E. Dale Abel, M.D., Ph.D.**

John B. Stokes III Chair in Diabetes Research  
Professor of Medicine and Biochemistry  
Director-Fraternal Order of Eagles Diabetes Research Center  
Chief-Division of Endocrinology and Metabolism  
Roy J. and Lucille A. Carver College of Medicine University of Iowa  
4312 PBDB, 169 Newton Road  
Iowa City, IA 52242-1101  
Office Telephone: (319) 353-3050  
Assistant's Telephone: (319) 384-4684  
Fax: (319) 335-8327  
Email: dale-abel@uiowa.edu

#### **Research Interests**

My research is focused on understanding the molecular mechanisms that are responsible for cardiovascular complications in diabetes. We have specifically focused on the role of altered insulin signaling and mitochondrial oxidative stress.



### **Adebowale "Ade" Adebisi, Ph.D.**

Assistant Professor  
Department of Physiology  
College of Medicine  
University of Tennessee Health Science Center  
Nash Research Building, Suite 426  
894 Union Avenue  
Memphis, TN 38163  
Telephone: (901) 448-1868  
Fax: (901) 448-7126  
Email: aadebisi@uthsc.edu

#### **Research Interests**

My current research focuses primarily on elucidating signal transduction pathways in the kidney that are involved in the physiology and pathophysiology of renal hemodynamics. We utilize an integrative approach, including techniques drawn from cell and molecular biology, physiology, and pharmacology to investigate regulatory proteins, ion channels, and GPCRs that regulate renal vascular and glomerular functions.



**Emilyn Alejandro, Ph.D.**

Hartwell Foundation Fellow  
Division of Metabolism, Endocrinology, and Diabetes  
Brehm Diabetes Center  
University of Michigan  
1000 Wall Street, Room 5446  
Ann Arbor, MI 48109  
Telephone: (734) 615-0264  
Email: emilyn@gmail.com

**Research Interests**

My research interests include developmental origins of type 2 diabetes, specifically fetal programming of the pancreatic beta-cells.



**Larry D. Alexander, Ph.D.**

Assistant Professor  
Department of Physiology  
Arizona College of Osteopathic Medicine  
Midwestern University  
19555 N. 59th Avenue  
Glendale, AZ 85308  
Telephone: (623) 572-3731  
Fax: (623) 572-3673  
Email: lalex@midwestern.edu

**Research Interests**

My research has focused on identifying the intracellular signaling mechanisms underlying the renal tubular cell response to obstructive nephropathy. My ongoing research focuses on elucidating the roles of receptor- and non-receptor tyrosine kinases, integrins, phospholipase A2 (PLA2), arachidonic acid, and heterotrimeric G proteins in mediating mechanical stretch-induced cytokine and chemokine gene and protein expression in renal proximal tubular cells, particularly relating to unraveling the linkage to these regulatory proteins and signal transduction pathways in mediating the effects of mechanical stretch on renal cell death, proliferation, and inflammation. Cyclic mechanical stretch represents a unique model to mimic transient increase in intrarenal pressure resulting in tubular mechanical stretch accompanying obstructive nephropathy and a mechanism to stimulate cytokine/chemokine gene and protein expression. This work may provide novel data in the pathophysiology of obstructive nephropathy.

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## **Ogechika Alozie, M.D., M.P.H., CPHIMS**

Assistant Professor  
Department of Infectious Diseases  
Division of Infectious Diseases  
Chief Medical Informatics Officer (CMIO)  
Director, HIV Clinical Services  
Paul L. Foster School of Medicine  
Texas Tech University Health Sciences Center  
4800 Alberta Avenue  
El Paso, TX 79905  
Telephone: (915) 215-5159  
Email: ogechika.alozie@ttuhsc.edu

### ***Research Interests***

My overall research interest is driven by infectious disease conditions that are overrepresented in minorities. Specifically, I am interested in HIV improved testing and using technology to improve care. I am building an HIV care cohort in a new HIV clinic in El Paso. I am also interested in HCV in minorities, including education, testing, and treatment that help to improve the differential outcomes for minorities with HCV. I hope to use my activity within the informatics space to tie my clinical research interests together.

## **Oluwatoyin Asojo, Ph.D.**

Associate Professor  
Pediatrics-National School of Tropical Medicine  
Baylor College of Medicine  
Suite 550  
1102 Bates Avenue, Mail Stop: BCM320  
Houston, TX 77030-3411  
Telephone: (832) 824-0533  
Email: asojo@bcm.edu

### ***Research Interests***

I am a structural biologist with diverse interests. My current focus is structure-based drug design and the use of crystallography, biochemistry, and other methods to understand and develop new treatments in diverse systems, including hookworm infection, enteric parasites, cancer, and gut bacterial infections. I am also interested in diseases of poverty that affect predominantly minority populations.



**Ricardo Azziz, M.D., M.P.H., M.B.A.**

President, Georgia Regents University  
CEO, Georgia Regents Health System  
1120 15th Street, AA-311  
Augusta, GA 30912  
Telephone: (706) 721-2301  
Fax: (706) 721-2303  
Email: razziz@gru.edu

**Research Interests**

My research interests include the study of the polycystic ovary syndrome (PCOS); insulin action in adipocytes; the role of the adrenal in hyperandrogenic disorders; the nonclassic adrenal hyperplasias (NCAH); the genetics of hyperandrogenic disorders, including PCOS and NCAH; the treatment of hirsutism; and the regulation and physiology of adrenal androgens. Leadership development, academic administration, and organizational management are additional interests.



**Joyce Balls-Berry, Ph.D.**

Director  
CTSA Office for Community Engaged Research  
Mayo Clinic  
200 First Street, S.W.  
Rochester, MN 55905  
Telephone: (507) 538-3755  
Email: ballsberry.joyce@mayo.edu

**Research Interests**

In 2011, I became the Director of the Mayo Clinic Center for Translational Science Activities Office for Community Engaged Research and Assistant Professor of Epidemiology. My focus is community-engaged research in order to reduce health disparities and increase health equity in minority and disadvantaged populations. I am interested in studying the approaches that are used by researchers and communities to reduce disease burden. My research has focused on several areas, including but not limited to HIV/AIDS, breast cancer, tobacco cessation, and health services research. My research on perceptions and practices of primary care providers concerning tobacco cessation and minorities was published in the 2011 July issue of the *Journal of the National Medical Association*. I would like to continue in this manner by submitting and publishing work that will help to eliminate health disparities. My long-term career objective is to become a collaborative researcher who specializes in community-engaged research among diverse populations. It is also my desire to gain the necessary tools to expand on my knowledge and skills in developing, testing, and implementing health promotion interventions that are culturally sensitive and tailored for minorities and disadvantaged individuals. More importantly, I would like to work with mentors who will help me to: (1) expand my knowledge in qualitative research design as it applies to using social marketing principles to tailor interventions for unique settings and population segments; (2) expand my ability to conduct data analysis using multilevel sampling; and (3) apply for future independent research funding for a multilevel mixed method study of patients, health care providers, and built environments that influence culturally sensitive health care.



**Rasheed A. Balogun, M.D., F.A.C.P., F.A.S.N.**

Associate Professor of Medicine  
Assistant Dean for Student Affairs  
Medical Director, Renal Unit and Extracorporeal Therapies  
Division of Nephrology  
University of Virginia School of Medicine  
P.O. Box 800133  
Charlottesville, VA 22908  
Telephone: (434) 924-5125  
Fax: (434) 924-5848  
Email: rb8mh@virginia.edu

***Research Interests***

I am a nephrologist with advanced training and expertise in extracorporeal therapies, the use of highly specialized techniques for blood purification. My clinical responsibilities include providing care for patients focusing on prevention and treatment of chronic kidney disease and using specialized blood purification techniques like therapeutic apheresis to treat renal, neurological, and hematological disorders. My areas of interest in clinical research have included examination of outcomes (morbidity and mortality) in older dialysis patients (“geriatric nephrology”) with clinical depression, especially, and I am currently involved in trials looking at novel blood purification techniques that are promising for acutely ill patients who have kidney and liver failure.



**Detrice Green Barry, Ph.D., M.S.N., R.N.**

Assistant Professor  
Wright State University-Miami Valley  
College of Nursing and Health  
University Hall-148  
3640 Colonel Glenn Highway  
Dayton, OH 45435  
Telephone: (937) 775-2693  
Cell: (513) 256-3074  
Email: detrice.barry@wright.edu

***Research Interests***

My research interests include shared decision-making in the bleeding disorder (hemophilia) community, and virtual simulation and technology development.



**Mohamed A. Bayorh, Ph.D.**

Professor  
Department of Pharmacology/Toxicology  
Morehouse School of Medicine  
720 Westview Drive  
Atlanta, GA 30310  
Telephone: (404) 752-1714  
Fax: (404) 752-1164  
Email: mbayorh@msm.edu

**Research Interests**

My major research interests are in elucidating the mechanism(s) involved in salt-induced hypertension and in the role of eicosanoids in health. I am particularly interested now in understanding the vasculopathic effects of one of the major culprits associated with the renin-angiotensin-aldosterone system (RAAS), aldosterone, which is significantly elevated following high salt administration in Dahl rats. Other research interests of my laboratory pertain to better understanding the role of the glucocorticoids on vascular structure and function in the progression of metabolic syndrome in Zucker obese rats. Hypercholesterolemia and hypertension may precipitate one another, resulting in significant vascular remodeling and end-organ damage.



**Tiffany R. Beckman, M.D., M.P.H.**

Assistant Professor of Medicine and Consulting Endocrinologist  
Division of Endocrinology, Diabetes, and Metabolism  
University of Minnesota Department of Medicine  
MMC 101  
420 Delaware Street, S.E.  
Minneapolis, MN 55455  
Telephone: (612) 626-9329  
Fax: (612) 626-3133  
Email: beckm004@umn.edu

**Research Interests**

My research interests and activities include: (1) using brain functional magnetic resonance imaging (fMRI) to define the neural correlates of obesity in American Indians; (2) using a rodent model to study the neurobiology of reward-based appetitive behavior; (3) investigating satiety and changes in incretin hormones within the context of differing macronutrient paradigms in pre- and postgastric bypass surgery patients, longitudinally; (4) using community-based participatory research methods to examine the effects of improved food availability on incident rates of diabetes and obesity in American Indians; and (5) using holistic methods such as traditional Indian medicine, cross-cultural healing methods, and storytelling to improve health disparities in American Indians. My NMRI work is funded by the NIH/NIDDK K23.

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## **Ruby Benjamin-Garner, Ph.D., M.P.H.**

Assistant Professor Non-Tenure Research  
Division of Clinical and Translational Sciences, Department of Internal Medicine  
The University of Texas Medical School at Houston  
Director, Clinical Research Unit at Lyndon B. Johnson Hospital  
Center for Clinical and Translational Sciences  
University of Texas Health Science Center at Houston  
Email: ruby.a.benjamin-garner@uth.tmc.edu

### ***Research Interests***

In general, I am interested in determining factors associated with health disparities and development of interventions to reduce racial/ethnic and socioeconomic disparities in health and disease outcomes. I am interested in health care quality improvement (QI) as a means of improving health outcomes in minority and low-income populations and the impact of QI on health disparities. Primarily, I am interested in chronic diseases, such as cardiovascular diseases, diabetes, obesity, and chronic kidney disease, to name a few.



## **Rhonda Bentley-Lewis, M.D., M.B.A., M.M.Sc.**

Assistant Professor of Medicine  
Harvard Medical School  
Department of Medicine/Diabetes Unit  
Massachusetts General Hospital  
55 Fruit Street, Bulfinch-415  
Boston, MA 02114  
Telephone: (617) 726-2874  
Fax: (617) 726-6781  
Email: rbentleyLewis@partners.org

### ***Research Interests***

My research focuses clinical and translational investigations of mechanisms by which diabetes in pregnancy may promote subsequent maternal cardiovascular disease risk. My research efforts have been funded by the NIH/NIDDK, the Robert Wood Johnson Foundation Harold Amos Medical Faculty Development Program Award, and the Massachusetts General Hospital Multicultural Affairs Office and Executive Committee on Research Physician Scientist Development Award.



### **Shirley A. Blanchard, Ph.D.**

Associate Professor  
Department of Occupational Therapy  
Creighton University  
Boyer 142  
2500 California Plaza  
Omaha, NE 68178  
Telephone: (402) 280-5921  
Fax: (402) 280-5692  
Email: sblancha@creighton.edu

#### ***Research Interests***

My research interests include obesity and depression in African-American women. I am investigating the use of faith-based institutions to prevent and reduce the health risks associated with obesity. By providing culturally relevant health education programs in the community of the church, African Americans are empowered to change health behaviors and ultimately to reduce health disparities.

### **Maha Bektur, M.D., M.P.H.**

Postdoctoral Fellow  
Department of Surgery-Transplant  
Immunobiology Research Center  
The Methodist Hospital Research Institute  
6560 Fannin Street, Suite 1150.1151  
Houston, TX 77030  
Telephone: (713) 441-5122, ext. 15122  
Fax: (713) 790-3085  
Email: mrbektour@tmhs.org

#### ***Research Interests***

In the United States, disparities in health care delivery and access are apparent between different racial and ethnic groups. Minorities, including African Americans, often suffer unreasonably from chronic diseases compared to Caucasians. The relative contributions of genetic and environmental factors to this susceptibility are not yet well understood. In the field of organ transplant such as kidney and liver, access to transplantation, both from deceased and living donors, is also restricted in many minority populations, and graft survival is often inferior. Disparities have been identified as a problem, and this could be due to barriers in early screening and treatment choices. Analysis of the explanations is complex because of the many confounding factors such as cultural, social, and economic. I am very interested in addressing these barriers to increase cultural awareness by physicians; steps then can be made to reduce health care disparities.

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## **Nawal Boukli, Ph.D.**

Associate Professor  
Department of Microbiology and Immunology  
Universidad Central Del Caribe  
Room 155, Urb. Santa Juanita Avenue Laurel  
Bayamon, PR 00956  
Telephone: (787) 798-3001, ext. 2080  
Fax: (787) 740-4300  
Email: nboukli@hotmail.com

### **Research Interests**

I am interested in researching the effects of vitamin D deficiency on multiple sclerosis (MS) patients. MS is a severe demyelinating disease of the central nervous system, affecting young adults by producing a progressive neurological dysfunction. A high number of MS patients have vitamin D deficiency/insufficiency.



## **Lynda M. Brown, Ph.D.**

Associate Professor  
Graduate Program Coordinator  
Food and Nutritional Sciences  
North Carolina A&T State University  
102 Benbow Hall  
1601 E. Market Street  
Greensboro, NC 27411  
Telephone: (336) 285-3644  
Fax: (336) 334-7265  
Email: lmbrown2@ncat.edu

Adjunct Assistant Professor  
Department of Nutrition  
University of North Carolina at Greensboro  
P.O. Box 26170  
Greensboro, NC 27412-6170

### **Research Interests**

My research focuses on sex differences in diet-induced obesity, especially the role of ovarian hormones and in central and peripheral inflammation through the life cycle. My long-term research goal is to understand the mechanisms involved in the anti-inflammatory effects of ovarian hormones and their neuroprotective actions. An emerging area of interest is to study multigenerational impacts of obesity. Specifically, if maternal high-fat diet during development alters brain circuits in the pups to favor obesity.



**Natasha A. Brown, Ph.D., M.P.H.**

Assistant Professor  
Department of Nutrition  
School of Health and Human Sciences  
University of North Carolina at Greensboro  
319 College Avenue  
309 Stone Building  
Greensboro, NC 27412  
Telephone: (336) 334-5313  
Fax: (336) 334-4129  
Email: nabrown@uncg.edu

**Research Interests**

My work utilizes health behavior and family science theories to investigate sociocultural and familial influences on obesity development and risk of obesity-related chronic diseases, particularly among children of color. More specifically, my research aims to improve understanding of the intersection of ethnic identity, culture, and extended family environments and how it influences children's development of dietary and physical activity behaviors, with the goal of developing family-based childhood obesity interventions.

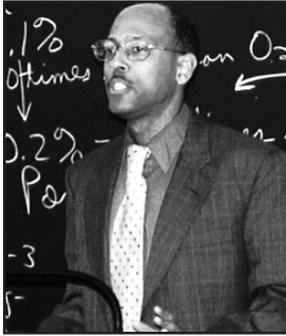


**Susan D. Brown, Ph.D.**

Staff Scientist  
Division of Research  
Kaiser Permanente Northern California  
2000 Broadway  
Oakland, CA 94612  
Telephone: (510) 891-3544  
Fax: (510) 891-3606  
Email: susan.d.brown@kp.org

**Research Interests**

My research focuses on health behavior change for chronic disease prevention. Specifically, I examine the effectiveness, implementation, and reach of weight-management lifestyle interventions designed to reduce the incidence and burden of chronic diseases—such as type 2 diabetes—among adults at high risk. For example, I seek to develop and test theory-based patient-engagement strategies for lifestyle programs in real-world health care settings, with a focus on serving women from racial and ethnic minority groups. I am a licensed clinical psychologist and completed my doctoral degree at Boston University, generalist clinical training at the San Francisco Veterans Affairs Medical Center, and postdoctoral research fellowship at the Stanford University School of Medicine. My experience includes conducting original quantitative and qualitative research; directing and providing consultation for behavior change interventions within large randomized clinical trials; evaluating patient-engagement strategies; collaborating with clinical leaders; systematically evaluating fidelity to intervention protocols; and recruiting and retaining diverse research samples. The objectives of this program of research are to apply the theory and practice of behavior change within health care delivery systems to promote chronic disease prevention at a population level.



### **Gregory W. Buck, Ph.D.**

Associate Professor of Biology and Biomedical Sciences  
Program Coordinator, Biomedical Sciences  
Department of Life Sciences  
Texas A&M University, Corpus Christi  
Room CS251  
6300 Ocean Drive, Unit 5802  
Corpus Christi, TX 78412-5802  
Telephone: (361) 825-3717  
Fax: (361) 825-2135  
Email: [gregory.buck@tamucc.edu](mailto:gregory.buck@tamucc.edu)

#### **Research Interests**

My research interests include: (1) global regulation of *Vibrio vulnificus* pertaining to pathogenesis; (2) antibacterial properties of surfactants and nanoparticles; (3) analysis of health disparities between diabetic Hispanics and Caucasians in effects of MRSA colonization on amputation rates; (4) DNA repair in enteric bacteria and the evolution of general repair mechanisms throughout bacterial families; and (5) efficiency of Mexican herbal remedies on treatment of antibacterial infections. My laboratory trains graduate students, undergraduates, and a select few gifted high school students.

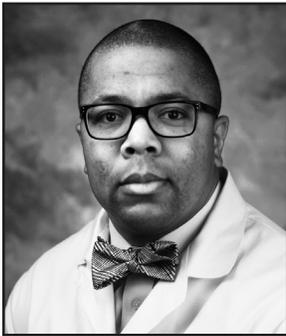


### **Sherri-Ann M. Burnett-Bowie, M.D., M.P.H.**

Assistant Professor of Medicine, Harvard Medical School  
Director of Multicultural Affairs  
Endocrine Unit  
Department of Medicine  
Massachusetts General Hospital  
50 Blossom Street, THR-1051  
Boston, MA 02114  
Telephone: (617) 724-5594  
Fax: (617) 726-1703  
Email: [sburnett-bowie@partners.org](mailto:sburnett-bowie@partners.org)

#### **Research Interests**

My research is focused on defining the physiology of the mineral metabolism hormone, FGF23; defining the relationship between vitamin D deficiency and insulin resistance; and studying novel therapies for osteoporosis.



**Jarrett D. Cain, D.P.M., M.Sc., F.A.C.F.A.**

Assistant Professor  
Department of Orthopaedics  
Penn State Hershey Bone and Joint Institute  
Penn State College of Medicine  
Penn State Hershey Medical Center  
P.O. Box 859, Mail Code EC089  
30 Hope Drive  
Hershey, PA 17033  
Telephone: (717) 531-0003  
Fax: (717) 531-0498  
Email: jcain1@hmc.psu.edu

**Research Interests**

I am an active basic science and clinical researcher. Along with published scientific papers and presenting at numerous academic meetings, I serve as a peer reviewer for various foot and ankle journals, an abstract reviewer at scientific/research meetings, and served on various organization committees. My research focuses on foot and ankle disorders, diabetic bone healing/limb salvage, biomechanics, and clinical epidemiology



**Kirk Campbell, M.D.**

Assistant Professor of Medicine  
Division of Nephrology  
Mount Sinai School of Medicine  
One Gustave L. Levy Place, Box 1243  
New York, NY 10029  
Telephone: (212) 241-6271  
Fax: (212) 987-0389  
Email: kirk.campbell@mssm.edu

**Research Interests**

Kidney podocytes are the target cells for injury in human glomerular disease, a significant cause of end-stage kidney failure. Primary and secondary pathogenic processes affecting podocytes account for 90 percent of end-stage kidney disease at a cost of \$20 billion per year in the United States. A reduction in podocyte number (podocytopenia) directly correlates with the progression of several proteinuric kidney diseases, including focal segmental glomerulosclerosis (FSGS), IgA nephropathy, and diabetic nephropathy. Despite significant advances in the characterization of the molecular architecture of podocytes, the mechanisms underlying their survival, injury, and loss remain poorly understood. Validated therapeutic targets are scarce, and there currently are no podocyte-specific drugs commercially available. The overall goal of our research program is to enhance the pipeline of putative therapeutic targets available to tackle human glomerular disease by elucidating the details and functional significance of key signaling pathways that regulate podocyte injury and survival. We utilize cell-based assays and rodent models to identify and characterize key mediators of glomerular disease progression.



**Hector Carbajal, M.D.**

Attending Physician  
Department of Internal Medicine  
Houston Methodist Hospital  
Weill Cornell College of Medicine  
3740 Greenbriar Street, Unit #540064  
Houston, TX 77098-9998  
Telephone: (832) 273-4636  
Email: hcarbajal@houstonmethodist.org

**Research Interests**

My research interests include factors that relate to solid organ dysfunction and transplantation science. Most of my work has been centered at the clinical level. Replacing dysfunctional organs in people requires careful selection of candidates and careful application of multidisciplinary medical knowledge. This maximizes the function of the organ and the quality of life of the individual. Clinical trials and research are indispensable to consistently perfect what can be done for each individual patient and to do this in a safe and cost-effective way. Over the last decade, clinical transplant science has excelled at understanding how to achieve good short- and intermediate-term results. However, we now are trying to decipher what is necessary to attain better long-term outcomes.



**April P. Carson, Ph.D., M.S.P.H.**

Assistant Professor  
Department of Epidemiology  
University of Alabama at Birmingham  
1720 Second Avenue South, RPHB 220  
Birmingham, AL 35294-0022  
Telephone: (205) 934-6107  
Fax: (205) 934-8665  
Email: apcarson@uab.edu

**Research Interests**

My research centers broadly on identifying and addressing factors associated with the development of diabetes and its vascular complications. I have a particular interest in understanding racial differences in glycemic markers and how these differences contribute to the development of cardiovascular and renal complications in minority populations. I have experience with several large observational cohort studies and have published on a range of social, clinical, and lifestyle factors related to the occurrence of diabetes and its vascular complications.



### **D. Roselyn Cerutis, Ph.D.**

Associate Professor of Oral Biology and Pharmacology  
School of Dentistry  
Creighton University  
2500 California Plaza  
Omaha, NE 68178  
Telephone: (402) 280-5033  
Fax: (402) 280-5094  
Email1: rcerutis@creighton.edu  
Email2: rcerutis@ymail.com

#### **Research Interests**

The focus of my laboratory is lysophosphatidic acid (LPA) as a mediator in oral wound healing and inflammation. LPA is a potent, simple phospholipid mediator made by many cell types. LPA is a pleiotropic molecule with hormone and growth factor-like properties. It binds to and activates its cognate G protein-coupled receptors (LPA1-6), each of which can signal through Gi, G12/13, and Gq and/or couple to the elevation of cAMP. Using an *in vitro* oral wound healing model, we have provided the first evidence that LPA controls the regenerative responses of human gingival and periodontal ligament fibroblasts. The present focus of our research is to understand the biochemical and molecular regulation of the LPA receptors on these cells, and to define the contribution played by each receptor subtype in controlling these “healing” responses, with emphasis on how these are altered under “diabetic” high-glucose conditions. We employ a combination of cellular, biochemical, and molecular approaches to investigate these changes. Other interests: adrenergic, purinergic, and serotonergic receptor pharmacology, adipokines.



### **Healani K. Chang, Dr.P.H.**

Research Associate Specialist Professor  
Pacific Biosciences Research Center  
University of Hawaii at Manoa  
1993 East-West Road, CSA002  
Honolulu, HI 96822  
Telephone: (808) 956-2146  
Fax: (808) 956-2892  
Email: hchang@hawaii.edu

#### **Research Interests**

My research interests include the clinical and epidemiological study of insulin resistance and cardiovascular disease risk factors among adult Native Hawaiians and Hawaii’s other multiethnic populations. Our current work involves a patient-centric web-based diabetes program to improve glycemic control and reduce diabetes complications.



**Leonor Corsino, M.D., M.H.S., F.A.C.E.**

Assistant Professor of Medicine  
Division of Endocrinology, Metabolism, and Nutrition  
Duke School of Medicine, Latino Medical Student Association, Faculty Advisor  
Co-Director, Duke Scholars in Molecular Medicine-Endocrinology Track  
Associate Chair, Department of Medicine Minority Recruitment and Retention  
Committee  
Duke University Medical Center, Box 3451  
Durham, NC 27710  
Phone: (919) 684-3841; (919) 627-7076  
Fax: (919) 668-1559  
Email: leonor.corsinonunez@duke.edu

**Research Interests**

My research focuses on the prevention of obesity, diabetes, and diabetes-related complications, with a special interest in health disparities and Latino health. I have been involved in multiple clinical trials, including the Weight Loss Maintenance Study, Hypertension Improvement Project, Cellphone Intervention for You (CITY), The Community Engagement Project—Achieving Health for a Lifetime, The Latino Health Project, Hypertension Improvement Project-Latino, Patient and Provider Intervention for the Management of Osteoarthritis-Latino, and the Duke Employee Weight Loss Study. My primary goal is to decrease the negative consequences of disparities in diabetes, obesity, and associated complications in minorities, especially Hispanics/Latinos. I strive to increase our understanding of factors contributing to these disparities.



**Deidra C. Crews, M.D., Sc.M., F.A.S.N.**

Assistant Professor of Medicine, Division of Nephrology  
Core Faculty, Welch Center for Prevention, Epidemiology, and  
Clinical Research  
Associate Faculty, Center on Aging and Health  
Chair, Diversity Council, Department of Medicine  
The Johns Hopkins University School of Medicine  
Gilbert S. Omenn Anniversary Fellow, Institute of Medicine  
301 Mason F. Lord Drive, Suite 2500  
Baltimore, MD 21224  
Telephone: (410) 550-2820  
Fax: (410) 550-7950  
Email: dcrews1@jhmi.edu

**Research Interests**

My core area of research addresses disparities in the care and outcomes of chronic kidney disease. I have examined the contribution of social determinants of health, including poverty and access to healthful foods, to disparities in kidney disease. My work in end-stage renal disease includes studies of the optimal timing and setting of dialysis initiation among vulnerable groups, and patient preparation for the start of renal replacement therapy.



**Luis Angel Cubano, Ph.D.**

Associate Dean for Research and Graduate Studies  
Professor of Cell Biology  
Universidad Central del Caribe  
P.O. Box 60327  
Bayamon, PR 00960  
Telephone: (787) 798-3001, ext. 2151  
Fax: (787) 740-4390  
Email: lacoadrgrs@gmail.com

**Research Interests**

My research focuses on how mechanical culture conditions affect renal cell gene expression, NF- $\kappa$ B and vitamin D receptor expression, and the production of vitamin D and urokinase.

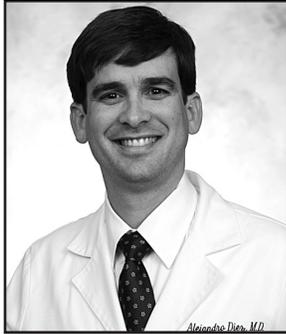


**Clarissa Jonas Diamantidis, M.D., M.H.S.**

Assistant Professor of Medicine  
Division of Nephrology  
University of Maryland Medical Systems  
22 S. Greene Street, Room N3W143  
Baltimore, MD 21201  
Telephone: (410) 328-5720  
Fax: (410) 328-5685  
Email: cdiamantidis@medicine.umaryland.edu

**Research Interests**

My research interests are in the areas of patient safety in chronic kidney disease (CKD) and health information technology (IT) as a means to educate patients and raise self-awareness. Awareness of CKD is remarkably low among both at-risk patients and providers, and using novel health IT tools may be a means to eliminate information barriers and mitigate the disparate outcomes noted in minorities with CKD. My colleagues and I have developed a medication inquiry system on several IT platforms, which provides guidance on the safety of medication usage in patients with CKD, as a means to improve patient education regarding potential medication errors in CKD.



**Alejandro Diez, M.D., F.A.S.N.**

Research Investigator  
Division of Nephrology  
The Ohio State University  
395 W. 12th Avenue, Ground Floor  
Columbus, OH 43210  
Email: alejandro\_diez@yahoo.com

**Research Interests**

My main area of interest is kidney transplantation. My current research focuses on recipient clinical outcomes following living kidney donation and transplantation of difficult-to-match recipients requiring kidney transplantation.



**Karen Tabb Dina, Ph.D., M.S.W.**

Assistant Professor  
University of Illinois at Urbana-Champaign  
1010 W. Nevada Street, Suite 2129  
Urbana, IL 61801  
Telephone: (217) 300-0200  
Fax: (217) 244-5220  
Email: ktabb@illinois.edu

**Research Interests**

My current research investigates the relationship between diabetes and depressive symptoms during pregnancy and post-delivery outcomes for mothers and infants. In addition, I am conducting mentored research as an Early Career Investigator on the Hispanic Community Health Study/ Study of Latinos, a multisite epidemiological study on depressive symptoms and chronic health problems (e.g., MetS and diabetes) among women.

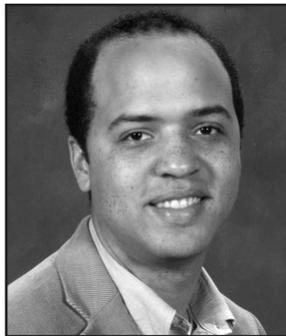


### **Ayoutunde Dokun, M.D., Ph.D.**

Assistant Professor of Medicine  
Aurbach Medical Research Building  
University of Virginia  
P.O. Box 801406  
450 Ray C. Hunt Drive, Suite 1214C  
Charlottesville, VA 22903  
Telephone: (434) 243-8301  
Email: doa3q@virginia.edu

#### **Research Interests**

Peripheral arterial disease (PAD) of the lower extremities is the result of arteriosclerotic blockage of blood vessels and its severity varies even among people with similar occlusions, suggesting a possible role for genetics in its severity. Individuals with diabetes are more likely to develop PAD and when people have PAD and diabetes, the disease is more severe, resulting in higher risk of amputation and death. Therefore, studies in our laboratory currently seek to understand how diabetes interacts with genetics and contributes to the poor outcomes seen in individuals with PAD.



### **Michael B. Duncan, Ph.D.**

Assistant Professor of Medicine and of Biochemistry and Molecular Biology  
Georgia Regents University Cancer Center Member  
Section of Gastroenterology/Hepatology  
Medical College of Georgia at Georgia Regents University  
1120 15th Street, CB2608  
Augusta, GA 30912  
Telephone: (706) 721-5484  
Email: mduncan@gru.edu

#### **Research Interests**

The goal of my research program is to determine the functional role of the extracellular matrix (ECM) in liver disease and cancer. My long-term interests are aimed at developing novel diagnostic and therapeutic options for treating advanced liver disease and cancer based on targeting remodeling events involving the ECM. We are particularly focused on determining the interaction between an important liver ECM molecule, type XVIII collagen, and hepatocyte integrins. We have found that this interaction is critical for cell survival. We are hopeful that our studies will yield important information regarding how the ECM modulates cellular phenotype during the injury response and the complex milieu of the tumor microenvironment. Additionally, we have initiated a project that seeks to establish the role of tumor-associated macrophages in angiogenesis and vessel remodeling during hepatocellular carcinoma (HCC). The aims for this project are to identify robust markers and the genetic signature of pro-angiogenic macrophages in the HCC tumor microenvironment and, ultimately, to validate this cell population as a target for therapeutic interventions. In order to conduct our studies, my group relies on genetic and chemically induced mouse models of liver injury and HCC; and modern techniques in tissue imaging, cell biology, biochemistry, and molecular biology.

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## **O. Kenrik Duru, M.D.**

Associate Professor  
Division of General Internal Medicine and Health Services Research  
Department of Medicine  
David Geffen School of Medicine  
University of California, Los Angeles  
10940 Wilshire Boulevard, Suite 700  
Los Angeles, CA 90024  
Telephone: (310) 794-8138  
Email: kduru@mednet.ucla.edu

### ***Research Interests***

I am a general internist and health services researcher interested in promoting physical activity and medication adherence among older minority adults, including those with diabetes. I hope to ultimately develop and implement interventions that improve outcomes among these patients. I have conducted and published several studies showing that clinical care strategies such as diabetes registries are not linked to reductions in black-white disparities in diabetes outcomes, while patient-level factors such as depression and medication adherence play a larger role. I am also interested in faith-based approaches to initiate and maintain physical activity among African-American women with diabetes and those at risk for developing the disease.

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## **James Dzandu, Ph.D.**

Trauma Research Manager  
Department of Trauma and Critical Care  
John C. Lincoln Health Network  
9202 N. Second Street  
Phoenix, AZ 85020  
Telephone: (602) 870-6060, ext. 5353  
Email: james.dzandu@jcl.com

### ***Research Interests***

My research interests are in health disparities using the sickle cell disease model at several levels of analysis, including cells, proteomics, genomics, community, and individuals. I was one of the early graduate students at Wayne State University Comprehensive Sickle Cell Center in Detroit, Michigan. As part of my formal training in biochemistry, I spent several years studying the structure, functions, and interactions among molecules of life: proteins, nucleic acids, lipids, and carbohydrates. Part of my original research centered on a search for a unified theory of sickle cell disease, with membrane red cell abnormality as a central piece. Our work at Wayne State University School of Medicine benchmarked abnormal membrane protein phosphorylation in sickle cell disease. The test of time continues to highlight the importance of protein kinases as clever molecular control devices that drive many processes in health and disease states. Our earlier work focused on changes in red cell membrane structure (trans-membrane signaling) in sickle cells as predictor variables for adhesion and/or red cell fragmentation. In 2009, we published studies on how fetal hemoglobin may be regulated through the effect of transcription factors, including Stat3 and GATA-1, with clues about the role of specific kinases. My current research interests are focused on hemoglobin A1C as a diagnostic marker for diabetes and prediabetes in emergency department patients. Beyond the diagnostic utility of A1c, I am interested in the identification of predictor variables of A1c. What factors determine A1c disparities among ethnic groups, gender, age, etc.? Since there are hundreds of thousands of human proteins, what are the effects of glycation on these proteins? What will be the effect of glycation on kinases, receptors, antibodies, and structural proteins, etc.? These ideas should drive basic research initiatives far into the future. Our current plan will establish the relationship between A1C and clinically meaningful patient outcome variables such as morbidity and mortality. As manager of clinical research at our level 1 trauma center and surgery residency program, I am actively involved in developing research agendas in areas of geriatric trauma, general surgery, robotic surgery, quality improvement efforts, and critical care issues. I continue to mentor medical students and surgery residents.



**Lincoln Edwards, D.D.S., Ph.D.**

Associate Professor  
Department of Diagnostic and Biomedical Sciences, Room 5367  
University of Texas School of Dentistry  
Houston, TX 77054  
Telephone: (713) 486-4109  
Fax: (713) 486-4416  
Email: lincoln.edwards@uth.tmc.edu

***Research Interests***

As the human body continues to expand and fuel the epidemic of type 2 diabetes, novel approaches to the treatment of metabolic diseases will be needed. My research interest involves the development of imidazoline compounds as therapeutic agents to treat metabolic diseases such as type 2 diabetes. Some of these compounds are currently in clinical use as antihypertensive agents, and I am exploring the possibility of developing imidazoline compounds as single agent therapy for diabetics with hypertension. I am also studying the cross-talk between insulin and imidazoline receptor signaling pathways.



**Robert Ferry, Jr., M.D.**

Professor, Division of Pediatric Endocrinology  
University of Tennessee Health Science Center  
858 Madison Avenue, MSB 501A  
Memphis, TN 38103-3409  
Telephone: (901) 448-2446  
Fax: (901) 448-2447  
Email: bob@uthsc.edu

***Research Interests***

Our research is focused on diabetes mellitus and its complications, the endocrine sequelae of childhood cancer, and growth disorders in children.



### **Gregory L. Florant, Ph.D.**

Full Professor  
Department of Biology  
Colorado State University  
200 W. Lake Street  
Fort Collins, CO 80523  
Telephone: (970) 491-7627  
Fax: (970) 491-0649  
Email: florant@lamar.colostate.edu

#### ***Research Interests***

My research interest is in the area of energy metabolism. In particular, I am interested in studying animal models that can help us understand obesity, diabetes, and food intake. I study mammals that hibernate because they undergo dramatic body mass cycles that are primarily based on fat storage and utilization. In addition, I work on hormone cell signaling in fat and muscle cells because this is an important part of how nutrients are used.



### **Michelle T. Foster, Ph.D.**

Assistant Professor  
Department of Food Science and Human Nutrition  
Colorado State University  
1571 Campus Delivery  
Fort Collins, CO 80523  
Telephone: (970) 491-6189  
Email: michelle.foster@colostate.edu

#### ***Research Interests***

The long-term goal is to identify and understand how adipose tissue contributes to the development, progression, and perhaps resistance to metabolic disease. Previous research focused on the role of visceral adipose tissue and its relation to insulin resistance. More specifically, we investigated the contribution of visceral derived free fatty acid delivery in metabolic dysregulation via alterations in adipocyte expansion and fatty acid retention in the visceral bed. These studies focused on visceral fat-liver interactions and utilized surgical interventions (transplantation or removal of adipose tissue) and molecular techniques. The next step in the development of this research objective is to examine how extrinsic communication and concomitant adipocyte function of the visceral adipose depot are altered following energy storage perturbations. Extrinsic factors, such as neural regulation and the lymphatic system, can influence adipocytes and thus contribute to the behavior of adipose tissue depots. We postulate that these extrinsic factors not only play an important role in central/visceral obesity-mediated metabolic impairments but also in establishing the intrinsic characteristics of adipocytes in central adipose tissue depots. This research will provide new insight into how visceral adipose tissue contributes to obesity-mediated dysregulation.



**Martin Frank, Ph.D.**

Executive Director  
American Physiological Society  
9650 Rockville Pike  
Bethesda, MD 20814-3991  
Telephone: (301) 634-7118  
Fax: (301) 634-7241  
Email: mfrank@the-aps.org

**Research Interests**

My research interests include excitation-contraction coupling in cardiac muscle and the effects of pharmacological interventions on the electrophysiology of isolated atrial muscle and the movement of calcium within the tissue. However, I have not been involved in research for many years, instead focusing my efforts toward association management and science policy.

**Eduardo Fricovsky, Pharm.D.**

Department of Clinical Pharmacy  
Skaggs School of Pharmacy and Pharmaceutical Sciences  
University of California, San Diego  
9500 Gilman Drive, MC 0675  
La Jolla, CA 92093  
Telephone: (858) 534-3714  
Fax: (858) 534-9932  
Email: esfricovsky@ucsd.edu

**Research Interests**

My research interests include diabetic cardiomyopathy and the effects of enzymatic protein glycosylation (O-GlcNAc) in type 2 diabetic mouse hearts and their influence on cardiac function. Also, I conduct studies related to the expression of O-GlcNAcase (GCA), an enzyme that removes excessive O-GlcNAc modification and protection against cardiomyopathy. Furthermore, the abnormal calcium transients occurring in type 2 diabetic hearts are examined using transgenic animals.

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## **Crystal A. Gadegbeku, M.D., F.A.H.A., F.A.C.P.**

Section Chief, Nephrology  
Co-Chair, Center of Bioethics, Urban Health, and Policy  
Associate Professor of Medicine  
Temple University School of Medicine  
Kresge West, Suite 100  
3440 N. Broad Street  
Philadelphia, PA 19140  
Telephone: (215) 707-0744  
Fax: (215) 707-9697  
Email: crystal.gadegbeku@tuhs.temple.edu

### **Research Interests**

My research interests include hypertension and vascular biology in kidney disease, chronic kidney disease, and health disparities in kidney disease.



## **Trudy Gaillard, Ph.D., R.N.**

Assistant Professor of Medicine Research  
Program Director  
Prevention of Diabetes in African Americans  
Division of Endocrinology, Diabetes, and Metabolism  
The Ohio State University  
4715 Cramblett Hall  
456 W. 10th Avenue  
Columbus, OH 43210  
Telephone: (614) 685-3363  
Fax: (614) 685-3329  
Email: trudy.gaillard@osumc.edu

### **Research Interests**

I am currently Assistant Professor of Medicine (Research) in the Division of Endocrinology, Diabetes, and Metabolism. In this position, I am responsible for exercise research aimed at examining the benefits of aerobic exercise on metabolic risk factors for cardiovascular disease (CVD) and type 2 diabetes in African Americans. I am interested in studying the metabolic correlates and nontraditional metabolic risk factors that lead to the development of type 2 diabetes and CVD in African-American women. I believe that understanding of the nontraditional risk factors may lead to future development of primary prevention protocols that could possibly curtail the higher rates of the disease in this population. African-American women have the lowest rates of reported leisure time physical activity. I am interested in designing culturally specific and relevant exercise programs for women and examining the benefits of exercise in the prevention of diseases in African-American women. Finally, I am interested in examining other nontraditional risk factors for CVD and type 2 diabetes, for example, the role of aspirin and/or exercise in the prevention of atherosclerosis and the functionality of high-density lipoprotein cholesterol (HDL-C) and its correlations to heart disease in African-American women. I believe understanding of the role of HDL functionality on the vasculature (structure and function) could provide (1) new insights into the mechanisms of the atheroprotective effects of aspirin in African-American women compared to white American women, and (2) the potential to develop novel and therapeutic armamentarium to improve HDL as a nontraditional approach to preventing CVD.



**Senta K. Georgia, Ph.D.**

Assistant Adjunct Professor  
Division of Endocrinology  
Hillblom Islet Research Center  
David Geffen School of Medicine  
University of California, Los Angeles  
900A Weyburn Place North  
Los Angeles, CA 90024  
Telephone: (310) 794-7713  
Fax: (310) 206-5368  
Email: sgeorgia@ucla.edu

**Research Interests**

Currently, my research focuses on how methylation restricts cell fate decisions during pancreatic organogenesis, and how methylation restricts beta cell self-renewal in adulthood. I hope to apply my expertise to methods of expanding beta cell mass, either *in vivo* or *ex vivo*, as a potential therapeutic for patients with diabetes.



**Nasra Giama, D.N.P., R.N., P.H.N.**

Research Coordinator  
Division of Gastroenterology and Hepatology  
Mayo Clinic  
200 First Street, S.W.  
Rochester, MN 55905  
Phone: (507) 538-0097  
Fax: (507) 266-0350  
Email: giama.nasra@mayo.edu

Clinical Assistant Professor  
University of Minnesota, School of Nursing  
300 University Square  
111 South Broadway  
Rochester, MN 55904  
Phone: (507) 258-8041  
Fax: (507) 258-8043  
Email: giama003@umn.edu

**Research Interests**

My primary research interests center around health promotion, research participation and inclusion, and determinants affecting the health of minority communities. Specifically, I am involved with research studies about hepatitis B and hepatitis C and liver disease among immigrant and refugee communities and identifying opportunities to intervene at the individual, community, and system level. I am also interested in adolescent health and examining the relationship between educational attainment and health.



**Eddie L. Greene, M.D.**

Associate Professor of Medicine  
Division of Nephrology and Hypertension  
Department of Internal Medicine  
Faculty Director for Health Disparities and Minority Health  
Mayo Clinic  
200 First Street, S.W.  
Rochester, MN 55905  
Telephone: (507) 255-6916  
Fax: (507) 266-7891  
Email: [green.eddie@mayo.edu](mailto:green.eddie@mayo.edu)

**Research Interests**

My research interests include: (1) the pathophysiology of chronic kidney disease (specifically the biology of fibrosis-inducing signaling cascades in renal tubule cells and in the renal mesangium); (2) the evaluation and management of cardiovascular comorbidities in patients with chronic kidney disease; and (3) the pathophysiology of renal malignancies.



**Raquel Charles Greer, M.D., M.H.S.**

Assistant Professor of Medicine  
Division of General Internal Medicine  
The Johns Hopkins University  
2024 E. Monument Street, Suite 2-626  
Baltimore, MD 21287  
Telephone: (410) 502-8897  
Fax: (410) 955-0476  
Email: [rfcharle@jhmi.edu](mailto:rfcharle@jhmi.edu)

**Research Interests**

My research focuses on identifying and addressing modifiable factors to improve the health of patients with chronic kidney disease and to narrow ethnic/racial disparities in clinical outcomes. I am specifically interested in improving the care that primary care providers deliver to patients with chronic kidney disease and improving awareness and knowledge of chronic kidney disease among ethnic/racial minorities.

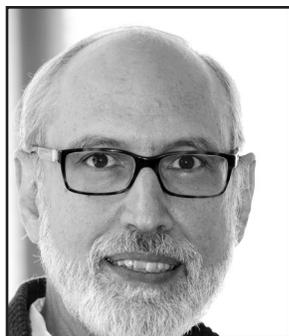
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## **Absalon D. Gutierrez, M.D.**

Fellow  
Division of Endocrinology, Diabetes, and Metabolism  
Department of Medicine  
Baylor College of Medicine  
Suite 1000  
1709 Dryden Road, MS 620  
Houston, TX 77030  
Telephone: (713) 798-5315  
Fax: (713) 798-5214  
Email: aguiterr@bcm.edu

### **Research Interests**

My clinical and translational research focuses on the effects of glucocorticoid hormones and PPAR-gamma agonists on the development of cardiac and hepatic steatosis. I am also very interested in the effects of antioxidants on the progression of atherosclerosis in type 2 diabetic patients.



## **Arthur Gutierrez-Hartmann, M.D.**

Director, Medical Scientist Training Program  
Director, Physician Scientist Training Program  
Professor, Departments of Medicine and of Biochemistry and Molecular Genetics  
Division of Endocrinology  
University of Colorado  
Anschutz Medical Campus  
Room L18-7108  
12801 E. 17th Avenue, Mail Stop 8106  
Aurora, CO 80045  
Telephone: (303) 724-3921  
Fax: (303) 724-3920  
Email: a.gutierrez-hartmann@ucdenver.edu

### **Research Interests**

The main focus of my laboratory is to determine the role of Ras/MAPK signaling and Ets transcription factors in epithelial cell development and tumorigenesis, with a focus on pituitary and mammary model systems.



## **B. Michelle Harris, Ph.D., M.P.H.**

Associate Professor  
Nutrition and Food Science  
College of Agriculture, Urban Sustainability, and Environmental Sciences  
University of the District of Columbia  
Building 44  
4200 Connecticut Avenue, N.W.  
Washington, DC 20008  
Telephone: (202) 274-5739  
Fax: (202) 274-5577  
Email: bharris@udc.edu

### ***Research Interests***

Through a resident-led Health Committee initiative, I am engaged in collaborative relationship-building with the University of the District of Columbia, the District of Columbia Housing Authority (DCHA), and various health-related agencies across the District of Columbia to encourage the active participation of DCHA residents in conducting research and surveillance that will contribute to reducing health disparities, especially in the area of obesity-related diseases. I will continue to explore the metabolic syndrome and will examine various approaches to reducing its negative impact on the health of minority populations. I am working to expand research opportunities among undergraduate students in the areas of nutrition and related sciences. My past research includes a Robert Wood Johnson Foundation Active Living Research-funded project titled, “The Availability of Healthy Foods, BMI, and Dietary Patterns in Urban Adolescents.” In this project, we examined the associations among adolescents’ perceived and objective availability of healthy foods, the physical environment, and BMI. I also completed a study titled, “The Relationship of Low Birth Weight and Current Obesity to Diabetes in African-American Women.”

## **Marquis Hawkins, Ph.D.**

Postdoctoral Scholar  
University of Pittsburgh  
3512 Fifth Avenue, Room 308  
Pittsburgh, PA 15261  
Telephone: (412) 383-1448  
Fax: (412) 383-1020  
Email: hawkinsm@edc.pitt.edu

### ***Research Interests***

The title of my doctoral dissertation was, “The Relationship Between Physical Activity and Chronic Kidney Disease/Kidney Function.” Using data from the National Health and Nutrition Examination Survey and the Strong Heart Study, I investigated whether physical activity can prevent the onset and/or slow the progression of chronic kidney disease (CKD). We showed that physical activity, specifically activities of light intensity, was independently associated with kidney function. We also showed that physical activity was associated with lower odds of rapid progression of kidney disease. Currently, I am part of a team that is conducting a pilot study investigating the impact of a lifestyle (diet, physical activity, and weight loss) intervention on cardiovascular risk factors in individuals with CKD. Given the complex dietary regimens of individuals with CKD, we hope to create an intervention that simplifies behavioral monitoring for this population. My future research goals are to investigate what factors mediate the relationship between physical activity and CKD progression.



### **Patricia Cristine Heyn, Ph.D.**

Assistant Professor, Department of Physical Medicine and Rehabilitation  
School of Medicine  
University of Colorado Denver  
Anschutz Medical Campus  
Academic Office 1, Room 2513  
12631 E. 17th Avenue, MS F-493  
Aurora, CO 80045  
Telephone: (303) 513-7740  
Fax: (303) 724-0863  
Email: patricia.heyne@ucdenver.edu

#### **Research Interests**

My research interests encompass three investigational areas related to the effects of physical activity training on: (1) metabolic syndrome (MetSyn) and insulin resistance (IR); (2) cognitive function; and (3) cytokines and neurotrophic factors. I am currently evaluating the effects of exercise training with or without pharmacological treatment on selected metabolic markers (lipids, glucose, cytokines, and growth factors), obesity, lifestyle behavior, and cognitive function. I am constantly designing behavioral treatments for the prevention of cardiovascular diseases targeting adults with: (1) mild cognitive impairments, (2) MetSyn, and (3) disabled individuals (i.e., chronic tetraplegia). My research interests include establishing phenotypes for inherited forms of neurodevelopmental and neurodegenerative disorders and identifying preclinical stages of Alzheimer's disease by biobehavioral, genetic, and neuroimaging markers. I have been involved in several international academic programs and scientific meetings. In December 2006, my research was featured in the most popular Argentinean newspaper, *La Nacion*, after I delivered a keynote lecture at the 6th Neuropsychological Argentinean Congress. The National Alzheimer's Association features my research on the effects of exercise on dementia on its "Maintain Your Brain™—the Science Behind the Recommendations" website.



### **Alethea Hill, Ph.D., M.S.N., ANP-BC**

Assistant Professor/Adult Nurse Practitioner  
College of Nursing  
University of South Alabama  
5271 University Drive North, HAHN 4062  
Mobile, AL 36688  
Telephone: (251) 455-4099  
Fax: (251) 650-3804  
Email: amhill222@gmail.com

#### **Research Interests**

My research interests are prediabetic states and type 2 diabetes as a risk equivalent for cardiovascular disease. In addition, I am interested in the gender and racial/ethnic differences that exist when predicting the risk of type 2 diabetes and prediabetic states among African American women. I began my research career working with community and faith-based organizations focusing on diabetes self-management education and risk awareness projects. I plan to expand my research interest to investigate the associations between sleep duration/hygiene, dyslipidemia, and diabetes among African American populations.



### **Princess Imoukhuede, Ph.D.**

Assistant Professor  
Department of Bioengineering  
University of Illinois  
3235 Digital Computer Lab  
1304 W. Springfield Avenue  
Urbana, IL 61801  
Office Telephone: (217) 244-2651  
Cell: (626) 627-8740  
Email: pii@illinois.edu

#### **Research Interests**

I aim to advance our cellular and molecular understanding of receptor regulation through systems biology. I have extensive training in bioengineering and biophysics; as such, my laboratory leads efforts to sense, model, predict, and ultimately tune angiogenesis by both mapping cellular heterogeneity and integrating these parameters through computational modeling. I have recently pioneered a novel quantitative fluorescence approach for sensitive cell isolation and mapping of angiogenic receptor surface distributions. I have applied this technology to both animal models of breast cancer and ischemic disease. I incorporate these molecular and cellular data into multi-scale computational models. Such models have recently predicted the efficacy of anti-angiogenic therapeutics and identified novel drug targets and treatment schemes. My advancement of this bimodal, experimental, and computational paradigm accelerates discovery into the signaling cues mediating vascular growth and development.



### **Carlos M. Isales, M.D.**

Professor of Orthopaedic Surgery, Medicine, and Cell Biology  
Director Institute for Regenerative and Reparative Medicine  
Vice-Chairman for Research Department of Orthopaedic Surgery  
Georgia Regents University  
1120 15th Street, CA 1004  
Augusta, GA 30912  
Telephone: (706) 721-0692  
Fax: (706) 721-8727  
Email: cisales@gru.edu

#### **Research Interests**

Our laboratory is working to understand the hormonal links between nutrient ingestion and bone formation. We have identified several hormones of interest—in particular, glucose-dependent insulinotropic peptide, an enteric hormone that rises on nutrient ingestion and appears to be able to both stimulate bone formation and inhibit bone breakdown. We are using a variety of genetic models to study this link.



### **Chandra L. Jackson, Ph.D., M.S.**

Yerby Postdoctoral Research Fellow  
Nutrition Department  
School of Public Health  
Harvard University  
Building II, Room 302  
655 Huntington Avenue  
Boston, MA 02115  
Telephone: (617) 432-1841  
Fax: (617) 432-2435  
Email: [cjackson@hsph.harvard.edu](mailto:cjackson@hsph.harvard.edu)

#### ***Research Interests***

Focusing on the epidemiology, prevention, and control of obesity and type 2 diabetes, my past work highlighted the potential for health information technology to improve diabetes care as well as racial/ethnic differences in (1) overweight/obesity trends within levels of educational attainment and, (2) obesity-related mortality. As a postdoctoral research fellow at the Harvard School of Public Health, I am investigating the role of suboptimal diet and lifestyle as modifiable contributors to the disproportionate obesity and diabetes risk experienced by traditionally under-resourced populations. By centering my research objectives on modifiable, social determinants of obesity and diabetes, I plan to contribute to the translation of epidemiologic findings into interventions and policies that address structural, macro-level as well as individual-level barriers to achieving and maintaining a healthy weight.

### **Cynthia Ann Jackson, Ph.D.**

Associate Professor of Physiology  
Department of Biology  
Alabama A&M University  
7113 Sunnywood Drive  
Nashville, TN 37211  
Telephone: (205) 332-2540  
Fax: (615) 953-6599  
Email: [femscientist@gmail.com](mailto:femscientist@gmail.com)

#### ***Research Interests***

My area of research interest is renal physiology, focusing on understanding how the heterogeneity segments of the kidney regulate various parameters involved in water and electrolyte balances. Presently, I have two major ongoing projects in my laboratory. My first project is identifying urinary protein markers associated with various pathophysiological diseases, specifically sodium-induced hypertension. My second and most recent project involves investigating signal transduction pathways and biomarkers involved in cell proliferation of renal carcinoma.



## **Cheedy Jaja, Ph.D., M.P.H., M.N., R.N.**

Associate Professor  
College of Nursing  
Academic Health Center  
University of Cincinnati  
Cincinnati, OH 45219  
Telephone: (513) 558-5296  
Fax: (513) 558-5054  
Email: cheedy.jaja@uc.edu

### ***Research Interests***

My long-term career goal is to make substantial contributions to sickle cell disease analgesic pharmacogenetics by developing a robust pharmacogenetic research program centered on the clinical translation of inherited genetic variants that would foster the development of algorithms for appropriate selection of analgesics for pain management in sickle cell disease patients. My current NIH/National Institute of Nursing Research-funded study investigates incidence of suboptimal prescribing of analgesics and association between suboptimal prescribing, deficient cytochrome P450 (CYP2D6, CYP2C9, and CYP2C19) metabolic enzymes, frequent acute care visits, and quality of life in adult sickle cell disease patients.

## **Danese Joiner, Ph.D.**

Postdoctoral Fellow  
Internal Medicine-Pulmonary/Critical Care  
University of Michigan  
Biomedical Science Research Building  
109 Zina Pitcher Place  
Ann Arbor, MI 48108  
Telephone: (734) 763-2670  
Email: speededj@umich.edu

### ***Research Interests***

My current research focuses on the effect of interleukin-1 receptor-associated kinase 3 (IRAKM) genetic deletion on lung adenoma and adenocarcinoma. My research is also focused on single-immunoglobulin interleukin-1 receptor-related (SIGIRR) signaling during lung adenocarcinoma and the role of Transient receptor potential cation channel, subfamily V, member 4 (TRPV4) in lung adenocarcinoma EMT. I hope to utilize research to protect and advance public health and to disseminate scientific knowledge to the public.



**Stacy Jolly, M.D., M.A.S.**

Assistant Professor  
General Internal Medicine  
Cleveland Clinic Lerner College of Medicine  
9500 Euclid Avenue, G10  
Cleveland, OH 44195  
Telephone: (216) 444-8188  
Fax: (216) 445-1007  
Email: jollys@ccf.org

**Research Interests**

My research interests are in chronic kidney disease epidemiology and outcomes, with a particular focus on American Indians and Alaska Natives. I am also interested in chronic kidney disease knowledge and awareness, development of educational interventions, and use of technology or systems changes to improve the care of people with chronic disease. I have an NIH K23 Career Development Award.

**Myra A. Kleinpeter, M.D., M.P.H.**

Associate Professor of Clinical Medicine  
Tulane University School of Medicine  
1430 Tulane Avenue, SL45  
New Orleans, LA 70112  
Telephone: (504) 988-5346  
Fax: (504) 988-1909  
Email: mkleinp@tulane.edu

**Research Interests**

My principal interests are in chronic disease management, continuing medical education, quality improvement, and providing health care to underserved populations. My research activities include cardiovascular disease risk factors in chronic kidney disease (CKD) patients, health literacy assessment, the impact of modifying patient education programs on health outcomes, and the effect of modified clinical visits on health outcomes and access to health care. As health care payment models change, implementation of chronic care management teams will be an integral part of these new health care models. I am interested in studying the impact of patient-centered medical homes on care delivery and reduction of health disparities in CKD patients.



### **Daniel T. Lackland, Dr.P.H.**

Professor of Epidemiology  
Department of Neurosciences and Department of Medicine  
Medical University of South Carolina  
Harborview Office Tower, Suite 501  
Charleston, SC 29425  
Telephone: (843) 876-1141  
Fax: (843) 792-2484  
Email: lackland@musc.edu

#### ***Research Interests***

My research interests involve the population risk assessment of diabetes, cardiovascular disease, stroke, kidney disease, and hypertension. In particular, my work focuses on the biological and clinical factors as well as the social determinants associated with disease. Our populations studies laboratory also assessing the geographic patterns of disease through population-based cohort studies in the United States and around the world. We continue to include fetal and early life factors in these population-based assessments. I am also involved in community and population-based diabetes and high blood pressure control efforts. By working with international collaborators and the World Hypertension League, we are developing global health research projects focused on health disparities with a major component of training early-career clinical investigators in research methodology.



### **Joseph Larkin III, Ph.D.**

Assistant Professor  
Microbiology and Cell Science  
University of Florida  
P.O. Box 110700  
Gainesville, FL 32611  
Telephone: (352) 392-6884  
Fax: (352) 392-5922  
Email: jlarkin3@ufl.edu

#### ***Research Interests***

Our laboratory's primary focus is directed toward better understanding the balance between the immune system's ability to effectively eliminate pathogenic microorganisms and cancers, while remaining nonresponsive to self-tissues and commensal microorganisms. In general, the immune system is highly effective in limiting self-tissue damage; however, aberrant immune responses can result in the onset of the autoimmune diseases rheumatoid arthritis, type 1 diabetes, multiple sclerosis, and lupus. Recently, a subset of immune system cells, known as regulatory T cells, have been shown to be critical in moderating immune responses. We have recently shown that a cytokine inducible, intracellular protein, suppressor of cytokine signaling-1 (SOCS1), has a significant role in the regulation of Treg functions. As an extension of these findings, we are currently examining the role of SOCS1 in the regulation of immune cells, particularly Tregs, during lupus onset and progression (funded by the Lupus Research Institute). In separate research, partially supported by the Juvenile Diabetes Research Institute, we are also examining the capacity of gut bacteria composition to modulate immune system functions that promote type 1 diabetes onset.



**Mark Andrew Lawson, Ph.D.**

Professor  
Department of Reproductive Medicine  
University of California, San Diego  
9500 Gilman Drive  
La Jolla, CA 92093-0674  
Telephone: (858) 822-4128  
Email: mlawson@ucsd.edu

***Research Interests***

We are investigating the molecular mechanisms of hormone action in the pituitary, with a special emphasis on factors controlling reproductive function. Current studies are focused on understanding the role of hormone action in regulating translation initiation and mRNA utilization. We are also interested in the mechanism of endocrine diseases affecting reproduction, such as polycystic ovary syndrome and type 2 diabetes. Our long-term interest is in understanding the integration of multiple hormone signaling pathways in the regulation of endocrine cell function.



**Shirleatha T. Lee, Ph.D., R.N., C.N.E.**

Associate Professor  
Loewenberg School of Nursing  
The University of Memphis  
Newport Hall 210  
610 Goodman  
Memphis, TN 38152  
Telephone: (901) 678-2036  
Email: sntaylr1@memphis.edu

***Research Interests***

My research interests are focused on childhood obesity and the development of cardiovascular disease and diabetes in this population. I am very interested in pre-diabetes and cardiac autonomic dysfunction in obese youth. I would truly enjoy the opportunity to network with seasoned minority researchers. I would be interested in acquiring knowledge and expertise from mentors with similar research interests to help me become a successful biomedical researcher.

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## Shaye K. Lewis, Ph.D.

Postdoctoral Fellow  
Scott Department of Urology  
Center for Reproductive Medicine  
Baylor College of Medicine  
Alkek N730  
One Baylor Plaza  
Houston, TX 77030  
Telephone: (281) 216-3650  
Email: shayel@bcm.tmc.edu

### **Research Interests**

My research interests include the molecular characterization of normal and abnormal male genitourinary tract development, including the prostate, in order to define the etiology of congenital defects and prostate disease progression. Genetic, environmental, and hormonal insults sustained *in utero* are associated with congenital and adult onset diseases, even with apparently successful medical interventions. Genome-wide association studies can identify genetic variations to explain complex human diseases. I have identified chromosomal structural variations resulting in *de novo* copy number duplications and deletions in patients diagnosed with combined hypospadias and cryptorchidism. I hypothesize that these subtle chromosome aberrations affect dosage sensitive genes in these regions that are critical for genitourinary tract development. Subjects with combined hypospadias and cryptorchidism displayed distinct regions affected by submicroscopic chromosome duplications or deletions not detected in normal pregnancy-proven fertile controls or in the Database of Genomic Variants (<http://projects.tcag.ca/variation/>). Novel, candidate genes identified by aCGH may be required for normal genitourinary tract and male external genitalia development and function. Identification of such genes will improve patient diagnosis and perhaps treatment. Long term, I hope to develop more sensitive assays that, when utilized from a systems biology approach, result in a better understanding of the roles and interrelatedness that genomic, environmental, and hormonal insults have on genitourinary tract development. Ultimately, these will improve prevention, diagnosis, and treatment of diseases associated with genitourinary tract development and prostate disease progression in humans.



### **Zeenat Lila, Ph.D.**

Research Scientist  
South Carolina State University  
300 College Street, N.E.  
Orangeburg, SC 29117  
Telephone: (803) 533-3925  
Fax: (803) 533-3792  
Email: [zlila@scsu.edu](mailto:zlila@scsu.edu)

#### **Research Interests**

My research interest is to investigate the involvement of DNA in glycooxidation reactions having implications in diseases such as diabetes, mutation of DNA, synthesis of proteins such as insulin, and cancer. It is widely believed that DNA is involved in complications arising out of obesity, diabetes, and other age-related diseases. Initial experiments were designed to identify uniquely modified DNA nucleosides (CMdA and CMdC) from in vitro reactions followed by experiments to detect the presence of the same in calf thymus and human serum DNA. Our work describing detection of carboxymethyl-2'-deoxyadenosine (CMdA) and carboxymethyl -2'-deoxycytidine (CMdC) was already reported. Our current research is to develop a method for quantification of modified DNA nucleosides using spectrophotometer, HPLC, and LC-MS/MS spectroscopy. These results will indicate the severity and age/obesity dependency of DNA modification in relation to diabetes and other age-related diseases. We hope that continued research in this area will lead to the discovery of a biomarker for diseases that result from complications in diabetes such as blindness, renal failure, coronary heart, and Alzheimer's diseases.



### **Mary Frances Lopez, Ph.D.**

Assistant Professor in Pediatrics  
Department of Medicine, Endocrine Division  
Children's Hospital, Boston  
3 Blackfan Circle, CLS 16028  
Boston, MA 02115  
Telephone: (617) 919-2862  
Email: [mary.lopez@childrens.harvard.edu](mailto:mary.lopez@childrens.harvard.edu)

#### **Research Interests**

My research is focused on studying the role of insulin-like growth factor action-II (IGF2) in obesity and cancer. Obesity is often associated with substantial complications including diabetes, cardiovascular disease, and death. I am currently performing gene expression studies to determine the mechanisms by which IGF2 regulates hepatic lipid metabolism. Since obesity is a significant risk factor for several types of cancers, I am also interested in determining the molecular basis of the connection between IGF2 and cancer.

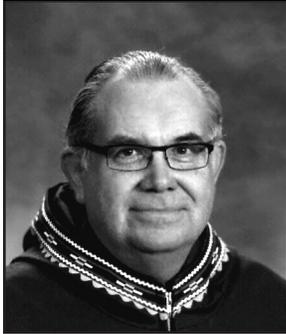


## **Jesús M. López-Guisa, Ph.D.**

Research Associate Professor and Scientist  
Department of Pediatric Nephrology  
University of Washington  
Research Center for Tissue and Cell Sciences  
Seattle Children's Hospital Research Institute  
1900 Ninth Avenue, M/S C9S-9  
Seattle, WA 98101  
Telephone: (206) 884-6037  
Fax: (206) 987-7660  
Email: [jesus.lopez-guisa@seattlechildrens.org](mailto:jesus.lopez-guisa@seattlechildrens.org)

### **Research Interests**

Our laboratory's research focuses on the molecular mechanisms of renal interstitial fibrosis, particularly those changes occurring during the inflammatory and fibrotic stages. To study renal interstitial fibrosis, we use the unilateral ureter obstruction (UUO), Adriamycin®, puromycin, and protein overload models; for diabetic nephropathy, the streptozotocin (Stz) and db/db models are utilized. We have established that Timp1 deficiency does not alter the degree of interstitial fibrosis in either the murine protein overload or UUO models, possibly due to a genetic redundancy with genes such as *Timp2*. Additionally, we have demonstrated the fibrogenic role of PAI-1 (plasminogen activator inhibitor-1), proving its importance as a fibrosis promoting gene. Similar results were observed in two diabetic nephropathy models (Stz and db/db) using PAI-1 +/+ and PAI-1 deficient mice. Recent results using PAI-1 +/+ mice have confirmed the importance of PAI-1 in renal fibrosis; mice overexpressing PAI-1 developed significantly more fibrosis than their wild-type counterparts. We also have shown that the uPAR gene attenuates renal fibrosis, possibly mediated by a urokinase-dependent—yet plasminogen-independent—system. Our studies using uPA null mice showed no difference in the fibrosis level between wild-type and null mice. This raises the question of the role of uPA in renal fibrosis as well as its function in the absence of its receptor, uPAR, which may have antifibrotic properties. We have demonstrated the importance of the gp130 family of cytokines during the renal inflammatory process, prior to the chronic fibrotic stage. Preliminary results indicate that gp130 functions in a profibrotic capacity as an “alternative” receptor for uPA in the absence of uPAR. Studies have been initiated on the IL6 family of cytokines and the metabolic syndrome, focusing specifically on the role of macrophages during the inflammatory process.



### **Ted Mala, M.D., M.P.H.**

Director of Tribal Relations  
Southcentral Foundation  
Director of Traditional Healing  
Alaska Native Medical Center  
4501 Diplomacy Drive  
Anchorage, AK 99508  
Telephone: (907) 729-4955  
Fax: (602) 870-6075  
Email: [tmala@scf.cc](mailto:tmala@scf.cc)

#### ***Research Interests***

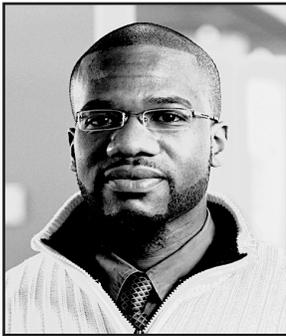
My interests are in the area of Native American Traditional Medicine. I strongly believe that culture must be integrated into Western medicine. To me that means integrating cultural beliefs and practices into clinical medicine to form a more holistic approach to healing. I believe that clinical outcomes are strongly balanced with psychoneuroimmunology and that this can be demonstrated in all areas of clinical medicine. I am especially interested in the connection between Northern Circumpolar peoples and their relationship to Native Hawaiians and other Polynesian peoples.

### **Alicia Mangram, M.D.**

Trauma Surgery Critical Care Medical Director  
Department of Trauma Services  
John C. Lincoln Health Network  
250 E. Dunlap Avenue  
Phoenix, AZ 85020  
Telephone: (602) 870-6059  
Fax: (602) 870-6075  
Email: [alicia.mangram@jcl.com](mailto:alicia.mangram@jcl.com)

#### ***Research Interests***

Many complications of diabetes, particularly those requiring surgical procedures, may be avoided or reduced in young individuals if effective early detection and management protocols are implemented. With regards to type 2 diabetes mellitus, initially my primary research focus was to identify undiagnosed type 2 diabetes among young individuals in order to reduce long-term, diabetes-related complications. Therefore, my research goals are to: (1) develop a clinical paradigm/protocol specifically designed to identify diabetes and prediabetes, particularly in patients requiring surgical procedures; (2) develop a comprehensive multidisciplinary approach to diabetes care in order to address the plethora of medical and psychosocial needs of the young individual with diabetes and/or pre-diabetics; and (3) provide an opportunity for training minority physician residents with an interest in developing a clinical research career and to network with a critical mass of other minority research investigators. The research design and method is based on a current prospective observational cohort study of patients admitted to the Emergency Department (ED) with a general surgery or trauma admission. A1c is determined at the time of admission, and FPG measurements are done after patients are stable the following morning. Anthropomorphic data, prior medical and surgical histories, BMI, alcohol use, and smoking status are abstracted from medical records and then analyzed.



**Darius Mason, Pharm.D., BCPS**

Associate Professor, ANephRx-Albany Nephrology Pharmacy Group  
Co-Director, ANephRx Core Laboratory  
Department of Pharmacy Practice  
Albany College of Pharmacy and Health Sciences  
O'Brien Building, Suite 231  
106 New Scotland Avenue  
Albany, NY 12208  
Telephone: (518) 694-7188  
Fax: (866) 788-1099  
Email: [darius.mason@acphs.edu](mailto:darius.mason@acphs.edu)

**Research Interests**

My research interests consist of describing and measuring the influence of chronic kidney disease management interventions on vitamin D and phosphorous metabolism. Specifically, my interest is focused on determining molecular mechanisms (i.e., cardiovascular and immunological) and pathways that are modified by these therapies.



**Marjorie K. Leimomi M. Mau, M.D., M.S.**

Professor  
Department of Native Hawaiian Health  
Center for Native and Pacific Health Disparities Research  
John A. Burns School of Medicine  
University of Hawaii at Manoa  
677 Ala Moana Boulevard, Suite 1016-B  
Honolulu, HI 96813  
Telephone: (808) 692-1075  
Email: [mmau@hawaii.edu](mailto:mmau@hawaii.edu)

**Research Interests**

My research interests are diabetes health disparities, especially among Native Hawaiians, Pacific Island peoples, and other Native populations of the United States; and community-engaged research as an effective approach to conduct translational research in metabolic syndrome, obesity, diabetes, and heart disease.



**Leon McDougle, M.D., M.P.H.**

Associate Professor, Family Medicine  
Chief Diversity Officer  
The Ohio State University Wexner Medical Center  
Meiling Hall, Room 066  
370 W. 9th Avenue  
Columbus, OH 43210  
Telephone: (614) 293-8007  
Email: leon.mcdougle@osumc.edu

***Research Interests***

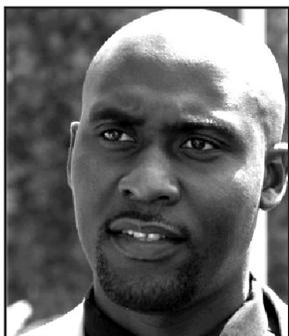
My research is focused on health empowerment technology for older African Americans and workforce diversity and inclusion.

**Eva M. McGhee, Ph.D., M.S.**

Assistant Professor of Genetics  
Department of Clinical Pharmacy  
University of California, San Francisco  
P.O. Box 31934  
San Francisco, CA 94131  
Telephone: (415) 476-3931  
Fax: (415) 791-0278  
Email: eva.mcghee@ucsf.edu

***Research Interests***

I have two main research interests. The first is to study E6/E7 proteins of the high-risk human papillomaviruses that are associated with more than 95 percent of anogenital cancers. E6/E7 oncoproteins are consistently expressed in cervical cancer, and continued expression of E6/E7 is necessary for the induction as well as the maintenance of the transformed state. The main thrust of our studies is to determine chromosome instability and DNA repair mechanisms that are associated with E6/E7 protein's influence on cancer. A second interest of the laboratory is to delineate the function of genetic factors involved in diabetes, obesity, and kidney tumors.



### **Lancelot McLean, Ph.D.**

Assistant Professor  
School of Dentistry  
Loma Linda University  
11021 Campus Street  
Loma Linda, CA 92354  
Telephone: (909) 558-1000, ext. 41587  
Fax: (909) 558-0119  
Email: [lmclean@llu.edu](mailto:lmclean@llu.edu)

#### ***Research Interests***

Our research interest involves investigating the mechanism of action of imidazoline compounds in the treatment of insulin resistance, hypertension, and metabolic syndrome X.

### **Tesfaye Mersha, Ph.D.**

Assistant Professor  
Department of Pediatrics  
Cincinnati Children's Hospital Medical Center  
3333 Burnet Avenue  
Cincinnati, OH 45229  
Telephone: (513) 803-2766  
Fax: (513) 636-1657  
Email: [tesfaye.mersha@cchmc.org](mailto:tesfaye.mersha@cchmc.org)

#### ***Research Interests***

My overall research interest and goal includes the use of population genomics and quantitative and statistical genetics methods to understand human genome variation; and utilizing this information to dissect complex diseases, particularly allergy disorders, through approaches and methods ranging from linkage, association, admixture mapping, and transcriptional profiling analysis. Complementary to statistical analysis, I also frequently apply biological pathways and functional commonalities analysis to uncover co-regulation of gene expression across the genome, data mining, and bioinformatics techniques for candidate gene prioritization procedures from linkage and expression studies. My long-term goals are to reduce childhood morbidity and mortality associated with metabolic and allergic disorders, and to eliminate the significant racial disparities in asthma and asthma-related outcomes. To enhance my analytical skills for verifying statistical properties of biological problems as applied to admixed populations such as ancestry inference, disease gene localization, evolutionary relationship, patterns of molecular diversities, and population structure in disease genetics, I will be actively involved in the NMRI program.

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## **Jennifer Molokwu, M.D., M.P.H.**

Department of Family and Community Medicine  
Texas Tech University Health Sciences Center at El Paso  
9849 Kenworthy Street  
El Paso, TX 79924  
Telephone: (915) 224-0472  
Email: jennifer.molokwu@ttuhsc.edu

### ***Research Interests***

My overall research interest is in women's health and includes health education, health literacy, and chronic disease management. Currently, I am working on improving cervical cancer screening rates and HPV vaccination rates in Hispanic females. I am also working on a PCMH model for delivery of hepatitis C care focusing on primary care physician education and community awareness of screening and treatment.



## **Darren D. Moore, Ph.D., L.M.F.T.**

Assistant Professor of Psychiatry and Behavioral Sciences  
Community Placement Coordinator  
Mercer University School of Medicine  
655 First Street  
Macon, GA 31201  
Telephone: (478) 301-4078  
Email: moore\_dd@mercer.edu

### ***Research Interests***

My research, teaching, and clinical focus is the systemic examination and treatment of obesity, weight loss, eating disorders, and related addictions, with a special focus on men, African-American families, and other marginalized populations. My research interest includes examining barriers to treatment, psychological and psychosocial aspects, and couple and family relational dynamics regarding obesity, weight loss, eating disorders, and related addictions. My dissertation titled, "Life after Bariatric Surgery: Men's Perspectives on Self-concept, Intimate Relationships, and Social Support," explored the relational dynamics inherent when significant weight loss occurs in male-patient, female-spouse dyads. I am currently conducting a study titled, "Health Disparities in Obesity and Bariatric Surgery Among African-American Men," which is focused on exploring the perceptions of weight loss surgery among an African-American male sample. My teaching includes training Master's level marriage and family therapy students and medical students in a family systems and collaborative approach to healthcare. Likewise, I focus on the history of obesity, the epistemology of obesity, obesity education, and intervention development. As a licensed Marriage and Family Therapist, my clinical work includes providing general mental health treatment to individuals, couples, and families, with a concentration in working with patients who are struggling with mental health, psychosocial, and relational aspects of obesity, weight loss, and eating disorders, including such topics as anorexia, bulimia, binge eating disorder, body dysmorphic disorder, negative body image, pre- and post-bariatric surgery, depression, and PTSD, among others.



### **Stacey D. Moore-Olufemi, M.D.**

Assistant Professor  
Department of Pediatric Surgery  
The University of Texas Health Science Center at Houston  
6431 Fannin Street, MSB 5.222  
Houston, TX 77030  
Telephone: (713) 500-7345  
Fax: (713) 500-7296  
Email: [stacey.d.moore-olufemi@uth.tmc.edu](mailto:stacey.d.moore-olufemi@uth.tmc.edu)

#### ***Research Interests***

My research focus is directed at pediatric intestinal failure, with a focus on gastroschisis-related intestinal dysfunction. I am currently using animal models to help elucidate the pathophysiology of intestinal dysmotility and shortened intestinal length seen clinically and in our model of gastroschisis. We are also interested in amino acid metabolism in intestinal failure and adaptation.



### **Evangeline Motley, Ph.D.**

Associate Dean, School of Graduate Studies and Research  
Professor, Department of Physiology  
Meharry Medical College  
1005 Dr. D.B. Todd Jr. Boulevard  
Nashville, TN 37208  
Telephone: (615) 327-6533  
Email: [emotley@mmc.edu](mailto:emotley@mmc.edu)

#### ***Research Interests***

The goal of my research is to delineate the signal transduction pathways that are involved in the development of cardiovascular diseases such as hypertension and atherosclerosis. I have studied various signaling pathways in my career, starting with alpha-1 receptor signaling in the vasculature and then angiotensin II signaling. I am currently studying protease-activated receptor (PAR) signaling in endothelial cells and how it regulates endothelial nitric oxide synthase (eNOS) phosphorylation and nitric oxide production. In previous studies, my collaborators and I have shown that PAR-1 and PAR-2 differentially activate eNOS by different signaling pathways. We would like to further delineate the role of other PARs—such as PAR-3 and PAR-4—in the signaling pathways that lead to vascular inflammation, cell migration, and proliferation in cardiovascular diseases. Understanding the signaling pathways involved in these diseases will allow therapeutic agents to be developed at the molecular level.



**Susanne Nicholas, M.D., Ph.D., M.P.H.**

Associate Professor of Medicine  
Director, UCLA Nephrology Training Program  
Department of Medicine  
Divisions of Nephrology and Endocrinology  
David Geffen School of Medicine at University of California, Los Angeles  
Warren Hall  
900 Veteran Avenue, Suite 24-130  
Los Angeles, CA 90095  
Telephone: (310) 794-7555  
Fax: (310) 794-7654  
Email: sunicholas@mednet.ucla.edu

**Research Interests**

My research interest is primarily in the area of diabetic kidney disease. My basic science work involves investigating and assessing the pathophysiologic mechanisms and morphometric analyses of diabetic kidney disease, with the goal of finding novel biomarkers and therapeutic targets. My research projects involve: the delivery of a novel agent using vault nanocapsules for the treatment of diabetic kidney disease and other kidney diseases; a genetic clinical study to identify susceptibility genes responsible for diabetic kidney disease and their linkage relationships in ethnic populations; and the identification of biomarkers for the early diagnosis and management of patients at risk for the development and progression of diabetic kidney disease. Some of our studies include the use of animal models of human diabetic kidney disease and morphometric analysis by light and electron microscopy to accurately assess structural changes related to disease progression in the kidney.



**Keith C. Norris, M.D., Ph.D.**

Professor of Medicine  
Division of General Internal Medicine and Health Services Research  
David Geffen School of Medicine  
Co-leader, UCLA-CTSI Community Engagement and Research Program  
Editor-in-Chief, *Ethnicity and Disease*  
911 Broxton Plaza, Room 103  
Los Angeles, CA 90024  
Telephone: (310) 794-6973  
Fax: (310) 794-0732  
Email1: kcnorris@mednet.ucla.edu  
Email2: knorris@ucla.edu

**Research Interests**

My research interests include the prevention and early intervention of chronic kidney disease (CKD) and CKD risk factors/complications in African-American and Latino populations. I also have interests in the role of vitamin D in CKD, hypertension and cardiovascular risk factors, and the interplay of social determinants of health and biologic mediators in health disparities, especially CKD and CKD risk factors.



## **Benjamin Udoka Nwosu, M.D.**

Associate Professor  
Department of Pediatrics  
University of Massachusetts Medical School  
55 Lake Avenue North  
Worcester, MA 01655  
Telephone: (508) 334-7872  
Fax: (508) 856-4287  
Email: benjamin.nwosu@umassmemorial.org

### **Research Interests**

My research focus is on diabetes mellitus, obesity, growth hormone, and vitamin D physiology. I am currently the principal investigator on a randomized, double-blind, placebo-controlled trial of adjunctive metformin therapy on glycemic control in children and adolescents with double diabetes. I am a Review Editor at *Frontiers in Endocrinology*, and sit on the Editorial Board of *PREP Endocrinology*, as well as several scientific journals.

## **Diana N. Obanda, Ph.D.**

Instructor, Research  
Pennington Biomedical Research Center  
Louisiana State University  
6400 Perkins Road  
Baton Rouge, LA 70802  
Telephone: (225) 270-9455  
Fax: (225) 763-0274  
Email: dobanda@alumni.lsu.edu

### **Research Interests**

My research interests include the role of botanical compounds as complementary medicine for type 2 diabetes; specifically, underlying cellular mechanisms by which natural compounds from botanical sources improve insulin sensitivity and reduce inflammation in type 2 diabetes and obesity. I am currently studying bioactives of *Artemisia* species and blueberries. I also study sphingolipid metabolism and its effect and on insulin sensitivity in skeletal muscle and adipose tissue. I focus on how insulin resistance results from disruption of pathways of sphingolipid synthesis and metabolism.

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## **Olorunseun O. Ogunwobi, M.D., Ph.D.**

Associate Professor  
Department of Biological Sciences  
Hunter College of the City University of New York  
695 Park Avenue, Room 932HN  
New York, NY 10065  
Telephone: (212) 396-6820 (office); (212) 396-6180 (lab)  
Email: [ogunwobi@genectr.hunter.cuny.edu](mailto:ogunwobi@genectr.hunter.cuny.edu)

### ***Research Interests***

The overall goal of my laboratory is to elucidate the mechanisms of metastasis in solid organ cancers. Ongoing studies include examination of the role of circulating tumor cell biology and epigenetics in the metastasis of solid organ cancers. Also, my laboratory is investigating the biological mechanisms underlying the racial disparities in specific solid organ cancers. The cancer models we are currently using in our studies are hepatocellular carcinoma, pancreatic cancer, colon cancer, and prostate cancer.



## **Kwame Osei, M.D., F.A.C.E., F.A.C.P.**

Professor Emeritus of Medicine and Exercise Physiology  
Division of Endocrinology, Diabetes, and Metabolism  
Diabetes Research Center  
The Ohio State University Wexner Medical Center  
561 McCampbell Hall (5 South)  
1581 Dodd Drive  
Columbus, OH, 43210  
Telephone: (614) 685-3330  
Fax: (614) 685-3329  
Email: [kwame.osei@osumc.edu](mailto:kwame.osei@osumc.edu)

### ***Research Interests***

My research interests include type 2 diabetes mellitus, obesity metabolism, and race/ethnicity.

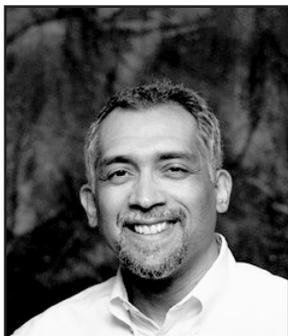
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## Abdul Oseini, M.D.

Gastroenterology Fellow  
Scott & White Hospital  
2401 S. 31st Street  
Temple, TX 76508  
Telephone: (507) 284-1066  
Fax: (507) 284-0762  
Email: aoseini@swmail.sw.org

### **Research Interests**

My main area of interest is liver disease, where I am currently working on an NIH-funded study looking at two genes of interest in liver cancer—*Sulfatase 1 (SULF1)* and *Sulfatase 2 (SULF2)*. This study involves generating transgenic mice overexpressing the above genes and monitoring the respective effects on the development and progression of liver cancer in these mice. Besides further elucidating the role of these genes in liver cancer, we expect to generate enough data that will hopefully lead to effective chemotherapeutic modalities against this disease. I am also interested in working on hepatitis B and C viruses in the pathogenesis and progression of liver cancer, with the aim of developing a cure for these viral infections and the cancers they cause. At this time, I am involved in another study that will potentially better characterize the main markers for cancers of the liver. It involves comparing the standard marker (alfa-feto protein) with a relatively new one (desgamma carboxy prothrombin) in liver-transplanted patients for cancer as compared with those with liver cirrhosis.



## Orhan K. Öz, M.D., Ph.D.

Professor  
Department of Radiology  
University of Texas Southwestern Medical Center at Dallas  
5323 Harry Hines Boulevard, MS9058  
Dallas, TX 75390-9058  
Telephone: (214) 648-2881  
Fax: (214) 648-2727  
Email: orhan.oz@utsouthwestern.edu

### **Research Interests**

My research interests include the regulation of bone mass and metabolism by gonadal steroids, the application of *in vivo* nuclear imaging to study the expression and function of specific molecules, and disease pathogenesis including diabetes and neoplasms.

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## **Eric Patterson, Ph.D.**

Assistant Professor  
Department of Biomedical Sciences  
Creighton University  
2500 California Plaza  
Omaha, NE 68178  
Telephone: (402) 280-2838  
Email: ericbp@creighton.edu

### ***Research Interests***

I am interested in vascular pathology associated with atherosclerosis and (re)stenosis of organs such as the heart and the kidney. I would like to understand what role nutrition, specifically appropriate levels of vitamin D, plays in protecting major organs from the development of chronic diseases such as atherosclerosis and subsequent pathologies such as restenosis. More specifically, I am interested in the effect of vitamin D on the immune cells, such as the monocyte/macrophage, and the role it plays in inflammation and resolution of injury in the vasculature. Long term, I am interested in the impact of poor diet and lack of physical activity in the development of chronic disease such as atherosclerosis, hypertension, and renal failure.



## **Yvette C. Paulino, Ph.D.**

Assistant Professor  
School of Nursing and Health Sciences, Room 148  
University of Guam  
Mangilao, Guam 96923  
Telephone: (671) 735-2441  
Fax: (671) 734-1203  
Email: yvettecpaulino@ugam.uog.edu

### ***Research Interests***

I am interested in helping communities achieve health equality. My research includes the epidemiology of areca (betel) nut chewing and poor health outcomes (including oral cancer, diabetes, cardiovascular disease, hypertension, and obesity) in Pacific populations. My most recent research is focused on preventing young childhood obesity by intervening at multiple levels of the socio-ecological model.



### **Michelle Penn-Marshall, Ph.D.**

Chairperson, Associate Professor  
Department of Biological Sciences  
Hampton University  
100 E. Tyler/Queen Street  
Hampton, VA 23668  
Telephone: (757) 727-5267  
Fax: (757) 727-5961  
Email: michelle.penn-marshall@hamptonu.edu

#### **Research Interests**

I am an experienced academician with a strong background in teaching, research, and community outreach. Through my research in childhood obesity, diabetes, and health promotion, I have worked with undergraduate STEM students to develop strategies to increase the number of minorities participating in research from communities, public school systems, and faith-based organizations. My primary research interests include the prevention of chronic disease through the study of obesity, nutrition education and exercise; the study of epigenetics and obesity; and the retention of students. I currently serve as the Principal Investigator (PI) for the Washington Baltimore Hampton Roads Alliance-Louis Stokes Alliance for Minority Participation grant, to increase the number of underrepresented minorities who choose careers in STEM. In addition, I have served as the PI of pilot grants to study the effects of nutrition, exercise, and education with rural elementary school-aged children and as the Co-PI of a National Library of Medicine Environmental Health Information Partnership Outreach Award. My students and I have disseminated health information to the lay community on health promotion and prevention programs regarding behavior and lifestyle changes affecting the school-age population who experience health disparities.



### **Rocio I. Pereira, M.D.**

Assistant Professor of Medicine  
Division of Endocrinology, Metabolism & Diabetes, and  
Anschutz Health and Wellness Center  
University of Colorado Denver  
12348 E. Montview Boulevard, MS C263  
Aurora, CO 80045  
Telephone: (303) 724-9039  
Fax: (303) 724-0942  
Email: rocio.pereira@ucdenver.edu

#### **Research Interests**

My research focuses on the prevention of diabetes in Latinos. I conduct translational research exploring biological mechanisms for high insulin resistance among Mexican Americans. I have reported decreased circulating adiponectin in Mexican Americans after controlling for weight, BMI, and visceral adiposity. A current follow-up project is to identify nutritional factors associated with decreased circulating adiponectin and decreased insulin sensitivity in Mexican Americans. I am also the Program Director for a community translation project bringing the National Diabetes Prevention Program to Spanish-speaking Latinos in the Denver area and will be doing program implementation research related to this topic.



### **Ariana Pichardo-Lowden, M.D.**

Assistant Professor of Medicine  
Division of Diabetes, Endocrinology, and Metabolism  
Penn State Milton S. Hershey Medical Center  
500 University Drive  
P.O. Box 850  
Hershey, PA 17033-0850  
Telephone: (717) 531-8395  
Fax: (717) 531-5726  
Email: apichardolowden@hmc.psu.edu

#### ***Research Interests***

My research agenda addresses strategies for optimization of the care for patients with diabetes and/or hyperglycemia in the hospital setting; promotion of early detection of diabetes; and recognition of patients at risk for diabetes through education of the medical provider. My current project addresses attitudinal, knowledge, clinical decision making, and self-efficacy barriers among providers and the impact of deficits in those domains on inpatient glycemic control. My long-term work aims to develop well-validated educational and system-based interventions to reduce the barriers to optimal care of patients with or at risk for diabetes.



### **Manu Platt, Ph.D.**

Assistant Professor  
Wallace H. Coulter Department of Biomedical Engineering  
Georgia Institute of Technology and Emory University  
315 Ferst Drive, Suite 1308  
Atlanta, GA 30315  
Telephone: (404) 385-8531  
Email: manu.platt@bme.gatech.edu

#### ***Research Interests***

My research bridges tissue remodeling and systems biology. Tissue remodeling involves the activation of proteases, enzymes capable of degrading the structural proteins of tissue and organs. The implications of the activation of these enzymes are applicable to many different diseases, and the Platt Lab targets sickle cell disease and cancer metastasis. Mathematical models used by the Platt Lab add value to experimental systems by explaining phenomena difficult to test at the wet lab bench and to make sense of complex interactions among the proteases or the intracellular signaling changes leading to their expression.



### **Rosita Rodriguez Proteau, Ph.D., R.Ph.**

Associate Professor of Pharmaceutics  
Department of Pharmaceutical Sciences  
College of Pharmacy  
Oregon State University  
203 Pharmacy Building  
1601 S.W. Jefferson Avenue  
Corvallis, OR 97331-3507  
Telephone: (541) 737-5786  
Fax: (541) 737-3999  
Email: rosita.proteau@oregonstate.edu

#### **Research Interests**

My research focuses on the development of various *in vitro* cellular models to explore and evaluate the mechanism by which xenobiotics damage or injure specific cell types of various organs or tissues. I mostly work with primary culture systems (liver, kidney, heart, and skin) as well as cell lines as experimental models to study the cellular and subcellular toxicity of selected xenobiotics using sensitive indices of cytotoxicity. I also perform drug transport and metabolism using a variety of intestinal models (*in vitro*, *in situ*, and *in vivo*) as well as perform pharmacokinetic studies. I am specifically interested in drug-dietary flavonoid interactions on drug transport, metabolism, excretion, and pharmacokinetic alterations resulting from these interactions. Using the intestinal drug transport model, Caco-2 cells, I am investigating the mechanism of cyclosporine A (CSA)-induced hyperlipidemia such that preventative measures can be taken to prevent the development of graft coronary vasculopathy. I am also investigating the effects of xanthohumol (XN) on cholesterol homeostasis. In this study, I am performing the pharmacokinetic studies of XN as well as data analysis and investigating the mechanism of cholesterol transport on the following transporters: ABCA1, ABCG5/G8, and NPIC1L1 using *in vitro* models and *in vivo* methods to evaluate cholesterol homeostasis.



### **Tanjala S. Purnell, Ph.D., M.P.H.**

Assistant Professor of Surgery  
Division of Transplantation  
The Johns Hopkins University School of Medicine  
720 Rutland Avenue, Turner 74  
Baltimore, MD 21205  
Telephone: (443) 287-0613  
Email: tpurnell@jhmi.edu

#### **Research Interests**

I am a health services researcher and social epidemiologist with primary interests related to promoting patient-centered care and addressing factors that contribute to racial disparities in clinical outcomes and access to transplantation for patients with chronic kidney disease (CKD). My research encompasses a multidisciplinary, team-based approach to enhance provider, patient, and family decision-making about treatment options for CKD.



**F. Bridgett Rahim-Williams, Ph.D., M.P.H.**

Senior Research Fellow, Intramural Research Program  
National Institute on Minority Health and Health Disparities  
Associate Investigator, Biobehavioral Branch, Symptom Management Unit  
National Institute on Nursing Research  
National Institutes of Health  
Building 3, Room 5W11A  
3 Center Drive, MSC 5465  
Bethesda, MD 20892-5465  
Telephone: (301) 827-0880  
Email: [bridgett.rahim-williams@nih.gov](mailto:bridgett.rahim-williams@nih.gov)

**Research Interests**

As a biocultural applied medical anthropologist and a social and behavioral scientist, my research investigates minority health and health disparities among individuals with chronic disease comorbidities. I have a specific interest in functional health status, symptom management, patient-centered health outcomes, and health-related quality of life among individuals with diabetes, HIV, gastrointestinal symptom disorders, and pain. I have research training as a Fellow of the Summer Institute on Aging Research, Fellow of the RAND Summer Institute on Aging Research, Fellow of the Health Equity Leadership Institute, and the National Institute on Minority Health and Health Disparities (NIMHD) Health Disparities Summit. I am also a DREAM Fellow with the NIMHD. The DREAM (Disparities Research and Education Advancing the Mission) is a (K22) Career Transition Award funded by the NIMHD. The award supports intramural and extramural career training and development in health disparities research.



**Marina Ramirez-Alvarado, Ph.D.**

Associate Professor of Biochemistry and Molecular Biology  
Mayo Clinic  
200 First Street, S.W.  
Rochester, MN 55905  
Telephone: (507) 284-2705  
Fax: (507) 284-3383  
Email: [ramirezalvarado.marina@mayo.edu](mailto:ramirezalvarado.marina@mayo.edu)

**Research Interests**

We are particularly interested in light chain amyloidosis, a misfolding disease characterized by the deposition of monoclonal immunoglobulin light chains as amyloid fibrils affecting several organs, causing dysfunction. Understanding the protein misfolding and aggregation mechanisms will help us to understand these diseases and will guide us to design therapeutic strategies to overcome the amyloid phenomenon. By exploring the role of folding kinetics, misfolding pathways, and stability, it is possible to understand the mechanisms of amyloid formation in light chain amyloidosis, leading to the prediction of the behavior of other amyloid diseases, with the ultimate goal of intervening to prevent progression of the disease.



### **Jesus Rivera-Nieves, M.D.**

Associate Professor  
Inflammatory Bowel Disease Center  
Division of Gastroenterology  
University of California, San Diego  
Building UC303, Room 211  
9500 Gilman Drive  
San Diego, CA 92093-0063  
Telephone: (858) 534-5495  
Fax: (858) 534-3338  
Email: [jriveran@ucsd.edu](mailto:jriveran@ucsd.edu)

#### **Research Interests**

The inflammatory bowel diseases (IBD) affect over a million people in North America and their incidence is on the rise. These two chronic inflammatory conditions affect distinct intestinal segments and while ulcerative colitis involves strictly the large intestine, Crohn's disease may appear anywhere in the alimentary tract, from the mouth to the anus. Lymphocytes (T cells) are imprinted by dendritic cells with a cytokine (e.g., Th1, Th17) and homing program (e.g. CCR9,  $\alpha 4\beta 7$  integrin) and are in great part responsible for the perpetuation of IBD. The imprinting mechanisms that result in the expression of specific surface molecules required for the regional localization of IBD are only partially understood. The goal of our research is to further understand how T cells home specifically to distinct intestinal segments to explain the regional localization of the two main IBDs. We utilize a variety of mouse models of IBD, from simple chemically induced injury models (e.g., DSS) to immunologically manipulated models (i.e., CD45Rb<sup>high</sup> transfer) to spontaneous chronic models of colitis and Crohn's-like ileitis (i.e., TNFAARE, SAMPI/Yit). Blocking traffic has been proven efficacious for the treatment of Crohn's disease, through the use of antibodies against integrins (i.e., natalizumab). However, in certain patients serious complications from this therapy have occurred. Further understanding the mechanisms of traffic to the intestine will allow us to fine-tune this strategy for both efficacy and safety.



### **Lewis R. Roberts, Ph.D., M.B. Ch.B.**

Professor of Medicine  
Director, Hepatobiliary Neoplasia Clinic  
Division of Gastroenterology and Hepatology  
Mayo Clinic College of Medicine  
200 First Street, S.W.  
Rochester, MN 55905  
Telephone: (507) 538-4877  
Fax: (507) 284-0762  
Email: [roberts.lewis@mayo.edu](mailto:roberts.lewis@mayo.edu)

#### **Research Interests**

Research in my group includes: (1) laboratory studies of the molecular mechanisms of liver carcinogenesis; (2) development and evaluation of biomarkers and clinical tests to improve the diagnosis and treatment of liver, bile duct, and pancreatic cancers; and (3) epidemiologic, clinical, and translational studies focused on improving the prevention, diagnosis, and treatment of hepatitis and liver cancer in sub-Saharan Africa and in minority and immigrant African and Asian communities in the United States.



**Beatriz Rodriguez, M.D., Ph.D., M.P.H.**

Professor of Medicine  
John A. Burns School of Medicine  
University of Hawaii at Manoa  
651 Ilalo Street, MEB 224 H  
Honolulu, HI 96813  
Telephone: (808) 692-0909  
Fax: (808) 692-1266  
Email: brodrigu@hawaii.edu

**Research Interests**

I am a physician-epidemiologist who has devoted my career to diabetes and cardiovascular disease epidemiology. After completing my training in Public Health and Epidemiology at The University of Texas, I moved to Honolulu where I have served as Co-Principal Investigator of the Honolulu Heart Program since 1991. I was Principal Investigator of the Intermap Study Center, the SEARCH for Diabetes in Youth Hawaii Center, an Established Investigator Grant from the American Heart Association, and several other projects. I am Co-Director of the National Children's Study of the Hawaii Center and have served as Co-Investigator of the Women's Health Initiative. I was President of the American Heart Association (AHA) Hawaii Affiliate and served on the National Board of Directors of the AHA. I am currently on sabbatical working in Madrid, Spain.



**Mayra Rodriguez, M.D.**

Mount Sinai Medical Center  
6 East 116th Street, #6B  
New York, NY 10029  
Telephone: (917) 583-8590  
Email 1: mayra.rodriguez@mountsinai.org  
Email 2: mdrodri7@gmail.com

**Research Interests**

I am currently completing my fellowship in Nephrology at Mount Sinai Medical Center in New York City while also earning my Masters in Public Health. My research interests include investigating the social determinants of health in our underserved populations. Hispanics in particular have a very high prevalence of diabetes and kidney disease. It is debatable whether this is due to genetics, environment (meaning habits/lifestyle), or poor education and limited access to health care. My goal is to remain in academic medicine and develop as a specialist and clinical researcher with a focus on health care disparities and chronic kidney disease. I would like to study the Hispanic population in particular and help elucidate what is the predominant driving force behind the increasing morbidity in this population. Understanding the roles played by nature versus nurture in this rapidly growing population has implications for the development of ethnically driven guidelines, public health initiatives, and controlling and properly allocating health care spending.



### **Rudolph A. Rodriguez, M.D., F.A.C.P.**

Director, Hospital & Specialty Medicine Service Line  
VA Puget Sound Health Care System  
Vice Chair, Department of Medicine  
Professor of Medicine, Division of Nephrology  
University of Washington  
Building 1, Room 229  
1660 S. Columbian Way  
Seattle, WA 98108  
Telephone: (206) 277-3282  
Fax: (206) 764-2022  
Email: rudy.rodriquez@va.gov

#### **Research Interests**

Two of my research interests include the interaction of HIV and kidney disease; and the interaction of race, kidney disease outcomes, and geography. I hope to better characterize the renal health services provided in racially segregated areas. Despite similar insurance coverage, dialysis patients living in racially segregated areas seem to have different rates of transplantation, and the health services provided seem to differ in comparison to nonracially segregated areas.



### **José R. Romero, Ph.D.**

Associate Physiologist  
Division of Endocrinology, Diabetes, and Hypertension  
Brigham and Women's Hospital  
Harvard Medical School  
221 Longwood Avenue  
Boston, MA 02115  
Telephone: (617) 732-4948  
Fax: (617) 732-5764  
Email: jromero@partners.org

#### **Research Interests**

My main interest is in cation transport dysregulation in cardiovascular diseases, including hypertension, sickle cell, and diabetes. These studies have focused our research on two problems relevant to patients with diabetes mellitus: (1) the role of cellular magnesium in the pathophysiology of cardiovascular disease, and (2) the role of acute aldosterone responses in vascular inflammation. My group has led the discovery of a novel mechanism for the rapid/non-genomic effects of aldosterone in vascular tissue using both *in vivo* and *in vitro* approaches. These studies show a prominent role for striatin, a caveolin-1 binding protein, in aldosterone-mediated oxidant stress and inflammation and have formed the basis for our most recent NIH R01 grant award entitled, "Aldosterone, Intracellular Leukocyte Magnesium and Inflammation in Diabetes" from the National Heart, Lung, and Blood Institute, an ancillary clinical trial. A significant part of my professional activities is also devoted to mentoring junior faculty, fellows, and students at local, national, and international levels; and I am a consultant for medical research and training institutes in Puerto Rico, Portugal, and Mexico. For these contributions, I was honored to receive the A. Clifford Barger Excellence in Mentoring Award at Harvard Medical School. I also direct a translational research summer program for medical students and recent medical graduates interested in minority health research and was humbled to receive the Harold Amos Faculty Diversity Award at Harvard Medical School.



**Sylvia E. Rosas, M.D.**

Assistant Professor  
Renal-Electrolyte and Hypertension Division  
University of Pennsylvania School of Medicine  
One Founders Pavilion, Room 113  
3400 Spruce Street  
Philadelphia, PA 19104  
Telephone: (215) 615-3446  
Fax: (215) 615-3447  
Email: [sylvia.rosas@uphs.upenn.edu](mailto:sylvia.rosas@uphs.upenn.edu)

**Research Interests**

My primary research focus is on cardiovascular disease in patients with chronic kidney disease (CKD), including dialysis and renal transplantation. I am an ancillary study investigator for the national Chronic Renal Insufficiency Cohort (CRIC) Study evaluating the role of carotid intima media thickness to predict cardiovascular events in patients with CKD. Another area of research includes risk factors for progression of vascular calcification in CKD, including mineral metabolism disorders, inflammation, and oxidative stress. My research is funded by the NIH (National Heart, Lung, and Blood Institute and NIDDK) and the Veteran's Health Administration. I am also interested in health disparities research and in the professional development of minority faculty.



**Juan Sanabria, M.D.**

Assistant Professor of Surgery and Nutrition  
Director, Pancreas Transplant Program  
University Hospitals Case Medical Center  
Division of Transplant and Hepatobiliary Surgery  
Department of Surgery  
Case Western Reserve University  
Lakeside 7506 PS 5047  
11100 Euclid Avenue  
Cleveland, OH 44106  
Phone: (216) 844-0479, ext. 2  
Fax: (216) 844-5398  
Email: [juan.sanabria@uhhospitals.org](mailto:juan.sanabria@uhhospitals.org)

**Research Interests**

My areas of interest include metabolomics in liver and pancreas transplantation, metabolomics in liver cancer, islet cell transplantation, and ischemia-reperfusion injury.



## **Virginia Sarapura, M.D.**

Associate Professor  
Department of Medicine  
Division of Endocrinology  
University of Colorado Denver  
Anschutz Medical Campus  
12801 E. 17th Avenue, MS8106  
Aurora, CO 80045  
Telephone: (303) 724-3931  
Fax: (303) 724-3920  
Email: virginia.sarapura@ucdenver.edu

### ***Research Interests***

My research has focused on several areas. As a trainee, I learned the basic tools of molecular biology research and began to investigate the mechanism of expression of the alpha-subunit of the pituitary glycoprotein hormones under the guidance of Dr. E. Chester Ridgway and his Ph.D. associates, Drs. William Wood and David Gordon. I collaborated on other projects within the laboratory, including the regulation of thyrotrope cell growth by thyroid hormone. I also have explored other areas of investigation, including the expression of the glycoprotein hormone alpha-subunit gene in solid tumors, specifically lung cancer, and the genetic and epigenetic factors that predispose to the development of autoimmune thyroid disorders. Currently my work is focused on academic clinical practice and teaching.



**Carmen Castaneda Sceppa, M.D., Ph.D.**

Professor and Interim Chair, Department of Health Science  
Director, Graduate Program in Exercise Science  
Bouvé College of Health Sciences  
Northeastern University  
316E Robinson Hall  
360 Huntington Avenue  
Boston, MA 02115  
Telephone: (617) 373-5543  
Fax: (617) 373-2968  
Email: c.sceppa@neu.edu

***Research Interests***

My research program addresses three main areas of aging and health promotion, including to: (1) assess the efficacy of nutrition and physical activity/exercise interventions on chronic disease risk factors and health outcomes; (2) translate evidence-based lifestyle interventions into “real world” settings; and (3) develop sustainable strategies to promote health and reduce the burden of chronic diseases. My research targets vulnerable populations, with particular emphasis on those of diverse racial/ethnic backgrounds, suffering from debilitating chronic conditions, and socioeconomically disadvantaged. Funding for my research includes the Brookdale Foundation, the International Life Sciences Institute, the National Institutes of Health, the National Space and Biomedical Research Institute (NSBRI), Departments of Public Health, corporations, and foundations. My research findings have provided evidence used by the Academy of Sciences and the Institute of Medicine to revise the Dietary Recommended Intake for protein in older adults. My pioneering work on resistance exercise in older adults with kidney disease and diabetes was translated into clinical practice by the American Diabetes Association and adopted as standard of care. In addition, my findings on resistance exercise contributed to the recommendations for physical activity in older adults adopted by the American College of Sports Medicine and the American Heart Association. I am an active member of the American Society for Nutrition, the Gerontological Society of America, the American Diabetes Association, and the American College of Sports Medicine.



## **Marion Sewer, Ph.D.**

Associate Professor  
Skaggs School of Pharmacy and Pharmaceutical Sciences  
University of California, San Diego  
9500 Gilman Drive, MC 0704  
La Jolla, CA 92093-0704  
Telephone: (858) 822-5283  
Email: msewer@ucsd.edu

### ***Research Interests***

My research program has centered on investigating the mechanisms by which the steroid hormones are produced. Specifically, my laboratory is interested in how adrenocorticotropin (ACTH) controls steroid hormone biosynthesis in the human adrenal cortex. We have spent the past several years examining the mechanism by which ACTH signaling controls the transcription of cytochrome P450 enzymes (CYP) that metabolize cholesterol into steroid hormones (supported by NIH/National Institute of General Medical Sciences). Studies on the mechanism by which ACTH controls CYP17 transcription have resulted in several novel findings and have spawned new areas of investigation. In addition, we recently identified sphingosine as an antagonist and a short chain phosphatidic acid species as an agonist for the nuclear receptor steroidogenic factor-1 (SF-1). Since SF-1 is predominantly expressed in the nucleus, we have embarked on studies to characterize the nuclear lipid profile, to determine the mechanism by which these bioactive lipids are metabolized in nuclei, and to define how ACTH signaling regulates the activity and subcellular localization of enzymes that regulate sphingolipid and phospholipid biosynthesis (supported by NIH/NIDDK). Additionally, in work supported by NIDDK, we are investigating the mechanism by which ACTH signaling controls inter-organelle substrate trafficking and communication between the endoplasmic reticulum and mitochondria during cortisol production.



### **Jevetta Stanford, Ed.D.**

Research Assistant Professor  
Clinical and Translation Science Institute  
Community Engagement & Research Program-Jacksonville  
University of Florida College of Medicine  
Third Floor, LRC L-13  
653-1 W. Eighth Street  
Jacksonville, FL 32209  
Telephone: (904) 383-1709  
Fax: (904) 244-5341  
Email: [jevetta.stanford@jax.ufl.edu](mailto:jevetta.stanford@jax.ufl.edu)

#### ***Research Interests***

My current research interests include the following: (1) community-based approaches to treat and prevent viral hepatitis in foreign-born (Hepatitis B) and substance-abusing populations (Hepatitis C); (2) social and environmental influences on weight status in adolescent minority females; and (3) faith-based trials to improve health outcomes and prevent chronic disease onset in minority populations. My research training specifically relates to the study of disparities in gender, racial, ethnic, and socioeconomically disadvantaged groups in health topics such as childhood obesity, adolescent health risk behaviors, infectious disease, and concussion surveillance and management. In addition, much of my training has focused on both qualitative and quantitative research methods that embodied the full spectrum of community engagement through academic and community partnership. I plan to build upon this foundation by expanding my research interests to explore the use of health behavior theory to effectively treat and prevent disease and eliminate disparities among minority and underserved populations in areas including but not limited to vitamin D deficiency and cardiovascular risk.

### **Charmaine Stewart, M.D., F.A.C.P.**

Director of Hepatology  
University of Illinois at Chicago  
CSB 1020 S  
840 S. Wood Street  
Chicago, IL 60612  
Email: [charstew@uic.edu](mailto:charstew@uic.edu)

#### ***Research Interests***

My research interests include the pathophysiology of cognitive impairment in hepatic encephalopathy and sleep disorders associated with cirrhosis.



**Alexis M. Stranahan, Ph.D.**

Assistant Professor  
Physiology Department  
Georgia Regents University  
1120 15th Street, CA3145  
Augusta, GA 30912  
Telephone: (706) 721-7885  
Fax: (706) 721-7299  
Email: astranahan@gru.edu

**Research Interests**

My laboratory uses a multilevel approach to resolve the role of glucocorticoid hormones in hippocampal synaptic deficits in leptin receptor deficient mice, a rodent model of insulin resistant diabetes. We also study rats with diet-induced insulin resistance, which more closely resemble the etiology of diabetes in humans. These models are being characterized with regard to glucocorticoid-mediated changes in plasticity in the hippocampus, with the eventual goal of targeting the hippocampal corticosteroid signaling cascade to attenuate cognitive impairment in individuals with insulin-resistant diabetes.



**April J. Stull, Ph.D., R.D.**

Assistant Professor  
Department of Diabetes and Nutrition  
Pennington Biomedical Research Center  
Louisiana State University System  
6400 Perkins Road  
Baton Rouge, LA 70808  
Telephone: (225) 763-2731  
Fax: (225) 763-0274  
Email: april.stull@pbrc.edu

**Research Interests**

My research interests are in botanical dietary supplementation and insulin resistance. My research focus is on the health benefits of blueberries and their effects on improving the health and well-being of insulin-resistant humans with pre-diabetes and type 2 diabetes. Preliminary data in our laboratory suggests that dietary supplementation with bioactives in blueberries for 6 weeks was well tolerated and increased whole-body insulin-stimulated glucose disposal in obese humans with pre-diabetes when compared to the placebo group. The next steps are to determine the cellular mechanisms by which blueberries enhance insulin sensitivity. In addition, I am interested in studying other botanicals and metabolic syndrome.



### **Jorge Suarez, M.D., Ph.D.**

Assistant Research Scientist  
Department of Medicine  
University of California, San Diego  
BSB Room 5063  
9500 Gilman Drive, MC 0618  
La Jolla, CA 92093-0618  
Telephone: (858) 534-9931  
Fax: (858) 534-9932  
Email: jsuarez@ucsd.edu

#### **Research Interests**

I am investigating novel approaches to treat and cure heart failure. Among those approaches is cutting-edge, vector-based gene therapy. I discovered that a new protein called Sorcin is able to alleviate cardiac failure of mice with diabetic cardiomyopathy. In addition, I was able to rescue cardiac failure by over-expressing SERCA2a in an inducible way in the heart of pressure-overloaded and diabetic mice, using a novel line of transgenic animals that I designed and engineered. More recently, my focus of research is the study of excessive enzymatic glycosylation of proteins in the diabetic heart. My interest is concentrated in the mitochondria of cardiac myocytes and the effects of excessive glycosylation of mitochondrial proteins and the mechanisms that lead to energetic inefficiency in the diabetic heart.



### **Jacqueline C. Tanaka, Ph.D.**

Associate Professor of Biology  
Director, Temple University Undergraduate Training  
Program: MARC U-STAR  
Faculty and Steering Committee of Professional Science Masters  
in Biotechnology  
Department of Biology  
Temple University  
1900 N. 12th Street  
Philadelphia, PA 19122  
Laboratory: (215) 204-8868  
Fax: (215) 204-6646  
Email: jtanaka@temple.edu

#### **Research Interests**

My research is focused on delineating the structure-function relationships of photoreceptor cyclic nucleotide-gated (CNG) channels. Mutations in the cone genes *CNGA3* and *CNGB3* are associated with achromatopsia in humans and daylight-blindness in dogs. I work with ophthalmic veterinarians to investigate the molecular pathophysiology of inherited mutations in dogs, and our work leads to insights about the structure, folding, subunit assembly, and function of these channels. As Director of a MARC U-STAR training program, I am engaged in mentoring undergraduate students from underrepresented backgrounds for competitive Ph.D. programs in biomedical and behavioral science. I work with colleagues at Cuttington University in Liberia to help build their STEM education training, their faculty, and providing used laboratory equipment. In my role in the PSM program, I teach a course on the ethics of biotechnology, encouraging students to analyze life-cycle impacts of drugs and chemicals, considering long-term epigenetic and transgenerational effects of endocrine-disrupting hormones in particular.



### **Heather Tarleton, Ph.D., M.S., M.P.A.P.**

Assistant Professor, Department of Health and Human Sciences  
Affiliate Faculty, The Bioethics Institute  
Loyola Marymount University  
North Hall 211  
One LMU Drive, MS 8160  
Los Angeles, CA 90045-2659  
Telephone: (310) 338-4247  
Fax: (310) 338-5317  
Email: heather.tarleton@lmu.edu

#### **Research Interests**

My research focuses on cancer epidemiology and cancer survivorship. Within cancer epidemiology, my interests are in gene-environment interactions that contribute to the development of gastrointestinal and gynecologic cancers. Within cancer survivorship, my research interests are in prevalent comorbidity among cancer survivors and behavioral interventions for chronic disease management. Currently, I am conducting a study titled “IMPAACT: Improving Physical Activity After Cancer Treatment.” The IMPAACT study is a collaborative effort with my colleagues in the Department of Health and Human Sciences and is also a research training opportunity for upper-classmen preparing to enter the Allied Health professions. The study connects epidemiology, exercise physiology, nutrition, and rehabilitation science and recruits participants from the racially and ethnically diverse cities within Los Angeles County. The study was designed to examine the effects of a combined aerobic exercise and resistance training program on the body composition of cancer survivors and on reducing the risk of diabetes, cardiovascular disease, and osteoporosis among cancer survivors. The study also aims to improve cancer survivors’ overall capacity to engage in physical activity by addressing fatigue, balance, muscle health, cardiorespiratory fitness, neuropathy, and psychosocial barriers to motivation. In addition to my focus on cancer epidemiology and cancer survivorship research, I am also heavily invested in drawing undergraduates from underrepresented backgrounds and underserved communities into STEM research. I am a faculty mentor for the McNair Scholars Program at Loyola Marymount University and a Councilor for the Health Sciences Division of the Council on Undergraduate Research (CUR).



### **Bolaji Thomas, Ph.D.**

Associate Professor, Immunology and Molecular Biology  
Department of Biomedical Sciences  
College of Health Science and Technology  
Rochester Institute of Technology  
CBET Building 75, Room 3151  
153 Lomb Memorial Drive  
Rochester, NY 14623  
Telephone: (585) 475-6382  
Fax: (585) 475-5809  
Email: bolaji.thomas@rit.edu

#### **Research Interests**

Research in my laboratory is focused on three key areas. We are interested in deconvoluting the genomic diversity and functionality of complement regulatory genes in sickle cell pathophysiology and disease outcomes; metagenomics and expression profiling of *Leishmania mexicana* persistent parasitemia, as well as the genetic diversity and invasion mechanism driving *Plasmodium vivax* infection in Duffy-negative individuals.

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## **Lisa VanHoose, Ph.D.**

Research Assistant Professor  
Department of Physical Therapy and Rehabilitation Science  
University of Kansas Medical Center  
3901 Rainbow Boulevard, MS 2002  
Kansas City, KS 66160  
Telephone: (913) 945-6652  
Fax: (913) 588-4568  
Email: lvanhoose@kumc.edu

### ***Research Interests***

My research interest focuses on genetic and environmental factors causing lymphatic dysfunction that contributes to cardiovascular and lymphatic vascular diseases. I am particularly interested in structural and molecular changes in the cardiac lymphatic system related to diabetes. We have discovered interesting, novel findings regarding PROX-1, a lymphangiogenic transcription factor, under the backdrop of diabetes in Zucker diabetic fatty rats. I am preparing a grant application to continue exploring changes in lymphangiogenesis in another animal model of type 2 diabetes. I am currently investigating obesity-related secondary lymphedema in humans, and 100 percent of the subjects have a co-morbidity of type 2 diabetes. I have requested internal funds to evaluate gene expression in these subjects compared to age-matched healthy controls.

## **Roberto Vargas, M.D., M.P.H.**

Associate Professor  
Division of General Internal Medicine and Health Services Research  
David Geffen School of Medicine  
University of California, Los Angeles  
911 Broxton Avenue  
Los Angeles, CA 90024  
Telephone: (310) 794-3703  
Fax: (310) 794-0732  
Email: rbvargas@mednet.ucla.edu

### ***Research Interests***

My research interests include the design and testing of interventions to improve quality of care and to reduce health disparities. This includes efforts to reduce disparities in cancer outcomes, improve detection and treatment of kidney disease, and improve management of chronic disease. In addition to conducting policy analyses and health services research, I am also engaged in community-partnered research projects to reduce disparities in cancer care and to address negative social determinants of health.



### **Janelle D. Vaughns, M.D.**

Division of Anesthesiology, Sedation, and Perioperative Medicine  
Assistant Professor of Anesthesiology and Pediatrics  
Director, Bariatric Anesthesia Medicine Program  
Children's National Medical Center  
111 Michigan Avenue, N.W.  
Washington, DC 20010-2970  
Telephone: (202) 476-4165  
Fax: (202) 476-5999  
Email: [jvaughns@cnmc.org](mailto:jvaughns@cnmc.org)

#### **Research Interests**

I am interested in health disparities within the obese pediatric and adolescent surgical community. Specifically, as a pediatric anesthesiologist, I am studying the role of pharmacogenetics in fatty liver through Pk/Pd modeling. I want to explore the possible genetic variations in the cytochrome P450 systems and anesthetic drug metabolism within ethnic populations diagnosed with nonalcoholic steatohepatitis. Currently, I am funded through the Pediatric Trials Network/Duke University to undertake pharmacokinetic studies to support the relabeling of intravenous midazolam for use in obese children.

### **Francisco Villarreal, M.D., Ph.D.**

Professor  
Division of Cardiology  
Department of Medicine  
University of California, San Diego  
Biomedical Sciences Building #4028  
9500 Gilman Drive, 0613J  
La Jolla, CA 92093  
Telephone: (858) 534-3630  
Fax: (858)-534-0522  
Email: [fvillarr@ucsd.edu](mailto:fvillarr@ucsd.edu)

#### **Research Interests**

Diabetes mellitus is the fastest growing pathology in the United States. In the last 2 years, 3 million more Americans have been diagnosed with the disease. Under the umbrella of an NIH-sponsored program project (National Center on Minority Health and Health Disparities-sponsored EXPORT grant, Dr. Sandra Daley, PI), we have undertaken a research effort jointly with Dr. Wolfgang Dillmann, Chief of Endocrinology at the University of California, San Diego, to examine the *in vitro* and *in vivo* effects that diabetes has on cardiac diastolic function. Efforts focus on alterations that arise in both cardiac myocytes and fibroblasts. Animal models of type 2 diabetes are used, including transgenic animal models. Our laboratory has also undertaken a project related to the characterization of the cardioprotective actions of cocoa flavanols on animal models of ischemia-reperfusion injury, currently sponsored by a National Center for Complementary and Alternative Medicine R21. Cocoa flavanols are known to have beneficial effects in humans within a large dose range and with no toxic effects. Our intention is to demonstrate that the cocoa flavanol epicatechin can exert cardioprotective actions. For this purpose, we are currently pursuing studies *in vitro* and *in vivo*. Our expectation is to take our concept to initial clinical trials within a short time frame.

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## **Phyllis Wallace, Dr.P.H.**

Research Assistant Professor  
Department of Community Health Sciences  
Boston University  
801 Massachusetts Avenue  
Boston, MA 02118  
Telephone: (617) 638-4659  
Email: wallacep@bu.edu

### ***Research Interests***

My research interests include: health disparities, cancer control and prevention, minority health, adolescent health, gender minority health, behavioral interventions, medical home, qualitative research, and mixed methods design. I also examine the benefits of fruit and vegetable consumption and physical activity as predictors and promoters of health and well-being.



## **Fern Jureidini Webb, Ph.D.**

Joint Faculty, Department of Epidemiology  
Assistant Professor, Community Health and Family Medicine  
College of Public Health and Health Professions  
College of Medicine  
University of Florida  
1255 Lila Avenue  
Jacksonville, FL 32208  
Telephone: (904) 383-1998  
Fax: (904) 383-1937  
Email: fern.webb@jax.ufl.edu

### ***Research Interests***

My research agenda focuses on health intervention models, which uses community-based asset models to improve health behaviors and decrease health disparities among African Americans. One of my research interests is (1) implementing evidenced-based health programs in community settings to improve health outcomes and decrease health disparities among African Americans, and (2) developing a community-based participatory research agenda where I collaborate with community organizations as well as community members to develop, implement, and evaluate programs developed specifically to meet the unique needs of African-Americans living with chronic diseases. For example, I served as the principal investigator on the Winning Over Weight Wellness program (WOW Wellness) in 2010 designed to assist African-American women and their families incorporate simple behavioral changes into their everyday lives in efforts to decrease weight. In addition, my research now focuses on community-engaged research where I received an NIH diversity supplement to work with Dr. Linda Cottler's (PI) NIH NIDA (R01) grant titled Transformative Approach to Reduce Research Disparities Towards Drug Users (2012-2014). Through this opportunity, I am learning how to conduct community engaged research as well as explore the willingness of community members in northeast and central Florida to engage in research studies to improve chronic diseases and health outcomes.



**Richard O. White III, M.D., M.Sc.**

Assistant Professor of Medicine and Pediatrics  
Division of Community Internal Medicine and Family Medicine  
Mayo Clinic Florida  
4500 San Pablo Road  
Jacksonville, FL 32224  
Telephone: (904) 953-8842  
Fax: (904) 953-0655  
Email: white.richard@mayo.edu

**Research Interests**

I was trained as an Internist and Pediatrician at Vanderbilt University and completed my Master's in Clinical Investigation at Meharry Medical College in 2010. My research focuses on the impact of health literacy and health communication on diabetes and obesity prevention/management for Latino and African American adults and children. I am currently involved in several community-engaged efforts to understand better the nature of the patient-provider interaction on diabetes care and the facilitators and barriers to healthy lifestyle among adults and youth in Northeast FL. I am currently beginning my fourth year of a K23 Career Development Award through NIDDK and have hopes of moving towards research independence with a career that focuses on the development, cultural-tailoring, and implementation of family-based interventions to improve health outcomes for minority patients and address disparities of care.



**Lovoria B. Williams, Ph.D., APRN-BC**

Assistant Professor  
College of Nursing  
Georgia Regents University  
987 St. Sebastian Way, EC-4511  
Augusta, GA 30912  
Telephone: (706) 721-4781  
Fax: (706) 434-6899  
Email: lwilliams@gru.edu

**Research Interests**

My research focus is health disparities. My interests are behavioral interventions developed through community-based participatory research (CBPR) interventions, obesity, physical activity, cardiovascular disease, and the development of sustainable translational interventions. Additional interests include stroke prevention and diabetes biomarkers predicting incident diabetes.

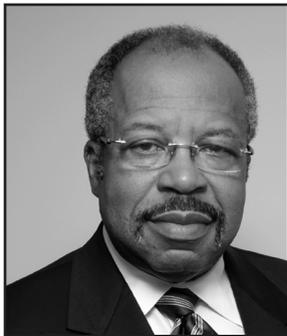


**Regina Sims Wright, Ph.D.**

Assistant Professor  
School of Nursing  
University of Delaware  
331 McDowell Hall  
25 N. College Avenue  
Telephone: (302) 831-8364  
Fax: (302) 831-2382  
Email: rsims@udel.edu

**Research Interests**

My research examines sources of variability in neurocognitive functioning in older adults. I have focused primarily on older African Americans, with an emphasis on the role of cardiovascular risk factors such as hypertension, impaired glucose tolerance, elevated lipids, and obesity on neurocognitive abilities such as working memory, perceptual speed, verbal memory, visuospatial ability, executive function, and inductive reasoning. My interest in African-American neurocognitive functioning developed from a variety of research experiences focused largely on issues surrounding racial/ethnic disparities in health.



**Jackson T. Wright, Jr., M.D., Ph.D., F.A.C.P.**

Professor of Medicine, Case Western Reserve University  
Program Director, William T. Dahms Clinical Research Unit  
Director, Clinical Hypertension Program  
Case Western Reserve University  
Bolwell Suite 2200  
11100 Euclid Avenue  
Cleveland, OH 44106-6053  
Telephone: (216)-844-5174  
Fax: (216)-844-1530  
Email: jackson.wright@case.edu

**Research Interests**

I am Professor of Medicine and Program Director of the William T. Dahms, M.D., Clinical Research Unit at Case Western Reserve University (CWRU) and member of the Executive Committee of CWRU's CTSA. I am also Director of the Clinical Hypertension Program at University Hospitals Case Medical Center. My research experience includes having had a major or leadership role in nearly all of the major cardiovascular and renal clinical outcome trials conducted in black populations over the past two decades. I am currently co-PI of one of seven clinical networks in the NIDDK-sponsored Chronic Renal Insufficiency Cohort (CRIC) Study (40% black) and PI of one of the five clinical center networks in the NHLBI-sponsored Systolic Blood Pressure Intervention Trial (SPRINT).



**Bessie A. Young, M.D., M.P.H., F.A.C.P., F.A.S.N.**

Associate Professor, Department of Medicine  
Adjunct Associate Professor of Epidemiology and Health Services  
Kidney Research Institute and Division of Nephrology  
University of Washington  
VA Puget Sound Health Care System  
1660 S. Columbian Way, RDU 111A  
Seattle, WA 98108  
Telephone: (206) 277-3586  
Fax: (206) 764-2022  
Email: [youngb@uw.edu](mailto:youngb@uw.edu)

***Research Interests***

Chronic kidney disease (CKD) is widely prevalent and disproportionately affects minorities. Health disparities contribute to differences in CKD and end-stage renal disease (ESRD) outcomes. The overarching goal of my research program is to evaluate differences in kidney disease-related health disparities and to develop interventions aimed at decreasing health disparities in CKD and ESRD outcomes. My research program currently focuses on evaluating risk factors for cardiovascular outcomes, CKD and CKD progression, and mortality in the NIH NIDDK-funded Jackson Heart Study. My research projects include the NIH-funded Increasing Kidney Disease Awareness Network (IKAN) Transplant project, which involves the development and testing of new educational materials for patients with late-stage CKD. In addition, we are developing kidney disease telemedicine intervention programs within Veterans Affairs that focus on increasing specialty-primary care interaction using the Specialty Care Access Network Extension for Community Health Outcomes (SCAN-ECHO) model to improve rural access to nephrology care. We are also evaluating CKD-related outcomes in two large diabetes cohorts: the Pathways Study and the VA Pathways Study. Finally, we are collaborating with the Caribbean Health and Education Foundation to develop a CKD registry to monitor the prevalence and incidence of CKD in Nevis and St. Kitts. Currently, my research program receives NIH and VA funding, which supports several co-investigators and graduate students.

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**Network of Minority Health Research Investigators 12th Annual Workshop  
National Institute of Diabetes and Digestive and Kidney Diseases  
National Institutes of Health**

**Natcher Conference Center, NIH  
Bethesda, MD  
April 14 – 15, 2014**

**Summary Report**

**MONDAY, APRIL 14, 2014**

**INTRODUCTIONS**

*Trudy Gaillard, Ph.D., R.D., C.D.E., Assistant Professor, The Ohio State University*

*Lawrence Agodoa, M.D., Director, Office of Minority Health Research Coordination (OMHRC), NIDDK, NIH*

Dr. Gaillard, Planning Committee Chair, welcomed the meeting attendees. Dr. Agodoa, OMHRC Director, also welcomed participants and noted that many were attending the NMRI workshop for the first time. He expressed gratitude to the Planning Committee for organizing the workshop and then asked participants to introduce themselves with their name, institution, and area of research. Participants ranged from the postdoctoral to the professor level, and research areas included diabetes, obesity, inflammation, health disparities, epidemiology, endocrinology, nephrology, nutrition, and cancer metabolomics.

**WELCOMING REMARKS**

*Griffin Rodgers, M.D., M.A.C.P., Director, NIDDK, NIH*

Dr. Rodgers, NIDDK Director, asserted that the NIH is very interested in programs like the NMRI and has recently named Dr. Hannah Valentine as the new Chief Officer for Scientific Workforce Diversity. Dr. Rodgers welcomed newcomers to the NIDDK “family” and emphasized that the interactions with colleagues at these NMRI Workshops are nothing less than life-changing. He thanked the members of the NMRI Organizing Committee for their work.

The NIDDK is the fifth-largest institute at the NIH. Its mission is to support and conduct research to combat diabetes and other endocrine and metabolic diseases; liver and other digestive diseases; nutritional disorders; obesity; and kidney, urologic, and hematologic diseases. The diseases under NIDDK’s purview are largely chronic, common, and consequential. Within NIDDK, there are three divisions: (1) Diabetes, Endocrinology, and Metabolism (DEM); (2) Digestive Diseases and Nutrition (DDN); and (3) Kidney, Urologic, and Hematologic Diseases (KUH). The NIDDK also supports a Division of Intramural Research, as well as extramural activities. Its core principles are to:

- (1) Maintain a vigorous investigator-initiated research portfolio.
- (2) Support pivotal clinical studies and trials.
- (3) Preserve a stable pool of talented new investigators (one of the missions of the NMRI).
- (4) Foster exceptional research training and mentoring opportunities.
- (5) Ensure knowledge dissemination through outreach and communications.

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Dr. Rodgers provided an update on NIDDK activities. The NIDDK has engaged in numerous outreach and communications efforts, including the launch of a new website in December 2013. Although the feedback that NIDDK received from the general public and patients was generally positive, investigators did not find the old website satisfactory. Researchers sought to learn about NIDDK activities—specifically, the areas of research that would be funded by the Institute. The new website provides a direct link to research and funding opportunities for investigators to identify funding opportunities and filter them according to various criteria (e.g., career stage, funding mechanism). It is possible to subscribe to this list by RSS feed or email to receive the announcements as soon as they are released.

The NIDDK website also was reorganized to provide a list of upcoming meetings and events of interest to NIDDK-supported investigators, in part to help the research community feel connected. Dr. Rodgers drew attention to a meeting scheduled for the following year targeting principal investigators (PIs) within the first 2–3 years of their first R01 grant. The renewal of the initial R01 grant is a stage at which many investigators are lost from the research community, and the workshop is intended to remedy this. There also will be a workshop tailored to investigators supported by a K award who will be applying for their first R01 grant.

The NIDDK supports several different efforts to promote diversity and increase the numbers of underrepresented ethnic groups, as well as individuals with disabilities. Additional information for each initiative, including the point of contact, is available on the NIDDK website. The website also provides a research resources link to a central repository that supports clinical trials and clinical studies, including a database, made available by the NIDDK, with genetic information and clinical samples for investigators to share. The database contains a list of the various resources that are available and is searchable by disease. Again, an option to receive updates to the resources via email is available.

The NIDDK Central Repository now houses millions of biological samples collected from myriad studies. Investigators can apply to access various genetic samples or data sources. Samples were collected from large trials, such as the middle-school-based primary prevention trial of type 2 diabetes known as HEALTHY and the Program To Reduce Incontinence by Diet and Exercise (PRIDE).

The NIDDK supports the National Diabetes Education Program (NDEP), which disseminates knowledge and lessons learned from major clinical trials to patients and providers. Controlling diabetes can decrease the risk of developing secondary complications, and this diabetes prevention program takes small steps to reap large rewards. The campaign materials are distributed in English and Spanish, as well as several Asian and Pacific Islander languages. To amplify the impact of the program, the NIDDK partners with organizations that rebrand the information and distribute it to their constituents. A similar program, the National Kidney Disease Education Program (NKDEP), exists for populations at greatest risk of kidney disease.

Dr. Rodgers discussed the NIDDK budget for fiscal year (FY) 2014–2015. On January 17, 2014, an omnibus appropriation partially restored funds that were lost in FY 2013. The omnibus appropriation was preceded by the Federal shutdown in October 2013 and sequestration earlier in the year, and thus it provided welcome relief. The NIH budget was \$29.15 billion (B) in FY 2013 and \$30.15B in FY 2014. The NIDDK budget was \$1.83B in FY 2013 and \$1.881B in FY 2014. Dr. Rodgers explained that the pay lines were restored to 2012 levels, and he emphasized the importance of ensuring that the “pipeline does not leak.” Early stage investigators experience a higher funding rate than established investigators. The President’s budget requested a \$12 million (M) increase for NIDDK in FY 2015.

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## **[RE]KINDLING ENTHUSIASM FOR BIOMEDICAL RESEARCH: OVERCOMING CHALLENGES AND INERTIA**

***SAMUEL DAGOGO-JACK, M.D., M.S., MBBS, Professor of Medicine, and Director, Division of Endocrinology, Diabetes and Metabolism, A. C. Mullins Chair in Translational Research, University of Tennessee Health Science Center***

Dr. Gaillard introduced the keynote speaker, Dr. Samuel Dagogo-Jack. Dr. Dagogo-Jack is Professor of Translational Research and Medicine and Chief of the Division of Endocrinology at the Tennessee Health Science Center in Memphis. He graduated from University of Audubon in Nigeria and completed his residency training at the Royal Victoria Infirmary, University of Newcastle in the United Kingdom. He is a certified member of the Royal College of Physicians. He completed a postdoctoral fellowship in Endocrinology at the University of Washington School of Medicine in St. Louis. His research interests include the interaction of genetic and environmental factors, the regulation of metabolism, and the mechanisms of diabetes complications, including hypoglycemia. He is currently the PI for four NIH-funded research studies and has published more than 200 papers.

Dr. Dagogo-Jack thanked the meeting organizers and all the attendees. He said that he attended the first NMRI meeting 14 years ago and has been coming ever since. He began the keynote lecture by explaining the meaning of the word “kindling”: a metaphor for the increase in response to small stimuli, similar to the way small burning twigs can produce a large fire. He intends to use the word in its rhetorical meaning of sparking enthusiasm. There is almost a religious angle to the word enthusiasm: inspiration or possession by the divine presence of God.

The creation and transmission of knowledge represents an ancient human tradition. Dr. Dagogo-Jack showed a picture of the Ebers Papyrus—a 5,000-year-old text—that included a hieroglyphic description of diabetes. Imhotep, a physician who lived 3,000 years ago in Memphis, Egypt, was a physician, philosopher, and advisor to the Pharaoh. In those times, access to knowledge and education was carefully guarded and limited to a privileged few. The rituals to access knowledge in ancient cultures are evidence that all ancient cultures understood the power of knowledge. The triumph of education liberalization in the United States is that it makes knowledge and education accessible to the majority of the population.

Dr. Dagogo-Jack provided another example, that of Hasan Wazzan. He was born in 1445 in Granada and educated as a scientist in Fez, Morocco. He was captured by Italian pirates off the coast of Africa and taken as a slave to Pope Leo X. Impressed with his knowledge and high intelligence, the Pope converted and baptized him Wazzan. Adopting the name Leo Africanus, Wazzan led a free intellectual life in Italy as a professor of African Studies and returned to Africa in 1529. In 1550, he published an encyclopedic description of the landscape, rivers, flora, and fauna of Africa. Leo’s magnum opus, *Della Descrittione Dell’Africa*, is divided into nine volumes that provide a treasure of information. Thus, stressed Dr. Dagogo-Jack, the creation and dissemination of knowledge represent an ancient culture.

Despite a description of diabetes that goes back 5,000 years in the Ebers Papyrus, there was no effective treatment until the modern era. Around 1921, Charles H. Best (a medical student) working with Frederick Banting, John McCleod, and James Collip (the chemist) at the University of Toronto successfully extracted and purified insulin from animal pancreas. That work eventually led to a Nobel Prize being awarded to the Toronto scientists. The discovery of insulin launched the first successful treatment for diabetes that has saved millions of lives.

The Institute of Medicine report, *Unequal Treatment: Confronting Racial and Ethnic Disparities in Health Care*, identified disparities across numerous healthcare settings, disease areas, and clinical services. Disparities in diabetes prevalence and treatment are particularly notable. Type 1 diabetes is

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more prevalent in Caucasians, whereas type 2 diabetes is more prevalent in other populations. Both are subtended by the interaction between genes and environment, and both involve failure of beta-cell function.

Based on current examination of dozens of genes that confer diabetes risk, racial/ethnic differences in type 2 diabetes prevalence cannot be explained easily by genetic mechanisms. Furthermore, the health disparities in the complications of diabetes (including amputations) cannot be explained by genetics either. For example, disparities in access to healthcare and health education appear to explain a good part of the disparities in amputation rates. In the Kaiser Permanente health system, where all participants were insured and had access to appropriate care, amputation rates were similar among Whites, Blacks, and Latinos with diabetes.

The root of disparity centers on a triangle with vertices of the patient, workforce, and system. The patient must be health literate, adherent, and self-efficacious. The workforce must display competency and eliminate implicit biases. The system must be accessible to all, offer the same standards for everybody, and be responsive to feedback.

Diversity in the biomedical workforce is necessary to redress disparities and enable a broader representation of the at-risk populations. Dr. Dagogo-Jack gave the example of the Framingham study, which was comprised of 94.7 percent European Americans and thus not representative. These types of noninclusive study cohorts do not generate data that are generalizable. Currently ongoing trials are more representative, but enrollment of African Americans in clinical trials varies significantly. Dr. Dagogo-Jack provided an example of a trial that he led addressing the Pathobiology of Prediabetes in a Biracial Cohort (POP-ABC). The POP-ABC participants were African-American or Caucasian subjects whose parents had type 2 diabetes. The recruitment target was reached by conducting strategic outreach to churches and community gatherings. Recruitment and outreach methods varied in efficacy for African Americans versus Caucasians. Advertising was a major source of recruitment for Caucasian men, but community outreach was more than twice as effective for African-American men. The study found that there was no disparity in the rate of progression from normal glucose to prediabetes among Caucasian and African-American offspring of diabetic parents. Yet, national survey data show marked racial disparities in the prevalence of diabetes. The question, then, is why there was an enrichment of diabetes prevalence in the African-American group compared to Caucasians. Similar to the findings of the POP-ABC, another study (the Diabetes Prevention Program) previously had found that the rates of progression from prediabetes to type 2 diabetes were similar for all racial/ethnic groups, and interventions for diabetes prevention were equally effective in all racial/ethnic groups. Dr. Dagogo-Jack thus stressed that focusing on people with a family history of diabetes, rather than broad targeting based on race, would be a more efficient strategy for diabetes prevention.

Dr. Dagogo-Jack's keynote address fueled the workshop participants' enthusiasm for biomedical research. He next addressed the question of how to translate this enthusiasm into action. He emphasized the importance of finding mentors. The mentor should have a strong academic record to provide the necessary guidance through the paths navigated in the course of a career. Mentoring is a long-term relationship. With respect to underrepresented minorities, there is a virtuous cycle of diversity. Mentors from underrepresented minorities tend to attract minority students and trainees, who will in turn become productive scholars and eventually develop into independent researchers and mentors.

After finding a mentor, it is necessary to consider research ideas. To generate ideas, Dr. Dagogo-Jack recommended using checklists, as explained in Atul Gawande's book *The Checklist Manifesto*. Another approach is to start with a strong research question. Factors to consider include choosing a common medical condition (for which it is easy to recruit subjects); playing to the strengths of one's institution (in terms of available equipment and expertise); personal passion for the field; generous funding opportunities; finding a unique niche close to the mentor's field; identifying unmet needs;

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and staying attuned to emerging areas. It also is useful to collaborate with experts. In choosing research areas, it is as important to consider “unanswered questions” as it is to examine “unquestioned answers,” thus balancing observation with experiment.

Dr. Dagogo-Jack listed traits necessary for success, such as intellect, ambition, originality, and collaborative work style. A solid hypothesis is necessary, but one should not become too attached. It is necessary to measure something—preferably something that counts. He gave the example of death rates from coronary heart disease by race and ethnicity. Although there are many factors connecting blood pressure to blood glucose, he does not believe that all of the factors that matter are being measured.

Challenges faced by young scientists include receiving funding and getting published. Funding sources include Federal agencies (e.g., the National Science Foundation [NSF] and NIH), nongovernmental organizations, and industry. Race matters—African Americans are less likely to win NIH R01 grants. Dr. Dagogo-Jack noted that among the top-scored grants, there is no racial disparity; however, the racial/ethnic disparity in application rate is striking. Dr. Dagogo-Jack emphasized that it is necessary to apply for more grants to win more awards. African Americans are four times less likely to reapply if they were unsuccessful on the first round—this is not evidence of systematic discrimination. Rather, he encouraged participants to apply in larger volumes and to respond to critiques and reapply. Other factors that will increase the likelihood of winning a grant include working at one of the top 30 NIH-ranked institutions; record of previous funding; number of publications; number of citations; and participation in an NIH review committee.

As for the challenges of getting published, Dr. Dagogo-Jack recommended visualizing the papers that will come out of a research project well in advance, and writing the introduction as well as the sections on materials and methods. He recommended “becoming a writer,” and exhorted the participants not to “sit on data.” He also warned participants to expect that their manuscripts will be rejected often, but not to take it personally—instead, to regroup and resubmit. He shared a journal rejection letter for a breakthrough paper by Drs. Solomon Berson and Rosalyn Yalow. Notably, the discovery of radioimmunoassay described in that rejected paper won a Nobel Prize for Dr. Yalow. Thus, rejection happens to everyone.

Dr. Dagogo-Jack concluded by reminding the participants that “it is an honor and privilege to be involved in the creation and dissemination of knowledge. Research provides the opportunity to join the ancient guild of seekers of truth and givers of knowledge. Society needs more creative minds to advance the human species, to solve problems, and to write the next chapter in the future of biomedicine.”

## **Discussion**

A participant asked about the absence of disparity in the prevalence of prediabetes in African Americans and Caucasians. He suggested that the study might have been truncated too soon to see a separation between the groups. Perhaps studies should be followed for longer than the typical 5 years. Dr. Dagogo-Jack agreed. The participant also asked about the endpoint that was measured for assessing pre-diabetes. Dr. Dagogo-Jack said that blood sugar is important, but other biomarkers such as high-density lipoprotein (HDL) and low-density lipoprotein (LDL) would be useful as well.

Dr. Tiffany Beckman remarked, from a graph in Dr. Dagogo-Jack’s presentation, that American Indians have the highest rates of cardiovascular mortality. She also noted that American Indians are not represented in the graph showing the success rates for winning a first R01 grant. Dr. Dagogo-Jack explained that American Indians were not represented on that slide because their numbers were too small to scale with the rest of the graph.

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Another participant, a surgeon, asked about the physiology of diabetes. In his practice, he conducts bariatric surgery. He noted that within a week, his patients become nondiabetic, even though they have not lost weight after the surgery. Their genes did not change. This is important data and may lead to prevention strategies. Dr. Dagogo-Jack responded that the rapid improvement in patients after bariatric surgery could be explained by several possible mechanisms. He suggested that the change is most likely due to the conditioning and lifestyle changes that occur in the prebariatric phase. The conditioning must be successful before a surgeon will operate. This conditioning includes a drastic portion restriction, which is effective whether or not the patient subsequently undergoes surgery. The difference is that the portion restriction is more sustainable in the group that undergoes bariatric surgery.

The participant remarked that surgeons are largely absent from research because the clinic is more lucrative. Surgeons are not encouraged to do research or to write grants. Research for surgeons is relegated to a “hobby.” He asked Dr. Dagogo-Jack how to maintain a culture of research in the field of surgery. Dr. Dagogo-Jack remarked that on the broader issue of research, society seems to be shifting to an anti-intellectual bent. Academic health centers currently run operating budgets of about \$700M, and approximately 70 percent of the budget is derived from clinical income, unlike previous decades where research funding formed a larger part. Thus, surgeons are encouraged to operate; there is limited time and energy for scholarly pursuits. The compensation incentives have shifted, and research is not rewarded as much as clinical work. Dr. Dagogo-Jack suggested that this situation will self-correct when the United States is threatened with a second-place status in research.

A participant noted the importance of churches as a place to conduct outreach and health education. The participant gives talks at local churches, and the response is overwhelming—church members want to learn about diabetes and periodontal disease, among other topics. One problem, however, is that young people are dissociating themselves from organizations. Nevertheless, at the high-school level, there is an overwhelming response; it is critical to cultivate high school and undergraduate programs in science.

## **UPDATE ON NATIONAL INSTITUTE ON MINORITY HEALTH AND HEALTH DISPARITIES (NIMHD) FUNDING OPPORTUNITIES**

***Joyce Hunter, Ph.D., Deputy Director, NIMHD, NIH***

Dr. Hunter described the mission of the NIMHD and highlighted three programs that may be of particular interest to the NMRI audience. The mission of NIMHD is to (1) plan, review, coordinate, and evaluate all minority health and health disparities research and activities of the NIH; (2) conduct and support research in minority health, with particular emphasis on cardiovascular disease (CVD), diabetes, and cancer; (3) promote and support training of a diverse research workforce; (4) translate and disseminate information about minority health and health disparities; and (5) foster innovative collaborations and partnerships.

NIMHD extramural programs fall into four major categories: (1) trans-disciplinary and translational research; (2) basic, social, and behavioral research; (3) science education and research training; (4) research capacity building and infrastructure. The research funded by the NIMHD is comprised of three broad types: (1) basic and applied biomedical research (funded by an R01 mechanism); (2) social and behavioral health research and policy research on minority health and health disparities (also funded by an R01 mechanism); and (3) community-based participatory research (CBPR; funded by R24 grants). The NIMHD separates basic and applied research from social and behavioral research. The Institute’s research portfolio is diverse, including such areas as obesity, AIDS, diabetes, and others. All of the research is performed in the context of health-disparate populations, usually on conditions that disproportionately affect underrepresented minorities.

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The basic and applied biomedical research encompasses fundamental biological mechanisms, but also emphasizes the development of new therapies to eliminate health disparities, as well as clinical and translational research on the etiology and physiology of disease. There is interest in pharmacogenomics and personalized medicine. In the second category—social, behavioral, health services, and policy research on minority health and health disparities—research includes the social and behavioral determinants of health and disease, the clinical efficacy and effectiveness of preventive interventions, the examination of understudied health conditions, the impact of health policies on health disparities, and health services research. The CBPR program is funded through R24 grants and consists of three independent phases, including a 3-year research planning grant; a 5-year intervention research grant; and a 3-year dissemination research grant. It is not necessary to apply for each stage successively; for example, if a completed study needs to be disseminated through outreach activities, it is possible to apply directly for the 3-year dissemination research grant.

Dr. Hunter introduced the NIH Loan Repayment Program (LRP), which is designed to retain early-career health professionals. Many early-career biomedical scientists have extravagant professional debt. The LRP provides an opportunity to engage in biomedical research with a 2-year commitment in exchange for paying educational loans. The program is designed to retain health professionals in pediatric research, contraception and infertility research, and health disparities research, as well as clinical researchers from disadvantaged backgrounds. The health disparities research loan repayment can apply to any disease or condition, provided that the topic is relevant to health disparity issues. The amount of loan repayment is \$35,000, plus taxes and interest, per year for 2 years. An extramural clinical research LRP for individuals from disadvantaged backgrounds is renewable with an annual deadline of December 1. Since its inception, the NIMHD has supported more than 3,400 loan repayment recipients.

Basic eligibility criteria include possessing a doctoral level degree and not being a current employee of the Federal government. The LRP allows recipients to consolidate all student loans (undergraduate and graduate). Between 2012 and 2013, there were 65 NIMHD LRP recipients conducting research in diabetes, metabolic syndrome, digestive disorders, obesity, and kidney and urological disorders. LRP recipients have studied the following topics, among others:

- In basic and applied research areas, they have studied the association of adipokines in CVD and the neural correlates of food reward in American Indian women.
- In clinical and translational research, they have addressed obesity disparities through a CBPR mechanism and investigated the genetic mechanisms of HIV infection in Latinos.
- In social and behavioral science research, they have studied the social determinants of racial disparities in chronic kidney disease.
- In health services research, they have examined the role of patient-provider communication in illness management for diabetes.

LRP recipients are very competitive, become independent investigators at a higher rate than their colleagues, and develop into leaders in their fields. There is a need to increase the diversity of the biomedical research workforce, and the LRP provides a pathway to accomplish this goal.

## **Discussion**

A participant asked whether there must be a racial difference at the level of fundamental molecular mechanisms to be supported by an NIMHD grant. Dr. Hunter said that there does not need to be a difference at the level of the molecular mechanism, but that the study must address a health disparities problem. The case should be made in the background section of the grant.

Dr. Richard White said that he has benefited from the LRP program since 2009. He explained that the LRP allowed him to focus on reducing his personal debt. He expressed gratitude for the program and encouraged others to apply. He is currently a health disparities researcher focusing on health literacy and

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the improvement of diabetes outcomes. He would like to study not just adult or pediatric populations in the context of obesity prevention, but also family-based interventions. Dr. Hunter reiterated that all studies are eligible for NIMHD funding, provided they are conducted in a health-disparate population. Dr. Regina Simms mentioned that she also benefited from the LRP, but her grant was not renewed. She asked for clarification about whether it would be advantageous to represent herself as an independent or mentored researcher in the application, and she asked at what level a researcher is considered independent. Dr. Hunter replied that it is always helpful to partner with consultants and experts. She advised the mentored approach.

Another recipient of the LRP said it was very useful for keeping him financially stable during his time as a junior faculty member. He noted, however, that those working for the U.S. Department of Veterans Affairs (VA) are not eligible because it is part of the Federal government. He then asked a question about basic and applied research sections: Are those grants reviewed by special-emphasis panels based on the scientific expertise that is required? Dr. Hunter said that these grants are reviewed internally and are not sent to NIH's Center for Scientific Review (CSR).

Another participant asked whether it is necessary to have funded research at the time of application. Dr. Hunter explained that applicants need preliminary data to use as the basis for the research plan. A participant who received the LRP said that at the time that he applied, he had full funding already, but the funding expired during the LRP period.

Dr. Hunter clarified that applicants are eligible only if the loan represents more than 20 percent of the applicant's income. A participant asked whether there are LRPs for those who do not meet the 20-percent eligibility criteria. Dr. Hunter said that such programs do exist.

## **RESEARCH SUPPLEMENTS TO PROMOTE DIVERSITY**

***Kevin McBryde, M.D., Program Director, NIDDK, NIH***

Dr. McBryde explained that the OMHRC promotes health disparities research and supports investigators to pursue research in biomedical and behavioral areas. On the website [www.grants.nih.gov](http://www.grants.nih.gov), there is a link to the NIH's Office of Extramural Research, where it is possible to search for funding announcements. He drew attention to Program Announcement (PA) 12-149: Research Supplements To Promote Diversity in Health-Related Research (available at: <http://grants.nih.gov/grants/guide/pa-files/PA-12-149.html>). He noted that 24 of the 27 institutes at NIH—as well as the Office of Research Infrastructure Programs, Office of Dietary Supplements, and Office of Strategic Coordination—participate in the Research Supplements To Promote Diversity program. Eligible parent awards include R awards, P awards, U awards, and others. Dr. McBryde invited participants to view the website [www.projectreporter.nih.gov](http://www.projectreporter.nih.gov), which is a useful online tool to help identify potential PIs for a Research Supplement, and it allows for searches by keywords, institution, and city and state.

Eligibility criteria for a diversity supplement include U.S. citizenship, U.S. noncitizen national, or permanent resident status. Qualifying criteria include race (e.g., American Indian or Native Alaska; Black or African American; or Native Hawaiian or Other Pacific Islander) or ethnicity (e.g., Hispanic or Latino), disability (e.g., limits one or more life activities), and disadvantage (e.g., income; social/cultural/ educational environment that has “demonstrably and recently directly inhibited the individual”). Career levels range from high school through PI, although there is a constraint that candidates cannot be supported concurrently by the U.S. Public Health Service (PHS). The NIDDK has a rolling application for the diversity supplement. Applications are reviewed every month except December, August, and September, and review meetings occur on the fourth Tuesday of each month.

The application process is entirely electronic, and the application must be submitted from the Office of Grants Management at the applicant's institution. The contents include the research strategy, career development plan, evidence of adequate mentoring experience and success of the PI, and

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evidence that the candidate will pursue a research career. Dr. McBryde emphasized that this is a supplement to a peer-reviewed parent award and there is no scientific review; the career-development awards emphasize mentoring experience of the PI. In particular, the PI should have experience in training underrepresented individuals and should tailor a research and career development plan for the candidate. Dr. McBryde also emphasized the requirement for responsible conduct of research, which is required at every career stage.

The budgets for the diversity supplement vary according to the career stage of the recipient. The institution receives overhead (i.e., facilities and administrative costs) on these grants and often routes candidates to these awards. The duration of support is limited to 24 months, although it is possible to request a continuation for an additional 12 months. Dr. McBryde re-emphasized the importance of mentorship for successful applications.

## **Discussion**

A participant asked whether Hispanic Americans were eligible for the diversity supplement, and Dr. McBryde affirmed that Hispanics were eligible. He also said that it is possible to make a justification based on the institution's history that Asians or Caucasians are underrepresented in a specific program at an institutional level.

A participant asked whether it is possible to apply for multiple supplements. Dr. McBryde clarified that each parent award can support one supplement candidate, except at the high school and undergraduate levels. He added that applicants are eligible at each career level—for example, they could be supported as undergraduates and then as graduate students; however it is not possible to have two research supplements at the same career level.

A participant asked whether a fellow supported by the Ruth L. Kirschstein National Research Service Award (NRSA) fellowship is eligible for a diversity supplement. Dr. McBryde said that provided the funding from the fellowship has ended by the time the diversity supplement begins, the diversity supplement would be allowed.

Dr. McBryde noted that there has been an increase in the number of grant applications from young investigators, which are now outnumbering applications from pre- and postdoctoral fellows. However, these are not easily funded, because the diversity supplement requires the applicant to be associated with a parent award, and this in turn makes it difficult to show that the young investigator will become independent from the parent award.

Dr. McBryde said that P and U awards are both acceptable parent funding mechanisms to which a diversity supplement can be added. For example, a hepatitis B network funded through a U award mechanism is eligible; a diversity supplement recently was awarded to a trainee working on a specific project that was part of the U award.

A participant asked whether this mechanism can be used to support medical students to take a year to perform research. Dr. McBryde said that the diversity supplement can be used to support medical students. Additional mechanisms include a T32 Medical Student Research Training Supplement (<http://www.niddk.nih.gov/research-funding/process/apply/about-funding-mechanisms/t32/T32-MSRT/Pages/T32-medical-student-research-training-supplement.aspx>). Additionally, the NIDDK participates in the T35 Short-Term NRSA (PAR-14-016; <http://grants.nih.gov/grants/guide/pa-files/PA-14-016.html>) to support medical students for 2 to 3 months while they perform a research project.

In response to a question, Dr. McBryde explained that if the PI is at a separate institution, there should be a co-PI at the same institution as the applicant. Dr. McBryde clarified that the T32 NRSA Diversity Supplement Award (<http://www.niddk.nih.gov/research-funding/process/apply/about-funding-mechanisms/t32/T32-Diversity/Pages/T32-nrsa-diversity-supplement-award.aspx>) extends to postdoctoral fellows. M.D.s and Ph.D.s can be supported on a supplemental slot to an existing T32 award if the parent award supports M.D. and/or Ph.D. candidates.

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## **NETWORKING LUNCH: ROUNDTABLE DISCUSSIONS**

During the networking lunch session, the meeting participants attended one of seven roundtable discussions, each of which focused on a different career-oriented topic. Participants selected which discussion to attend. The format of the discussions varied—several roundtable leaders began the discussion with formal presentations, while others fostered a question-and-answer period throughout the lunch.

### ***Table 1 – Mentoring of Junior Faculty in Clinical Research***

***Samuel Dagogo-Jack, M.D., M.S., M.B.B.S., Professor of Medicine, and Director, Division of Endocrinology, Diabetes and Metabolism, A. C. Mullins Chair in Translational Research, University of Tennessee Health Science***

### ***Table 2 – How To Use Multicenter Trials to Advance Your P & T***

***Kwame Osei, M.D., Director of Diabetes Research Center, The Ohio State University College of Medicine  
Jackson Wright, Jr., M.D., Ph.D., Professor of Medicine, Case Western Reserve University***

### ***Table 3 – How To Say “No” for Success***

***Marion Sewer, Ph.D., Associate Professor, University of California, San Diego***

### ***Table 4 – Community-based Participatory Research***

***Cherise Harrington, Ph.D., M.P.H., Assistant Professor, George Washington University***

### ***Table 5 – How To Budget and Manage Your Funds (Basic and Clinical)***

***Sylvia Rosas, M.D., M.S., Assistant Professor, Joslin Diabetes Center/Beth Israel Deaconess Medical Center  
Mark Lawson, Ph.D., Professor, University of California, San Diego***

### ***Table 6 – Transitioning From Postdoctoral Fellow to Faculty***

***Heather Tarleton, Ph.D., M.S., M.P.A.P., Assistant Professor, Loyola Marymount University  
Larry Alexander, Ph.D., Assistant Professor, Northwestern University***

## **MOCK STUDY SECTION**

During the afternoon breakout session, participants attended one of three Mock Study Sections. Each session covered different types of NIH awards: R01/Basic, R01/Clinical, and K Awards. The three study sections were comprised of a Chair and Scientific Review Officer (SRO), as noted below. Session leaders were given sample grant applications (some from meeting participants) to review and provide critical feedback. The SRO led a discussion of the feedback sessions. One of the most useful activities during the session was the grading of the sample applications by “study section” participants, with direct feedback on why they scored the application as they did. Each mock session included experienced researchers who had submitted successful grant applications; they provided real-life experiences about their quests for funding, often being unsuccessful in their first attempts. Discussion sessions were scheduled to allow participants to ask specific questions after hearing about the process and grading scale. These sessions were invaluable because of the restricted funding climate.

### ***Study Section 1: R01/Basic Grant With Multi-PI***

***SRO: Ann Jerkins, Ph.D., Scientific Review Officer, NIDDK, NIH***

***Chair: Marion Sewer, Ph.D., Associate Professor, University of California, San Diego***

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**Study Section 2: R01/Clinical**

**SRO: Michele Barnard, Ph.D., Scientific Review Officer, NIDDK, NIH**

**Chair: Susanne Nicholas, M.D., Ph.D., M.P.H., F.A.S.N., Associate Professor, University of California, Los Angeles**

**Study Section 3: K Awards**

**SRO: Barbara Woynarowska, Ph.D., Scientific Review Officer, NIDDK, NIH**

**Chair: Keith Norris, Ph.D., Professor, University of California, Los Angeles**

**SCIENTIFIC PRESENTATIONS****CALORIE RESTRICTION INCREASES INSULIN SENSITIVITY IN SKELETAL MUSCLE THROUGH SPHINGOLIPID METABOLISM**

**Diana Obanda, Ph.D., Research Instructor, Pennington Biomedical Research Center, Louisiana State University**

Dr. Obanda presented her research addressing the mechanism by which caloric restriction improves insulin sensitivity in skeletal muscle. Insulin resistance is a major characteristic of type 2 diabetes, and skeletal muscle is a major contributor to reduced whole-body glucose disposal in type 2 diabetes. Previous research has shown that caloric restriction improves insulin sensitivity, but the mechanism is not clear. The aim of the study was to elucidate the mechanisms through which caloric restriction increases insulin sensitivity in skeletal muscle. Sphingolipids, lipids in which fatty acids are linked to a long-chain base through amide bonds, have been shown to impact insulin signaling directly. Thus, the hypothesis was that caloric restriction improves insulin sensitivity in skeletal muscle through modulation of sphingolipid formation and metabolism.

To address the hypothesis, Dr. Obanda performed an experiment in which 19 Fischer rats were separated into two experimental groups: those fed ad libitum, and those fed at 30 percent of the same diet. Dietary intake, body weight, and insulin sensitivity were measured. In addition, protein levels and sphingolipid metabolism were measured in the skeletal muscle (vastus lateralis). Body weight was reduced in the calorie-restricted group, as was insulin resistance. Ceramides, ceramide phosphates, sphingosine, and sphingosine phosphate did not differ between the groups, but glycosphingolipids were significantly lower in the calorie-restricted group. There was a positive correlation between glycosphingolipids and insulin resistance. Furthermore, inhibition of glucosyl ceramide synthase (the enzyme that synthesizes glucosylceramides) in rat skeletal muscle cells increased insulin sensitivity. Thus, insulin sensitivity is modulated by glycosphingolipid formation and metabolism in skeletal muscle.

**Discussion**

A participant asked whether enhanced insulin sensitivity occurs before or after the change in glycosphingolipids. Dr. Obanda explained that she had not performed a time course of these events, but there is an improvement in insulin sensitivity after 3 weeks of the calorie restriction treatment.

An attendee noted that adiponectin is associated with both insulin sensitivity and glycosphingolipids, and asked whether adiponectin was measured. Dr. Obanda responded that she is planning to measure adiponectin.

In response to a question about whether the inhibitor of glucosyl ceramide synthase was given systemically or locally, Dr. Obanda clarified that the experiment was performed in cell culture.

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## **LOW INCOME, COMMUNITY POVERTY, AND RISK OF END-STAGE RENAL DISEASE (ESRD)**

***Deidra Crews, M.D., M.S., Assistant Professor of Medicine, The Johns Hopkins University***

Dr. Crews explained that socioeconomic disparities have been documented in kidney disease. Disparities are higher among individuals in low-income communities. Poverty is associated with multiple risk factors for kidney disease, such as hypertension, heart disease, and diabetes. Poorer neighborhoods have higher incidence of ESRD, and living in an area of low socioeconomic status (SES) is associated with progressive kidney disease. The interaction between community and individual SES on ESRD incidence is unknown.

The study design followed the population-based cohort analysis of the Reasons for Geographic and Racial Differences in Stroke (REGARDS) study. Participants included 23,314 African Americans and Caucasians aged 45 years and older, recruited from the southeast United States. County-level poverty was determined by Z scores, a measure of the density of poverty in the county, calculated from the 2000 U.S. Census. Covariates and confounders included age, gender, race, region of residence, and education. For the statistical analyses, ANOVA and chi-square tests were conducted to assess differences across county poverty category. Multivariable Cox proportional hazards models were applied to examine the independent and interactive associations between income and county poverty measures and incident ESRD.

The results demonstrated that the proportion of households headed by women were greatest in concentrated poverty areas. African Americans also are concentrated in poverty areas. Poor neighborhoods tended to have the highest incidence of ESRD, but it was not statistically significant. The well-known association of low income with increased risk of incident ESRD is strong and independent of county poverty.

One strength of the study is that it was the first to examine the relative associations of individual and community SES with incident ESRD. The study had a large sample size, balanced with African American and Caucasian adults. It included measures of the density of community poverty. Limitations of the study included that not all study participants disclosed their annual income; the measure of annual income did not account for household size or SES across the life course; and the county might be too large of a geographic area to represent community SES.

One component of Healthy People 2020 is an initiative to eliminate socioeconomic health disparities among patients with kidney disease in the United States by 2020. This study supports a focus on individual rather than community resources when attempting to reduce disparities in ESRD.

### **Discussion**

A participant asked whether Dr. Crews had taken into account access to healthcare. She explained that the number of factors that could be adjusted for was limited, particularly when considering the fact that there were relatively few events (158 ESRD events out of a sample size of 23,314). Access to healthcare was not analyzed.

Another participant asked whether the analysis took into account the cost of living, and whether the effects of community poverty were analyzed by controlling for the individual income variable. Dr. Crews confirmed that the individual income variable was controlled for in calculating community poverty.

An attendee suggested that the county level may be too large, but perhaps the ZIP code would provide a better spatial resolution to calculate community poverty. It also would be interesting to investigate the association of ESRD episodes and the density of dialysis units in the community. Community nephrologists provide higher quality of care. Investigating access to primary care would be worthwhile.

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## **FREQUENCIES OF CYP2C8, CYP2C9, AND CYP2C19 ALLELES RELATED TO ANTIDEPRESSANTS AND NON-STEROIDAL ANTI-INFLAMMATORY DRUG (NSAID) METABOLISM IN A SICKLE CELL DISEASE (SCD) PATIENT COHORT**

***Cheedy Jaja, Ph.D., M.P.H., M.N., R.N., Associate Professor, University of Cincinnati***

Dr. Jaja introduced SCD as one of the most common genetic blood disorders worldwide that affects predominantly people of African ancestry. Annual healthcare costs for sickle cell disease are \$2.4B. The disease exerts a huge burden on the healthcare system and contributes a significant source of health disparity.

Acute pain is a hallmark of SCD. Many patients experience pain daily, but several studies have documented the undertreatment of sickle cell pain. The three classes of drugs used to treat SCD pain include NSAIDs, opioids (e.g., codeine, hydrocodone, morphine, oxycodone), and selective serotonin reuptake inhibitors (SSRIs; e.g. paroxetine, citalopram). Patients manifest variable responses to pain therapy, partly as a result of genetic differences. Opioids, NSAIDs and adjuvant analgesics for SCD pain are metabolized by the CYP450 enzymes, which are highly polymorphic and associated with variable metabolic activities, ranging from poor to ultra-rapid capacity.

The goal of this study was to establish a pharmacogenetic program for treatment of SCD pain. By determining the allelic frequencies of drug-metabolizing enzymes involved in analgesic-medication metabolism and measuring the functional activity of these different alleles, it becomes possible to incorporate this information in analgesic pain management.

To investigate the frequency of pharmacologically relevant allelic variants, seven CYP2C8, 15 CYP2C9 and 11 CYP2C19 alleles were genotyped in 165 SCD patients receiving care at the Georgia Regents University Comprehensive Sickle Cell Center clinics. Four CYP2C8 alleles (\*1, \*2, \*3, and \*4) were identified with observed frequencies of 0.806, 0.164, 0.018, and 0.012, respectively. Genotype frequencies were distributed as homozygous wild type (66.7%), heterozygous (27.8%), and homozygous variant/compound heterozygous (5.4%), respectively. Eight CYP2C9 alleles (\*1, \*2, \*3, \*5, \*6, \*8, \*9, \*11) were observed with the CYP2C9\*1 having the highest frequency (0.824). The combined frequency for the allelic variants was 0.176. The predicted phenotype frequencies were as follows: extensive (68.5%), intermediate (18.1%), and poor metabolizers (0.6%), respectively. Four CYP2C19 alleles (\*1, \*2, \*12, and \*17) were detected with the following frequencies 0.545, 0.209, 0.006, and 0.236, respectively. The predicted phenotype frequencies were distributed as extensive (31.5%), intermediate (24.8%), poor (9%), and ultrarapid metabolizer (30.3%), respectively. Because some of the variant CYP2C9 and CYP2C19 alleles do not have clear phenotypic consequences, the predicted metabolic phenotype for five CYP2C9 genotypes (\*5/\*9, \*6/\*8, \*8/\*9, \*9/\*11), 12 CYP2C19 \*2/\*17, and one CYP2C19 \*17/\*UNK genotypes were indeterminate.

In this cohort, 55 subjects out of 165 had an allelic variant that contributed to impaired metabolism. For 8 percent of the cohort, pharmacologic function could not be determined, making these individuals candidates for alternative drug choices. Pharmacokinetic studies are necessary to determine the allelic combinations that result in particular metabolic phenotypes. The long-term goal of this work is to understand the functional effects of allelic combinations and to use this information to prescribe appropriate drug dosage.

### **Discussion**

No discussion points were raised.

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## **Characterization of Sulfatase 2 (SULF2) Domains Regulating Wingless-type MMTV Integration Site (WNT) Pathway Activity in Hepatocellular Cancer**

***Bubu Banini, M.D., Ph.D., Postdoctoral Research Fellow, Mayo Clinic***

Dr. Banini introduced her work characterizing SULF2 domains and WNT pathway activity in hepatocellular carcinoma (HCC). Worldwide, liver cancer is the sixth-most common cancer and the second-most common cause of death from cancer. HCC incidence has tripled in the United States since 1980, and 5-year survival rates are improving but still poor. HCC affects patients with cirrhosis, hepatitis, alcohol abuse, and fatty liver disease, among others. Most patients are diagnosed at advanced stages, when cures are no longer possible. More studies are needed on the pathogenesis of HCC.

The gene SULF2 is upregulated in 60 percent of HCCs, and those with higher SULF2 activity have worse prognosis and more rapid recurrence. SULF2 mediates WNT release from heparin sulfate proteoglycans (HSPGs) and activates the WNT signaling pathway, which in turn leads to growth and cell invasion and, ultimately, progression and metastasis. SULF2 interacts with Wnt3a and Glypican 3, producing a ternary complex at the cell surface. The specific questions Dr. Banini sought to address include the structural determinants of SULF2 regulation of WNT signaling in HCC. Dr. Banini hypothesized that the key domains affecting WNT signaling do so through binding of 6-O sulfated HSPGs at the cell surface.

Using site-directed mutations of SULF2 and transfection of wild type or mutant SULF2 into cells, it was determined that mutation of the catalytic and heparin-binding domains of SULF2 abrogates WNT signaling, and that these act on the 6-O-sulfates in HSPGs. Thus, this study has identified the targets for further study about the SULF2-mediated WNT pathway activation in HCC.

### **Discussion**

No discussion points were raised.

### **DINNER ADDRESS: IF NOT US, THEN WHOM?**

***Jackson Wright, M.D., Ph.D., Case Western Reserve University***

Dr. Jackson Wright commended Dr. Gaillard, the Planning Committee members, and the leadership of Dr. Agodoa and Ms. Winnie Martinez for the excellent NMRI program. He offered several observations made during his career and described a few important changes, some of which have been regrettably small. Dr. Wright focused his presentation on the responsibilities that minority investigators must assume to increase the magnitude of the changes as a marker of success.

Throughout his career, Dr. Wright participated in dozens of minority development programs. He explained that often, the purpose of the programs was more to document the existence of the programs than to reduce the magnitude of the problems facing minority researchers. The NMRI, by contrast, has a clear and beneficial purpose, and it has been productive in both providing mentorship and fostering collaboration within the Network. Dr. Wright noted that at 14 years into the 21st century, minority researchers still have far to go to reduce the burden of disease and death. Minorities are dying unnecessarily and many diseases in communities remain untreated or undertreated. The careers of minority trainees have been ruined and dreams have been dashed, all needlessly. Dr. Wright emphasized that the conditions have to change to improve the statistics of minority populations. He asked: If we do not address them, who will? If not us, then whom?

Dr. Wright commented that the proportion of African-American faculty is still very low, at 3 percent. This statistic represents less than a single percentage point gained compared to when Dr. Wright began his academic career approximately 3 decades ago. A recent New York Times article reported that at the major medical schools (representing future African-American academic faculty), only

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one-third of the African-American medical students had both parents and grandparents born in this country. This is not to say that the United States, including our communities, has not benefited from the recent talent influx, as evident in the outstanding individuals present at the meeting. Rather, this indicates the continuing absence of significant and effective investment in African-American youth in this country. Dr. Wright noted that this was especially true of African-American males, who represent well less than a third of African-American medical students nationwide. Dr. Wright emphasized that as minority faculty and investigators, this phenomenon can no longer be ignored. If we don't address it, who will?

Dr. Wright noted with pride his accomplishments of achieving full professor with tenure at one of the top academic medical centers and his leadership role on many of the major studies addressing the treatment of cardiovascular and renal disease, especially in African Americans, minorities, and health disparities. He has published approximately 300 publications, many in leading medical journals, and led or assisted in securing more than \$50M of NIH funds during his almost 25 years at Case Western Reserve University. He commented that he could highlight numerous contributors instrumental to his success, including family, staff, collaborators, and mentors, but he decided to focus on one, affirmative action. He noted that he is a product of affirmative action. He also noted that in today's environment, the institution that trained him would run the risk of litigation for having accepted him, as his paper file would not have predicted his future accomplishments. However, affirmative action did for him and others what it was intended to do. It gave him an opportunity (not a guarantee); then placed the onus on him to succeed or fail. Dr. Wright asserted that equity in the American system requires that minorities be offered the previously denied opportunity to succeed. If we are ever to see equity in the American system in our lifetime, the system that selects those who get the opportunity must be permitted to take a chance on developing minorities, especially African Americans, who will be at higher risk based on the usual criteria. He indicated that he does not consider it a disappointment when someone fails; he considers it a disaster when they are not given the opportunity to excel. We, as minority faculty, should not apologize for demanding that opportunity. Once given that opportunity, however, it is our responsibility to make the most of it, not only for our success, but for the benefit of our communities and those in our community whom we must assure will follow and replace us.

As a minority faculty in health science, Dr. Wright outlined three primary objectives that he considered metrics for measuring his success: (1) add to the database of disorders that disproportionately affects the minority community; (2) serve as a resource providing expertise for developing practice guidelines for our communities and for the peer-review process to ensure that the minority community is represented; and (3) mentor and advocate for junior minority scientists so the momentum for change is not lost.

Dr. Wright said that he was fortunate in his career to have many outstanding mentors. Minority researchers especially need multiple mentors to provide positive and negative feedback. Among these, he included Dr. Agodoa, who was the Project Officer for the African-American Study of Kidney Disease and Hypertension (AASK) that afforded him his first leadership opportunity in a major NIH trial.

Minority faculty must learn to enjoy the battle that they will encounter in their careers; it is worth the fight, and many lives in minority communities are at stake. One critical question each of us has to answer at some point in our careers is whether others' negative assessment of our achievements is justified. "Is it me, or is it them?" Dr. Wright emphasized the need to identify trusted mentors, peers, friends, and family members who will provide you a frank and honest assessment and the importance of having a reference point as their career progresses. A corollary question is whether our success has been at the cost of compromising key principals and on terms "that will allow us to look ourselves in the mirror" each morning. For most, our success is dependent on the subjective assessments of us by others who may not share our values. It is essential, however, that we maintain our commitment and integrity. He emphasized that every attendee in the room is a success story.

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Another observation is that many departments at leading institutions have never had an African-American faculty member. He observed how there is always intense competition for rare faculty with specific skills seen by the institution as necessary. Yet in almost every instance, the recruitment is nearly always successful because of the institution's willingness to invest in the market value for these talents. However, despite the clear need for a diverse faculty, market forces do not apply in the recruitment of African American and minority faculty.

Dr. Wright noted that many present at the Workshop have an interest in studying racial and ethnic differences in disease. While racial differences in disease presentation, morbidity, mortality, and response to treatment exist, many try to define race in terms of genotype, while others consider race to be only a social construct. Although there are different opinions about how to define race, knowing an individual's race can predict certain disease characteristics, such as the risk of kidney failure, stroke, infant mortality, diabetes, and premature death, among others. Thus, race does have significant biological consequences. Although he was one of the authors of the *New England Journal of Medicine* (NEJM) article in November 2013 that published the identification of the APO-L1 gene as the cause of the increased prevalence of CKD progression and kidney failure in African Americans with diabetic and nondiabetic renal disease compared to Caucasians, he has no doubt that most racial and biological differences will be explained by nongenetic causes.

Dr. Wright observed that racial differences often are embroiled in racial politics. He recalls serving on the Data Safety and Monitoring Board, which insisted on early discontinuation of the African American Heart Failure Trial because African American participants on the hydralazine and isosorbide dinitrate combination (ISD/HYD) had more than 43 percent lower risk of mortality, 33 percent lower risk of hospitalization, and significant benefit on quality of life. The politics, however, became focused on whether the drug combination should be considered "a Black drug" and entirely missed the point that the treatment reduced mortality and hospitalizations by more than 50 percent. The standard of care for African American patients with heart failure established by the American College of Cardiology and the Heart Failure Society only recently changed to indicate ISD/HYD as primary therapy in African American heart failure patients. Furthermore, a decade after the NEJM publication of the results of that trial, the standard of care for African American patients with heart failure remains such that hospitals treating mostly African American patients, if reviewed by the Joint Commission on Accreditation of Healthcare Organizations, would be cited if patients without justification are not receiving RAS inhibitors and beta blockers that have substantially lesser level of evidence in this population, but would not be cited if they were not placed on ISD/HYD. Our role in translating evidence to our community's benefit is essential and an ongoing challenge.

Dr. Wright referred to the Institute of Medicine report on health disparities and the earlier report in 1985 by the U.S. Department of Health and Human Services (HHS) Secretary Margaret Heckler. He expressed concern that studies continue to focus more on the study of health disparities and continue to observe poor outcomes. Although some observational data obviously are necessary, when the study of health disparities focuses on simply "observing" the disease progression of inadequate medical care until it reaches the "endpoint" of significantly poorer health outcomes, it presents an element of *deja vu* with the 1933–1972 Tuskegee Syphilis Study. He indicated that we are overdue in generating data and evaluating interventions to address the disparities problem. New guidelines and funding standards should be established in this area to reduce disparities. Significant progress has been made in generating important data on the pathophysiology and treatment of African-American populations. This is 2014, however, and it is important to endeavor to equalize the health handicap experienced by minorities. Dr. Wright reiterated that minorities are dying and careers are being ruined. As minority faculty investigators, there needs to be another call to arms.

As his career ends, Dr. Wright hopes to be able to look back and feel that he met the goals he laid out for himself in the beginning. His presence in AASK, as well as numerous other trials and committees, he hopes created the environment for progress toward addressing health disparities.

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Dr. Wright expressed concern that there is a diminishing urgency to address the health needs of minority communities. As a minority investigator dealing with the health needs of the community, there is no profession with a greater secondary gain. Minority providers change lives of the minority patients that they serve. Minority investigators, however, have the opportunity to change the lives of entire communities. If not us, then whom?

## **Discussion**

Dr. Lincoln Edwards thanked Dr. Wright for the invigorating talk. He relayed an anecdote that indicated African-American males are entering the field of nursing in higher numbers. Dr. Edwards suggested that perhaps the students would consider academia, but are concerned about the challenges, such as writing grants. He asked how those individuals could be convinced that the community needed them in research. Dr. Wright asserted that minority research nurses and nurse investigators also are needed. He also noted, however, that if minorities are successful in their careers, they can convey that success and communicate to students the opportunities for positive gain. As he indicated, no career provides as great secondary gain as that of academic medical research, and that message needs to be communicated. Research and clinical careers each have their benefits and drawbacks. Currently, despite the limited funding environment, there is ample opportunity for researchers to enjoy their life and career.

Dr. Leonor Corsino explained that it is difficult to teach students to be resilient to negative comments, and she solicited advice on overcoming this challenge. Dr. Wright stated that if he and other minority faculty had listened to the negative comments about themselves, none of us would be where we are. The reality is that minority mentors must convey the positive aspects of their careers to those coming behind in addition to strategies to manage the expected challenges. Dr. Beckman asserted that students should have backup plans to enhance resiliency.

A participant asked for strategies to attract more minority men to academic careers. Dr. Wright's strategy is to introduce middle school boys to medical school. Minority men are being lost from the academic track earlier than ever, and providing opportunities even to young children is important. There is no better minority recruitment tool, however, than the presence of successful minority faculty as role models.

Dr. Dagogo-Jack said that he spent the past 13 years in Memphis, Tennessee, working with civic leaders in the African-American community on a program called Rights of Passage. The program mimics ancient African customs and is reminiscent of a Jewish bar mitzvah. There is an emergency concerning the low enrollment of African-American males in graduate and medical schools. A fundamental question is how to address the pernicious effects of discriminatory practices that have deflated the ambitions of a broad swath of citizens. Many believe that they have no stake in the future, and there is a depletion of role models. Minority faculty presence itself is an argument against stereotypes. The Knowledge is Power Program in Jackson, Mississippi, encourages students to form a positive "gang" and hosts a competition for the biggest reader. Dr. Dagogo-Jack suggested that minorities volunteer a fraction of their residual time and interact with young minds at a captive level in development.

A participant noted that a community in Columbus, Ohio, has a high school graduation rate of 50 percent, while 10 miles away in a wealthy neighborhood, 80 percent are college bound. This is a problem. It is important to find a strategy to educate children at a young age and bridge the gap. A participant commented that the American Physiological Society (APS) has an excellent high school program.

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**TUESDAY, APRIL 15, 2014**

## **MENTOR-MENTEE SESSION**

The mentor-mentee session was designed to provide time for senior NMRI researchers to discuss career- or research-related topics with their mentees and promote active mentoring relationships between senior and junior members. During the session, participants also answered the following survey questions:

- 1) What is your rank?
- 2) Are you on a tenure or non-tenure track?
- 3) How many grants were funded in the previous year?
- 4) How has the NMRI helped your career?
- 5) What is your salary?
- 6) Why did you attend this meeting?

## **BUSINESS MEETING AND COMMITTEE REPORTS**

### **Oversight Committee Report**

***Lewis Roberts, M.D., Ph.D., Professor of Medicine, Mayo Clinic***

***Shirley Blanchard, Ph.D., Associate Professor, Creighton University***

Before presenting the NMRI Oversight Committee Report, Dr. Roberts thanked the members for attending the annual Workshop and for completing the evaluation questions. The responses will be analyzed to evaluate metrics of success for the NMRI program. He asked the Oversight Committee members to stand for recognition: Drs. Shirley Blanchard, Leonor Corsino, Luis Cubano, Clarissa Diamantidis, Alejandro Diez, Robert Ferry, Cynthia Ann Jackson, Ariana Pichardo-Lowden, Lewis Roberts, Jose Romero, Virginia Sarapura, and Marion Sewer. He also expressed appreciation to the NIDDK Program Officer, Ms. Martinez, and OMHRC Director, Dr. Agodoa.

Dr. Roberts described the Oversight Committee mandate, which includes the following objectives:

- Facilitate the development of active mentoring relationships between senior and junior members of the Network.
- Identify new members and plan outreach to organizations with potential members of the Network.
- Establish specific groupings of Network members by research/professional interest or geographical location.
- Coordinate with professional societies that host annual meetings with the goal of organizing an informal gathering.
- Evaluate the effectiveness of the Network in terms of (a) success in obtaining extramural grant funding, promotions, and tenure; and (b) identification of members trying to secure funding and referring them to other Network members who can provide advice and assistance.
- Ensure that the members and activities of the NMRI fall within the specific programmatic areas of the NIDDK and that the membership reflects and represents these areas.

Dr. Roberts explained that the NMRI Oversight Committee was actively involved in several projects to achieve the 2013–2014 objectives. The Committee increased the NMRI's visibility with partner associations, including the American Association for the Study of Liver Diseases (AASLD), American Diabetes Association (ADA), American Gastroenterological Association (AGA), and the Endocrine Society. Several organizations provided funding to supplement NIDDK support for this meeting. The ADA, AGA, and Endocrine Society each supported five travel awards this year, and the

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Oversight Committee is exploring the potential to expand the support to include the American Society of Hematology and the American Society of Nephrology.

Dr. Roberts described the partnerships that the NMRI forged with foundations to disseminate information. Ms. Martinez sent brochures and Dr. Roberts gave a brief presentation at the AGA's Diversity Reception during Digestive Diseases Week. The Endocrine Society posted a link to the NMRI Workshop from its website when it sponsored travel awards. Dr. Roberts explained that Ms. Martinez can provide materials to disseminate at partner events. The final initiative for the Oversight Committee in 2013–2014 was the NMRI's mentoring program, an update on which will be provided by Drs. Blanchard and Sarapura.

The challenges and opportunities for the NMRI include recruitment, retention, mentoring, communication, and additional partnerships with societies and foundations. Dr. Roberts encouraged the participants to consider potential attendees well ahead of next year's NMRI meeting, as the exposure to mentoring and training at the Workshops are invaluable. Recruitment is key because many in the minority research community are not aware of the NMRI's efforts. Dr. Roberts noted the attendance of several Deans and Department Chairs at the meeting and professed how inspirational they were as role models. Communication between meetings could enhance the experience of Network. The Oversight Committee discussed convening regional meetings and creating a LinkedIn interest group. In response to a quick poll, it was noted that approximately half of the NMRI attendees have LinkedIn accounts.

Dr. Roberts reiterated Dr. Wright's message that the goal is not for individual minority researchers to make progress in their careers; rather, the ultimate goal is to contribute meaningfully to reduce health disparities. The vision of the NMRI will begin to be fulfilled when multiple-PI grants are generated by members. Dr. Roberts encouraged the attendees to consider ways to communicate and collaborate with each other and explore the opportunity for synergy within the Network, including regional collaborations. The current funding environment is challenging, and training members to diversify funding streams (e.g., foundations, industry funding) will help everyone tap into additional sources of funding. Many NMRI member actions can make an impact on health policy and, ultimately, on the health of communities. Dr. Roberts asked the participants to consider how the NMRI members can impact health policy nationally and internationally.

Dr. Roberts described the participation opportunities for Workshop attendees. For example, attendees can recruit others to join NMRI, sign up for the mentor-mentee program, volunteer to coordinate an interest group, or serve as the NMRI representative with the organization in a particular field of study. Also, members can help host a regional meeting, serve on the NMRI Planning or Oversight Committees, and help raise funding to increase support for NMRI meetings. For example, institutional support might be available for many investigators. Dr. Roberts relayed that it has been personally rewarding to serve on the Oversight Committee, and he encouraged interested individuals to volunteer. He asked the members to let the NMRI know what would help them succeed to inform the following year's priorities, and referred participants to the NMRI website at <http://nmri.niddk.nih.gov> for more information.

The 2014–2015 Oversight Committee will be chaired by Dr. Leonor Corsino, Assistant Professor of Medicine in the Division of Endocrinology, Metabolism, and Nutrition at Duke University. She also is co-Director of the Duke Scholars in Molecular Medicine – Endocrinology Track and the Associate Chair of the Department of Medicine Minority Recruitment and Retention Committee. The 2015 NMRI Workshop is tentatively scheduled for April 16–17, 2015.

Dr. Blanchard presented the 2011–2012 NMRI member statistics, based on an online questionnaire, that are used for NMRI program evaluation. She commented that several of the statistics will be included in an article about the NMRI's mentorship program, which serves as a model for similar programs at other NIH institutes.

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In 2011–2012, the majority of the 44 NMRI respondents were faculty and postdoctoral fellows. Of the faculty members, most were Assistant and Associate Professors. The motivation to attend the annual meeting was related to grant writing (one of the most important), professional mentorship, research opportunities, and management skills, which are central themes to the mission and purpose of the NMRI. Notably, of the 44 respondents, the average rating of professional growth was 8.1 out of 10. Seventy-seven percent of respondents were willing to be a mentor, including assisting in the identified areas of diabetes research, kidney disease, health disparities, nutrition and obesity, and bioinformatics. In 2011–2012, 37 members submitted 71 grants, of which nine were funded.

The data from 2012–2013 showed that a majority of the 34 respondents were Assistant and Associate Professors. This similarity between the years highlighted the need to consider how to support members in the transition between Associate Professor and Professor. Approximately 41 percent of the respondents were tenured, and half of the non-tenured were tenure track. The average income, according to the survey last year, was approximately \$115,000. The questionnaire responses indicated that being a member of NMRI helped with the tenure process through networking, mentor advice, grant application success, and promotion and tenure advice, among others. Similar to the previous year, the NMRI scored high marks for professional growth and career development, and research areas for assistance were the same.

Dr. Blanchard read two quotes demonstrating the importance of the NMRI: “It is my goal that each year I will make arrangements to be at the NMRI meeting,” and “One of my goals is to be a successful academic endocrinologist who will be a role model for the next generation of Hispanic investigators.” Dr. Blanchard commented that seeing NMRI members together in one room is always empowering. She noted that the NMRI travel awards have been critical to participation in the Workshop.

Dr. Blanchard outlined the objectives for 2013–2014, including mentorship, membership retention, increased funding, continued collection of metrics for success, and program evaluation. The data from the program evaluations are used to support the NMRI program. She explained that NMRI members are expected to complete the online survey at <http://www.scgcorp.com/NMRIQuestionnaire/> to report significant accomplishments (e.g., publications, presentations, grants, tenure, and promotion). Members also should complete post-program evaluations, recruit one or more new members per year, and contact at least one organization or society to solicit support for the NMRI. Dr. Blanchard emphasized that any ideas for NMRI assistance with tenure should be raised to the Oversight Committee, Dr. Agodoa, and Ms. Martinez.

Dr. Blanchard again presented the six evaluation questions listed above, noting that the anonymous data collected will be included in the article that is being developed. Following a tally of responses, Dr. Blanchard commended the participants on the record of 59 evaluations.

## **Discussion**

Dr. Agodoa clarified that the new HHS policy dictates a limit of \$75,000 for all conferences, which explains the funding constraints for the NMRI Workshop.

Dr. Courtney Houchen asked for clarification on adding new members to the Network. Dr. Blanchard explained that interested individuals can contact Ms. Martinez or request membership through the NMRI website (<http://nmri.niddk.nih.gov/membership/index.aspx>). Membership is open to any individual whose research meets the mission and guidelines of the Network and NIDDK. Ms. Martinez reminded the attendees that the NMRI Workshop is an open meeting and can be attended by anyone interested in the topic and in mentoring. The membership criteria are stipulated only for travel awards.

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## **NMRI MENTORSHIP PROGRAM**

***Virginia Sarapura, M.D., Associate Professor, University of Colorado***

Dr. Sarapura emphasized the importance of mentorship in helping junior scientists navigate their professional careers. Many mentors can guide a mentee at various stages. The purpose of the NMRI Mentorship Program is to identify a mentor for mentees who need one and to create a framework to help achieve the mentee's goals.

Mentors and mentees are matched through several methods. The primary site to establish a relationship is at the annual NMRI Workshop, where mentors' biosketches are provided in the meeting folder and a mentor-mentee session is included in the agenda. Mentors and mentees can sign up at the meeting registration table. Dr. Sarapura also acknowledged that the NMRI Directory contains a lot of information about the NMRI members and is a good source to identify mentors, as well as collaborators.

The NMRI Mentorship Program provides a formal framework for the mentorship relationship to help accomplish the mentee's goals. The Mentorship Agreement Form – Part I establishes educational objectives and a timeline for contacting the mentor. Dr. Sarapura recommended four mentoring meetings per year. The Mentorship Agreement Form – Part II captures feedback from the mentor and mentee regarding goal accomplishment and suggestions for improvement. The data are collected to evaluate metrics of success for the Mentorship Program. Dr. Sarapura highlighted several key statistics describing the NMRI Mentorship Program based on 27 responses received from 2012 to 2013. Notably, 70 percent of respondents stated that mentorship was the motivation to attend the annual meeting, second only to networking. A goal for many participants was to find a mentor, and 26 percent did so. Participation in the Mentorship Program reached 44 percent of respondents, and 15 percent listed mentorship advice as beneficial for the tenure process.

Dr. Sarapura encouraged all attendees to pursue the Mentorship Program. Participants in the Mentorship Program should complete the mentorship agreement forms and send the completed forms to Ms. Martinez. There have been many success stories, and Dr. Sarapura encouraged participants to share any successes.

## **Discussion**

A participant relayed her experience with the NMRI mentoring program. She explained that she met with her mentor, Dr. Keith Norris, who provided great advice about approaches to grant writing and building a research portfolio. She commented that younger investigators tend to be ambitious, which is good, but the strategic input provided by a mentor is invaluable.

## **PLANNING COMMITTEE REPORT**

***Trudy Gaillard, Ph.D., R.N., C.D.E., Assistant Professor, The Ohio State University***

Dr. Gaillard, 2013 NMRI Planning Committee Chair, reiterated that the NMRI was established in 1999 to increase the number of minority health researchers who succeed in accessing grants and contracts for NIH research. The NIDDK OMHRC established a communication network of current and potential biomedical research investigators and technical personnel interested in minority health research, including individuals from traditionally under-served communities—African-American, Hispanic-American, American Indian, Alaskan Native, Native Hawaiian, and other Pacific Islanders—to address that need.

Dr. Gaillard referred to the mission of the NMRI, which is to encourage minority health investigators to be researchers in fields of interest to the NIDDK, including diabetes, endocrinology,

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metabolism, digestive diseases, nutrition, kidney, urologic, and hematologic diseases. An important component of the Network is the promotion of communication between network members and the NIDDK. Through the NMRI, the NIDDK elicits recommendations for strategies to enhance opportunities for, and support of, underrepresented population groups in biomedical research. The NMRI strives to advance scientific knowledge and contribute to the reduction and elimination of racial and ethnic health disparities.

The responsibilities of the Planning Committee include developing the Workshop agenda for the next year's meeting. Planning Committee members contribute to identifying and soliciting speakers (including keynote and dinner speakers) and workshop presentations, as well as identifying potential funding sources to maintain the number of attendees. The Planning Committee reviews abstracts, judges posters, and establishes the travel budget. Planning activities occur during monthly conference calls that will begin in June 2014 for next year's meeting.

Dr. Gaillard asked the Planning Committee members to stand for recognition. She expressed appreciation for their expertise and assistance in planning the meeting. Dr. Gaillard introduced Dr. Rhonda Bentley-Lewis as the Planning Committee Chair for the 2015 NMRI Workshop.

### **MARCO CABRERA POSTER AWARDS**

***Trudy Gaillard, Ph.D., R.N., C.D.E., Assistant Professor of Medicine, The Ohio State University***

Dr. Gaillard thanked the judges and all of the attendees who submitted posters. She explained that each poster award winner would receive an engraved plaque. Dr. Gaillard congratulated the following winning posters in the categories of Basic, Translational, and Clinical Science:

**Basic Science Poster Award:** Adebowale Adebisi, Ph.D. Associate Professor, University of Tennessee

**“Lipid Rafts Are Required for Signal Transduction by Angiotensin II Type 1 Receptors in Neonatal Glomerular Mesangial Cells”**

**Translational Science Poster Award:** Stacey Moore-Olufemi, M.D., Assistant Professor, University of Texas

**“Smooth Muscle Thickness Correlates With Short Gut Parameters and Decreased Plasma Amino Acid Levels in Risk Factors Associated With Gastroschisis-related Intestinal Dysfunction (Grid)”**

**Clinical Science Poster Award:** Angedith Poggi-Burke, M.P.H., Technical Intramural Research Training Award Fellow, National Institute on Aging

**“Association of Racial Discrimination and Kidney Function Decline Among African Americans and Whites”**

### **SCIENTIFIC PRESENTATIONS, CONTINUED**

Dr. Bentley-Lewis presented certificates to the previous day's scientific presentation speakers, including Drs. Obanda, Crews, Jaja, and Banini. She introduced the presenters for the current session.

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## **ADAM12 MODIFIES SEVERITY OF PERIPHERAL ARTERIAL DISEASES (PAD); EVIDENCE FROM PRECLINICAL AND HUMAN STUDIES**

**Ayotunde Dokun, M.D., Ph.D., Assistant Professor, University of Virginia**

Dr. Dokun introduced the topic of PAD, which indicates the presence of occlusion in a major vascular bed other than the heart. This condition occurs most frequently in the arteries of the (lower) limbs. The prevalence of PAD is similar to coronary heart disease, but the condition is not as well publicized. Risk factors for PAD are similar to those of atherosclerosis, except diabetes is a bigger driver. Diabetes, along with smoking, accounts for as much as 80 percent of the risk for PAD. There are two classical clinical presentations of PAD. Intermittent Claudication (IC) is indicated by pain with ambulation that resolves with cessation of walking. Critical Limb Ischemia (CLI) is characterized by pain at rest and the development of ulcers and gangrene. Of patients with similar levels of occlusion, some present with IC and others with CLI, suggesting that genetics contributes to the outcome of disease. Also, patients rarely progress to CLI in the absence of diabetes.

A mouse model of PAD has been developed. The hindlimb ischemia model (HLI) is created by surgically ligating the femoral artery and excising segments to interrupt blood flow. The mouse is then evaluated for the return of perfusion, and the extent of necrosis is scored. Another endpoint is the measurement of capillary density evaluated in skeletal muscle sections. It is well known that the induction of ischemia results in a heterogeneous phenotype depending on the mouse strain background. For example, the C57BL/6 mouse recovers well after surgery, but the BALB/c mouse demonstrates necrosis and poor perfusion. Dr. Dokun presented his hypothesis that differences in recovery following HLI might be due to underlying genetic variations.

Dr. Dokun mapped the phenotype to a quantitative trait locus (QTL) on chromosome 7 associated with necrosis, which he named Limb Salvage QTL-1 (LSQ-1). To test the role of the locus in generating the necrotic phenotype, a chromosome substitution strain (CSS) was employed. This experiment confirmed that the genetic information on chromosome 7 was important for the necrotic phenotype. Haplotype analysis was used to refine LSQ-1 and mRNA expression profiles of the 25 genes within the five newly identified haplotype blocks. ADAM12 was identified as having the highest differential mRNA and protein expression between C57BL/6 and BALB/c. ADAM12 is implicated in processes that involve excessive growth, including cardiac hypertrophy and cancer. The next set of experiments was designed to confirm the function of ADAM12 in perfusion recovery. Augmentation of ADAM12 in the BALB/c mouse improved perfusion recovery, and reduction of ADAM12 in the C57BL/6 mouse impaired recovery. In human endothelial cells, an *in vitro* model of ischemia demonstrated upregulation of ADAM 12. Augmenting expression increased survival and proliferation, and knockdown of ADAM12 impaired angiogenesis, demonstrating physiologic consequences of ADAM12 expression.

To determine whether ADAM12 is associated with PAD severity in humans, Dr. Dokun collaborated with investigators at Duke University's Catheterization Genetics (CATHGEN) biorepository. Association studies of ADAM12 polymorphisms with PAD severity showed that one of the SNPs within ADAM12 was associated with CLI (odds ratio of 2.4 for CLI after adjusting for factors such as smoking and diabetes). In summary, Dr. Dokun's laboratory identified ADAM12 as the first genetic modifier of PAD outcomes in mice and humans. The expression of ADAM12 is impaired in diabetes and likely reflects a mechanism contributing to poor PAD outcomes in individuals with diabetes.

### **Discussion**

A participant asked whether the Vascular Endothelial Growth Factor (VEGF) pathway was investigated, as VEGF is a driver for ischemia. Dr. Dokun agreed that VEGF might be involved in vessel formation, but the difference in the mouse strains' ability to recover from ischemia does not appear to be due to VEGF expression.

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**PARENTAL DETERMINANTS OF OVERWEIGHT AMONG AMERICAN INDIAN/ALASKA NATIVES (AI/AN) AND NON-HISPANIC WHITE ADOLESCENTS: EVIDENCE FROM THE NATIONAL LONGITUDINAL STUDY OF ADOLESCENT HEALTH (NLSAH), 1994**

*Anna Zamora-Kapoor Ph.D., Postdoctoral Senior Fellow, University of Washington*

Dr. Zamora-Kapoor presented three reasons for studying obesity, namely its increasing prevalence, comorbidities, and disparity. Obesity among adolescents has tripled since the 1980s and is now at 18 percent. Serious comorbidities include CVD, type 2 diabetes, cancer, and musculoskeletal pain. On average, obesity reduces life expectancy by 10 years. Obesity health conditions exhibit some of the highest health disparities. AI/AN exhibit the highest obesity rates in the United States at 40.8 percent, followed by African Americans, Native Hawaiian and Pacific Islander (NH/PI), and Hispanics.

Studies have shown that genes affect obesity risk, as do SES, parent education, and household composition. None of the large studies, however, included AI/AN in the study population. Dr. Zamora-Kapoor asserted that the goals of her study were to (1) measure the relative significance of parental determinants on adolescents' BMI and (2) examine whether the effects of parental determinants persist after controlling for adolescents' habits (frequency of physical activity and hours of TV watching). To accomplish these goals, Dr. Zamora-Kapoor analyzed data from the NLSAH between 1994 and 2008. The population sample included 720 AI/AN out of a total of 11,855.

AI/AN participants exhibited a slightly higher BMI and more sedentary habits. Bigger differences existed for the parental determinants. The percentage of parents who completed only elementary school was 23 percent for AI/AN and 12.4 percent for Caucasians. Regarding marital status, 6.7 percent of AI/AN parents were single, whereas only 1.7 percent of Caucasian parents were single. AI/AN parents also had higher rates of being previously married (e.g., divorced, separated, or widowed). The rate of employment indicated that AI/AN parents have higher rates of unemployment than Caucasian parents.

In the absence of behavioral variables, increased parental education carried a protective effect against increasing BMI for all races. Parents who were previously married tended to have adolescents with higher BMIs. Dr. Zamora-Kapoor then evaluated how those effects varied with the inclusion of behavioral variables. Watching more than 10 hours of television per week was associated with increased BMI, while playing sports at least five times per week conferred a protective effect. The interaction terms showed that parental determinants had comparable effects for AI/AN and Caucasians.

Dr. Zamora-Kapoor's study, which used nationally representative data, provided insights to consider future interventions targeting obesity in adolescents, including both behavioral corrections and parental education. The limitations of the study included the age of the data, which were collected in 1994, and the fact that the analysis did not account for heterogeneity between AI/AN and Caucasians. Future research is needed to determine the causal pathways between parental determinants and adolescents' BMI and to examine alternative explanations for the inter-generational transmission of obesity across racial and ethnic groups.

**Discussion**

In response to a question, Dr. Zamora-Kapoor clarified that the data set did not include the parental BMI variable.

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Dr. Roberts noted the age of the dataset and asked about the changes in the obesity rates in the AI/AN population in the past few decades. Dr. Zamora-Kapoor responded that the rates have increased over time. Currently, 40.8 percent of the AI/AN population are obese.

### **EFFICACY OF (-)-EPICATECHIN (EPI) IN THE TREATMENT OF HYPERTRIGLYCERIDEMIA IN SUBJECTS WITH AND WITHOUT TYPE 2 DIABETES**

***Francisco Villarreal, M.D., Profesor, Univeristy of California, San Diego***

Dr. Villarreal introduced the importance of plasma triglyceride (TG) levels, as abnormalities in TG metabolism are associated with obesity, type 2 diabetes, and familial diseases. TG levels primarily are determined by intestinal uptake from dietary fat, hepatic production, peripheral lipolysis and hepatic removal of very low-density lipoprotein (VLDL) and chylomicrons. TG levels, which have displayed a steady increase over the recent decades, contribute to increases in cardiometabolic risk (the American Heart Association recommends optimal TG levels of 100 mg/dL). Despite the importance of TG levels, limited pharmacological therapies are available to treat hypertriglyceridemia.

Flavonoids comprise a class of natural compounds known for their safety and low toxicity. The compounds are present in fruits and vegetables, particularly cacao. Despite its caloric content, dark chocolate has been show to improve overall metabolism. The most abundant flavonoid present in cacao is EPI. Dr. Villarreal's laboratory has demonstrated several unique properties of EPI in animal models of aging, myocardial ischemia, and exercise endurance. Dr. Villarreal referred to the poster presented describing the beneficial effects of EPI on a rat model of metabolic syndrome.

The overall objective of Dr. Villarreal's study was to examine the potential of low-dose EPI (50 mg BID in capsules) to reduce TG levels in subjects with hypertriglyceridemia with and without type 2 diabetes and to assess treatment impact on metabolic risk-associated endpoints. The primary objective was to evaluate the efficacy of EPI in reducing fasting plasma serum TG during a 4-week period in patients of hypertriglyceridemia with or without type 2 diabetes compared to the standard of care alone. Secondary objectives were to ascertain the safety and tolerability EPI and evaluate the effect on other cardiometabolic parameters, such as high-sensitivity C-reactive protein (hsCRP) and lipids. The study followed a randomized, placebo-controlled, double-blind design and was performed in India by contract research organizations.

Research findings indicate that low-dose EPI in subjects with hypertriglyceridemia can achieve a significant reduction of approximately 90 mg/dL. hsCRP were also significantly reduced by 30 percent. Subanalysis of subjects with glycemia also indicated significant improvements in TG levels, glucose, fructosamine, homeostasis model assessment-estimated insulin resistance (HOMA-IR), and hsCRP with treatment. No changes were observed in the placebo group. These results support the concept that EPI may represent a safe and natural alternative treatment for the control of metabolic disturbances. Additional trials using larger populations and of longer duration are warranted to further define the capacity of EPI to act as a useful and safe therapy for metabolic disorders.

### **Discussion**

With regard to a question about why the study was conducted in India, Dr. Villarreal explained that it was not uncommon for studies sponsored by small companies to take advantage of the cost reductions in India. Also, the population in India has a severe problem with obesity, high TG, and diabetes.

Dr. Beckman expressed support for using plant medicine to improve human health. She noted that it was rare for natural compounds to lower both TG and glucose, because often the energy is

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shunted into the other pathway. Dr. Villarreal asserted that EPI alters mitochondrial coupling and might function through brown adipose tissue, muscle, and liver. Chocolate was discovered in Mexico, where it was revered by Meso-American Indians for its “God Food” properties and used as medicine to increase stamina. Dr. Villarreal noted that more chocolate is not necessarily more effective at lowering TG. One dark chocolate Hershey kiss provides the optimal dose of EPI. Interestingly, there have been no reports of adverse effects from eating chocolate.

A participant asked whether, given the potential performance-enhancing properties of EPI, it was among the list of banned substances. Dr. Villarreal replied that many natural compounds, such as beet juice, also improve athletic performance and are not banned from sports. In response to a question, Dr. Villarreal explained that the EPI used in the study was a pure substance extracted from tea. A promising study by the University of California, Davis, has evaluated the treatment of muscular dystrophy patients with EPI and seen encouraging results.

A participant asked whether urine analysis of EPI concentrations was performed. Dr. Villarreal replied that the study investigated blood EPI and metabolites, but did not perform urine analysis. In response to another question, Dr. Villarreal explained that the study controlled for diet.

Dr. Bentley-Lewis thanked all of the presenters during the past 2 days. She asked that they report for a group photograph during the break. Dr. Bentley-Lewis asked the participants to take advantage of the opportunity to provide feedback to the presenters as an informal mentoring process to help the speakers acquire presentation skills.

### **PRAGMATIC TRIALS, COOPERATIVE EFFECTIVENESS RESEARCH (CER), AND PATIENT-CENTERED OUTCOMES RESEARCH INSTITUTE (PCORI)**

***Michael Flessner, M.D., Ph.D., Director of Inflammatory Renal Disease, KUH, NIDDK***

Dr. Flessner introduced the topic of CER and PCORI, which represent a paradigm shift in research in the United States and represent an important advance for scientists. PCORI and CER address important clinical questions that cannot be answered by formal randomized clinical trials (RCTs). Additionally, many patients and providers are dissatisfied and the cost for care delivery is rising. Many minority populations do not have access to healthcare; the lack of coverage for 40–80 million citizens hopefully will be rectified by the Affordable Care Act. Declining U.S. healthcare statistics also support the need for PCORI and CER research.

PCORI research utilizes validated patient-reported outcomes (PROs) or hard outcomes. All trial endpoints include biomarkers and surrogate endpoints, as well as such outcomes as death or ESRD. CER asks which prevention, diagnosis, therapy, or healthcare delivery option is better in terms of endpoints. The challenge is to ensure that PROs are objective. The Patient-reported Outcomes Measurement Information System (PROMIS) contains a list of validated PROs developed during the past 11–12 years. Examples of validated instruments include emotional distress, fatigue, pain, physical function, satisfaction, sleep disturbance, and the impact of administration mode on item response.

The consensus statement of the PCORI is to help people make informed healthcare decisions—and improve healthcare delivery and outcomes—by producing and promoting high-integrity, evidence-based information that comes from research guided by patients, caregivers, and the broader healthcare community. Patients are the central priority of PCORI and determine what is studied. PCORI is committed to transparency and a rigorous stakeholder-driven process that emphasizes patient engagement. Patient-focused questions addressed by PCORI include:

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- (1) Given my personal characteristics, conditions and preferences, what should I expect to happen to me?
  - (2) What are my options and what are the benefits and harms of those options?
  - (3) What can I do to improve the outcomes that are most important to me?
  - (4) How can the healthcare system improve my chances of achieving the outcomes I prefer?

The Institute of Medicine has developed prioritization criteria for CER. Condition-level criteria include prevalence of disease, mortality, morbidity, and cost (cost is not evaluated in PCORI). Topic-level criteria include an assessment of whether the topic is appropriate for CER, addresses information deficiencies and duplication, and gaps in translating information. The minimum threshold criteria for CER include the study's responsiveness to expressed needs of patients, clinicians, or other stakeholders, as well as feasibility (e.g., appropriate budget and time). The initial prioritization criteria CER include potential impact, evaluation of diverse populations, uncertainty regarding management decisions and variability in practice, an identified need unlikely to be addressed elsewhere, and the potential for a multiplicative effect.

Dr. Flessner highlighted the PCORI criterion addressing inclusiveness of different populations for the NMRI audience, which can be found on the PCORI website (<http://www.pcori.org/>). He then described several of the PCORI grants that have been awarded in recent funding cycles, focusing on those addressing health disparities and other research relevant to the NIDDK's mission.

The PCORI awarded grants to fund 18 patient-powered research networks (PPRN) and 11 clinical data research networks (CDRN). The networks span the United States, with more than 100M patients in the system. If the networks contribute electronic medical record (EMR) data to central processing, this will be an incredible resource and a tremendous opportunity to advance healthcare practices. Twelve years ago, NIH initiated the Health Care Systems Research Collaboratory, which brought together 19 HMOs serving 14M individuals (including 4M children). NIH has endeavored to facilitate communication between the EMRs, which is a challenging yet commendable goal.

Dr. Flessner described several considerations for potential PCORI applicants. PCORI is looking for innovation in proposals. Dr. Flessner suggested that interested investigators review the program details, consider the requirements, develop the application, know the review criteria, and submit the application on time. He also recommended discussing the ideas with a PCORI award recipient. Dr. Flessner referred participants to the following websites for more information: [www.hmoresearchnetwork.org](http://www.hmoresearchnetwork.org), [www.pcori.org](http://www.pcori.org), and [www.nihpromis.org](http://www.nihpromis.org).

## **Discussion**

In response to a question, Dr. Flessner asserted that there is overlap and synergy with the NIH Health Care Systems Research Collaboratory.

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## CONCURRENT SESSIONS

The concurrent sessions were designed as an informal, interactive discussion led by a panel of experts addressing important career development topics for investigators. Dr. Gaillard introduced the two panels and their topics, and the participants selected the session of their choice.

### **USING CLINICAL AND TRANSLATIONAL SCIENCE TO PROMOTE YOUR ACADEMIC CAREER: THE DO'S AND DON'TS**

***Samuel Dagogo-Jack, M.D., M.B.B.S., Professor of Medicine and Director, Division of Endocrinology, Diabetes, and Metabolism, A.C. Mullins Chair in Translational Research, University of Tennessee Health Science Center***

**JACKSON WRIGHT, JR., M.D., PH.D., PROFESSOR OF MEDICINE, CASE WESTERN RESERVE UNIVERSITY**  
***Kwame Osei, M.D., Director, Diabetes Research Center, The Ohio State University School of Medicine***

### **THE A-TO-Z OF SETTING UP YOUR NEW LAB: FROM START-UP PACKAGE NEGOTIATION TO YOUR FIRST PROJECT**

***Courtney Houchen, M.D., Professor of Medicine, Frances and Malcolm Robinson Chair, Chief of Digestive Diseases and Nutrition Institution, University of Oklahoma Health Sciences Center***  
***Alexis Stranahan, Ph.D., Assistant Professor, Medical College of Georgia, Georgia Regents University***  
***Heather Tarleton, Ph.D., M.S., M.P.A.P., Assistant Professor, Loyola Marymount University***

## ROLE OF SCIENTIFIC SOCIETIES AND PROFESSIONAL ORGANIZATIONS

### **AMERICAN GASTROENTEROLOGICAL ASSOCIATION (AGA)**

***Jesus Rivera-Nieves, M.D., Chair of Underrepresented Minorities Committee***

Dr. Rivera-Nieves described the challenge of the underrepresentation of minorities in the field of gastroenterology. Of the AGA membership, Hispanics represent 4.5 percent, African Americans represent 4.4 percent, American Indians represent 0.2 percent, and Asians represent 9.9 percent. The AGA is aware of this problem and has initiated multiple activities to address it, including efforts to increase representation of minorities in medical school. Little has changed over time despite significant efforts.

A shortage of physicians, including primary care physicians (PCPs) and specialists, is predicted. In 2050, Caucasians will represent only 46 percent of the U.S. population, with 62 percent of Americans younger than 17 years being minorities. Minority specialists, as well as PCPs, are needed to serve the minority populations. Dr. Rivera-Nieves commented that the AGA is tapping the minority resource of youth to address the challenge. For example, the AGA funds small outreach programs through minority-serving institutions. The AGA's NIDDK R25 grant, entitled Investing in the Future To Promote Diversity in Gastrointestinal Training, aims to increase minority representation by investing in future programs and outreach, summer research experiences for underrepresented minorities, and minority-targeted symposia and academic skills workshop consisting of 2 intensive days with successful gastroenterological researchers and clinicians.

Dr. Rivera-Nieves detailed why minorities should choose a career in gastroenterology. In addition to the lack of physicians, minority physicians are more likely to serve the minority community, can help exchange cultural behaviors, are more likely to research healthcare disparities, and can serve as mentors to other minority physicians. Minority physicians are uniquely prepared to address the challenge of the physician shortage as minorities become a larger portion of the general population. Last year, a hands-on session was included to engage students with practical endoscopy experience by dropping and retrieving coins from a pig stomach.

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There are many examples of disparities in gastroenterology. For example, the incidence of gastric cancer is at least 70 percent higher among Hispanics than among non-Hispanic Whites, and Hispanics are 80 percent more likely to die from the cancer. Colorectal cancer is elevated by 20 percent in African Americans compared to Caucasians, and African Americans are 45 percent more likely to die from the disease. Overall cancer death among African Americans is higher than Caucasians, demonstrating disparities in cancer survival across many types. The goal of a gastroenterologist is to find and remove colon polyps before they develop into cancer. Cirrhosis is another important issue for Hispanics and African Americans. Cirrhosis can lead to liver cancer, and Hispanics and African Americans have a 2.7-fold increased incidence of liver cancer compared to Caucasians.

Dr. Rivera-Nieves noted that the AGA has begun to witness some progress toward accomplishing its objectives. This year, the AGA will visit numerous institutions and conferences through the Investing in the Future program, including first-time representation at a Native American meeting in Denver, Colorado. Up to 50 students attended the Investing in the Future programs in 2011, which have seen a steady increase through 775 expected in FY 2014. All of these students will have learned about gastroenterology and why they should consider a career in the field. The AGA's Digestive Disease Week meeting includes symposia targeted to minorities. Additionally, 10 minority trainees received scholarships to attend the 2014 Academic Skills Workshop in San Diego, California. AGA offers free membership to medical students to continue their engagement. The AGA's Summer Research Program admits 10 students each year to participate in gastroenterological research laboratories.

Dr. Rivera-Nieves highlighted the lifetime of opportunities that made difference for him in achieving success as a minority physician, emphasizing that he had benefited tremendously from the minority programs available.

## **Discussion**

A participant noted that Dr. Rivera-Nieves was a resident at University of Maryland. When his residency was finished, he became an intramural researcher at NIH, demonstrating his passion for research.

Dr. Crews asked for advice about advancing the efforts of other subspecialty societies, such as the American Society for Nephrology (ASN). Dr. Rivera-Nieves commented that as Chair of the Underrepresented Minority Committee, he ensures that sensitive minority issues are addressed through the AGA's platform. He acknowledged that the AGA provides a good model for other subspecialty societies to follow. Dr. Rivera-Nieves suggested that proactive recruiting is key to involving minority communities in subspecialty societies.

## **THE AMERICAN PHYSIOLOGICAL SOCIETY (APS)**

### ***Martin Frank, Ph.D., Executive Director***

Dr. Frank noted with pride that the APS has supported minority training since 1968. The APS membership is comprised of approximately 11,000 scientists and trainees who publish in many journals. The APS organizes several international conferences and supports K–12 continuing education programs. A goal of the APS is to increase the visibility of physiology, and the organization is involved in public affairs such as biomedical research funding and the use of animals in research and teaching.

The commitment of the APS is to encourage the full participation of minority students in science by providing effective programs that can be disseminated widely. As a professional society, the APS serves as a catalyst in developing a scientific workforce that not only encompasses, but also embraces the benefits of diversity among scientists. Science is incomplete without the contributions of

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scientists from both genders, diverse backgrounds, and all racial/ethnic groups. He referred the attendees to the APS website at <http://www.the-aps.org/>, which provides information about careers, mentoring, advocacy, and professional skills training. The APS also was a recipient of a Presidential Award for Excellence in Science, Mathematics, and Engineering Mentoring in 2003 for its long-standing commitment to diversity.

The APS supports graduate and postdoctoral efforts through the Porter Physiology Development Program, K–12 Minority Outreach Fellowships, Minority Travel Fellowships (formerly funded by the NIDDK but now by APS itself), and Steven M. Horvath Professional Opportunity Awards. The APS' summer fellowship programs include the Undergraduate Summer Research Fellowship Programs, Undergraduate Research Excellence Fellowships, Integrative Organismal Systems Physiology Fellowship (funded by NSF), Short-Term Research Experience for Underrepresented Persons (funded by NIDDK), and Short-Term Research Education Program to Increase Diversity in Health-Related Research (funded by the National Heart, Lung, and Blood Institute). The support has enabled approximately 100 students to work in a research laboratory. The APS also offers an annual competition for undergraduates with first-author papers, video contests, and other similar events.

Several programs for K–12 students and teachers are offered by the APS. The Frontiers in Physiology program started in 1990 for the professional development of middle and high school teachers. The goal is for the teachers to understand the scientific method. The program also advocates for humane use of animals in research. Between 1990 and 2013, 470 teachers participated in Frontiers in Physiology. Half of the participants were women, and a quarter were minorities. Physiology Understanding (PhUn) Week is an annual outreach program to K–12 classrooms where physiologists perform exercises to help the children understand physiology. The APS also offers science fair and other awards for young students. The K–12 Minority Outreach Fellowship is designed to identify two minority role models to encourage research careers in physiology.

## **Discussion**

In response to a question about how schools are chosen for PhUn Week, Dr. Frank replied that many of the APS' 11,000 members are willing to go to a classroom to engage young students. Last year, the program reached 10,000 children. The physiologists use classroom materials to demonstrate physiological concepts and create keepsakes that remind the children about physiology.

Dr. Frank clarified that African Americans represent 1–4 percent of the APS, similar to other organizations. There is a greater percentage of Hispanics. The goal of the APS is to create individuals, both minority and majority, who understand science; there is no guarantee that the trainees and program beneficiaries will enter the field of physiology, although that is the desired outcome. Dr. Alexander asked about APS' efforts to increase African-American representation on committees, as he would be interested in serving. Dr. Frank encouraged Dr. Alexander to keep applying for the committees, which have many active volunteers.

Dr. Rivera-Nieves commented that although the representation of minorities in medical school has been nearly flat, the representation of African-American males is decreasing. This is an alarming statistic. Dr. Frank agreed on the critical need to increase representation of African-American males in science. He acknowledged the importance of working to address that challenge in partnership with government and private sources to support the training of minority students.

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## **AMERICAN KIDNEY FUND (AKF)**

***Myra Kleinpeter, M.D., M.P.H., Associate Professor of Nephrology, Tulane University***

Dr. Kleinpeter described the AKF, which is a private nonprofit organization that focuses on patients. The mission of the AKF is to fight kidney disease through direct financial support to patients in need; health education; and prevention efforts. The AKF supports several educational programs. The Clinical Scientist in Nephrology program is designed to improve the quality of care provided to kidney patients and to promote clinical research in nephrology. This goal is achieved by enhancing the training of nephrologists who wish to pursue an academic career and whose primary professional commitment is to scholarship in the provision of patient care. Awardees conduct prevention and outcomes research while receiving advanced training in essential skills, such as medical ethics, biostatistics, and epidemiology.

Since its inception in 1988, the AKF has supported 33 clinicians. Recently, additional funding from pharmaceutical companies has increased the level of support. The fellowships are granted annually, with a duration of 2 years. The maximum level of funding is \$80,000 per year, which is used to support the candidate's career development, including salary and training-related expenses. Some fellows use the funds to pursue additional training, such as M.P.H. degrees or epidemiological training to enhance their research careers. Many award recipients transition to NIH K awards because they had the opportunity to collect preliminary data.

More than half of the fellows remain in academic medicine as nephrology division chiefs and medical department chairs. Other fellows are journal editors, pharmaceutical medical and research directors, and one is a former National Kidney Foundation president. Minority applicants are encouraged. The research topics vary, ranging from epidemiology of renal disease in African Americans to the study of renal failure in kidney transplant recipients. One project was the first study to investigate the effects of hormone-replacement therapy on morbidity and mortality in postmenopausal women with ESRD. Another project evaluated the risks, predictors, and outcomes of CVD events following kidney transplantation. The topics are primarily clinical, but some epidemiology, genetics, PRO, and health-literacy projects are funded. Many research projects funded by the AKF result in highly cited peer-review publications. The fellows' research is presented at an annual Board meeting, and many fellows have presented their research at American Society of Nephrology sessions.

Dr. Kleinpeter presented the current Clinical Scientist in Nephrology Fellows and informed the participants that the 2015 Clinical Scientist in Nephrology application will be available in July 2014. She referred participants to the AKF website ([www.kidneyfund.org](http://www.kidneyfund.org)) and invited any participants to contact her with questions.

## **Discussion**

Dr. Crews asked about the citizenship eligibility for fellows. Dr. Kleinpeter replied that the fellowship recipients must be active in a training program. The AKF has funded HIV, but not J1, visas.

## **AMERICAN DIABETES ASSOCIATION (ADA)**

***Tamara Darsow, Ph.D., Vice President of Research Programs***

Dr. Darsow explained that the vision of the ADA is a life free of diabetes and all of its burdens. The mission is to prevent and cure diabetes and to improve the lives of all people affected by diabetes. Dr. Darsow acknowledged the disparate impact of diabetes across racial/ethnic populations. She emphasized the critical importance for disparately affected individuals to be involved as investigators, grant reviewers, and RCT participants. Dr. Darsow encouraged any interested Workshop participants to get involved, as diverse involvement accelerates progress. The ADA provides professional resources through scientific sessions, professional education, and

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peer-reviewed journals. The ADA also is active in the community through community health education programs, the Center for Information and Community Support, *Forecast* magazine, and Diabetes.org. These mechanisms are designed to provide information to patients, especially those experiencing health disparities.

Since the program's inception in 1952, the ADA has funded more than 4,000 projects totaling \$675M in diabetes research. In 2013, \$35.7M was available for research that supported 375 investigators. The objectives of the ADA's research program are to support high-quality academic science across the broad spectrum of diabetes research, encourage new investigators to dedicate their careers to diabetes research, and support innovated research with potential for a significant impact. The peer review of proposals is similar to the NIH method, with experts in diabetes research serving on the review panels. More than 1,200 applications are received each year, with 10–15 percent funded based on merit. The most critical niche is the encouragement of new investigators to dedicate their careers to diabetes research.

Dr. Darsow described the ADA's four basic research programs. The Core Research Program, comprising 80 percent of the research funding, supports investigator-initiated research in basic, clinical, and translational science relevant to diabetes. The Pathway to Stop Diabetes is a new program launched in 2013 to attract a new generation of researchers to the field. Targeted Awards are periodic requests for applications for a narrow scope of projects that address emerging areas with high potential for significant progress. One targeted Request for Applications (RFA) is being launched in June 2014 to address diabetes in the setting of CKD. The ADA also provides Federal and collaborative co-support of larger collaborative efforts.

Many think that the ADA primarily funds type 2 diabetes, but the 2013 portfolio indicates that one-third of funded projects address type 2 diabetes, 15 percent address type 1 diabetes, and one-third is relevant to both (e.g., beta cell biology and diabetes complications). The ADA funds projects addressing prediabetes, insulin resistance, glucose intolerance, obesity, and gestational diabetes, among others. Obesity-related projects are increasing due to the relevance to diabetes and high level of interest.

The ADA has reflected on its core program offerings and realized that some mechanisms are underutilized. The ADA's strategic plan focuses on key objectives concerning grant opportunities to support a spectrum of topics in alignment with the Association's mission. In the past, the ADA has offered minority-targeted mechanisms (e.g., a mentor-based postdoctoral award for minorities). Dr. Darsow encouraged the Workshop participants to continue to check for funding opportunities for 2015. She informed participants that more information about the ADA funding mechanisms can be found at <http://professional.diabetes.org/grants>.

## **Discussion**

In response to a question, Dr. Darsow explained that the ADA is nearing the end of its strategic planning process now, and the outcomes will affect this grant application cycle slated for August 2014. The goal is to eliminate the funding mechanisms that are underutilized and less effective.

Dr. Darsow clarified that the initiative to address diabetes in the setting of CKD could be reversed to address CKD in the setting of diabetes. The idea behind a recent consensus conference is that complicated patients are not being treated well for any of their conditions. The scope of the RFA is broad to encompass any topic relevant to the two conditions.

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## **WRAP-UP, NEXT STEPS, ADJOURNMENT**

***Lawrence Agodoa, M.D., Director, OMHRC, NIDDK, NIH***

Dr. Gaillard thanked all of the participants, Dr. Agodoa, and Ms. Martinez for their efforts. She encouraged the participants to complete and submit their evaluation forms. The comments are used in planning the next year's Workshop. She also requested the NMRI members to update their biographies on the website, and mentor-mentee pairs were asked to adhere to their contracts. Dr. Gaillard said that she hoped the Workshop has motivated the attendees to pursue their research interests. She referred to Dr. Wright's question of "If not us, then whom?"

Dr. Bentley-Lewis requested that any members interested in serving on the Planning Committee contact her. The first meeting will be held in June 2014, and the 2015 meeting is scheduled for April 16–17. She encouraged the NMRI members to contact their networks, including any associations and societies, to solicit funds for travel awards. Dr. Bentley-Lewis explained that she had served for several years on the scientific education subcommittee of the Endocrine Society. To secure the travel funding, she contacted the Society, completed and submitted the application form, and provided an endorsement for the meeting. The Endocrine Society provided five \$500 awards and complimentary membership in the Society. Dr. Bentley-Lewis wished the participants safe travels.

Dr. Agodoa provided closing comments for the Workshop. He affirmed that the NIDDK is very supportive of the NMRI, but cannot provide more than \$75,000 to support the conference. Dr. Agodoa emphasized the importance of seeking supplemental funding from outside organizations to provide travel support for the 2015 Workshop.

The Network will not function without senior faculty to serve as the mentors. During the past few years, fewer senior members have attended the annual meeting. The NMRI will endeavor to develop a list of committed senior faculty, who may or may not come to the annual Workshop but who are willing to assist junior faculty and mentor via phone or email. The list of confirmed mentors will be posted on the NMRI website and included in the NMRI newsletter. Dr. Agodoa said that he was pleased to see so many new attendees for first time, and he encouraged them to return. The NMRI is designed to offer its members assistance throughout their careers.

Dr. Agodoa expressed appreciation to Ms. Martinez for all of her efforts in support of the NMRI. He thanked Dr. Gaillard for her leadership of the Planning Committee and Dr. Roberts for chairing the Oversight Committee. Engraved plaques were presented to Drs. Gaillard and Roberts. Dr. Agodoa wished all participants a safe journey and expressed anticipation at seeing everyone again next year.

Ms. Martinez invited the Workshop participants to join in the NIH tour. She also noted that the NMRI website has migrated to a new system, and she encouraged all members to check their profiles to ensure that the information was current. She also wished the participants safe travels before the meeting was adjourned.



National Institute of  
Diabetes and Digestive  
and Kidney Diseases