



Acknowledgements

We wish to thank the mentors and their laboratory teams for outstanding contributions to the success of the summer training programs and to the students for their participation.

Many thanks also go to the Hypertension & Vascular Research Center Staff for their outstanding support and contributions to the success of the summer training programs.



2022
Excellence In Cardiovascular Sciences
(EICS)
&
Enhancing Undergraduate Education
And Research in Aging to Eliminate
Health Disparities (ENGAGED)

SUMMER RESEARCH
POSTER SYMPOSIUM

Friday, July 29, 2022
9:00 am – 12:00 pm

Biotech Place Atrium
575 N. Patterson Avenue
Winston-Salem, NC 27101

The **EXCELLENCE IN CARDIOVASCULAR SCIENCES (EICS) SUMMER RESEARCH PROGRAM FOR DIVERSITY** is funded by an R25 training grant from the National Heart, Lung, and Blood Institute. Drs. Debra Diz, and David Soto-Pantoja are the directors of the program, which has provided summer research training in cardiovascular-related topics for ~340 undergraduate students from groups underrepresented in the biomedical sciences over the past twenty-seven years. Of our former EICS participants who have completed their undergraduate degrees, approximately 31% obtained graduate degrees or are in graduate school and 89% are in biomedical sciences and health professional careers. Four recent EICS participants are currently working toward their PhD at Wake Forest University.

The **ENHANCING UNDERGRADUATE EDUCATION AND RESEARCH IN AGING TO ELIMINATE HEALTH DISPARITIES (ENGAGED)** is funded by an R25 training grant from the National Institute on Aging. Drs. Tina Brinkley, Debra Diz, TanYa Gwathmey, Jill Keith and Gary Miller are the directors of the program. Over the past three years, the grant supported underrepresented undergraduate students participating in aging-related educational and research activities during the academic year (from Wake Forest University and Winston Salem State University) and during the summer (for students at any U.S. college/university). The goal is to enhance the diversity of the biomedical, behavioral, and clinical research workforce in Medicine, Science, Technology, Engineering and Mathematics (MSTEM) fields as they relate to aging.

Program Support:

Wake Forest School of Medicine

- Surgery-Hypertension
- Hypertension & Vascular Research Center
- Cardiovascular Sciences Center
- Sticht Center

Wake Forest University

- Graduate School of the Arts & Sciences

Winston-Salem State University

National Heart, Lung & Blood Institute (NHLBI)

- R25HL092618 (EICS)

Research Initiative for Scientific Enhancement National Institute on Aging (NIA)

- R25AG060912 (ENGAGED)

Dr. Wayne Meredith and the Cardiovascular Surgery Department

ENGAGED PARTICIPANTS

Justin Lam (Carnegie Mellon University)

Mentor: Ashley Weaver, PhD

Biomedical Engineering

"Compartmental Femoral Cortical Thickness in Older Adults Differs by Demographics and Physical Function"

Luke Morton (Wake Forest University)

Mentor: Shannon Macauley, PhD

Internal Medicine-Gerontology & Geriatric Medicine

"Hippocampal interstitial fluid extracellular vesicles (EV^{ISF}) are modulated by Alzheimer's related pathology"

Ely Sanchez (University of Puerto Rico at Ponce)

Mentor: Justin Moore, PhD

Implementation Science

"Culturally appropriate nutrition education materials for Spanish-speaking Brenner FIT patients"

Adaiah Stevens (Wake Forest University)

Mentor: Tony Reeves, PhD

Internal Medicine-Molecular Medicine

"Defining the Structure Activity Relationship of the Cannabinoid Receptor and Diphenylpiperidine Analogs Using Molecular Modeling"

Juleika Torres (University of Puerto Rico Mayagüez)

Mentor: Rachel Zimmer, PhD

Internal Medicine-Gerontology & Geriatric Medicine

"Testing the impacts of the Winston Weaver Company Fertilizer Plant (WWCFP) on the local community"

Taniya Ballard (Winston Salem State University)

Mentor: Andrew South, MD, PhD

Pediatrics- Nephrology

"The Association Between Adverse Childhood Experiences and Sugar-Sweetened Beverage Intake in Youth with Hypertension"

EICS PARTICIPANTS

Marco Benavides (Tecnológico de Monterrey)

Mentor: Nicole Levi-Polyachenko, PhD

Surgery Plastic Reconstructive

"Improvements on a breast biopsy deployment system"

Makala Crawford (Winston Salem State University)

Mentor: Daniel Kim-Shapiro, PhD

Physics

"Effects of Column Purification on Heme-Nitrosyl-Thiolate"

Ellie Cyrus (Winston Salem State University)

Mentor: Kathrine Cook, PhD

Surgery Hypertension

"The Inositol-requiring enzyme-1 (IRE1) signaling plays a critical role in chemotherapy-related cardiac toxicity"

Romeo Espinosa-Ponce (Greensboro College)

Mentor: David Soto-Pantoja, PhD

Surgery Hypertension

"Prevention of "CardioDOXicity" by CD47 Receptor Blockade"

Breauna Lane (Radford University)

Mentor: Leslie Poole, PhD

Biochemistry

"Kinetic and Redox Characterization of KRAS-G12C Inhibition"

Daryna Lapomarede (Wake Forest University)

Mentor: Giselle Melendez, MD

Internal Medicine-Cardiovascular Medicine

"Prescribed exercise prevents left ventricular dysfunction and cardiac fibrosis in mice undergoing anthracycline chemotherapy"

Nicole Morales (University of Puerto Rico Cayey)

Mentor: Christina Hugenschmidt, PhD

Internal Medicine-Gerontology & Geriatric Medicine

"The Effect of a randomized trial in creative change in people with dementia and their care givers"

EICS PARTICIPANTS

Niaria Leach (Winston Salem State University)

Mentor: Ashley Weaver, PhD

Biomedical Engineering

"Differences in Physical Function Measures and Bone Mineral Density in Adults with or without Heart Failure: A Sub-study of the Health Outcomes after Participating in Exercise (HOPE) Study"

Olivia Smith (North Carolina State University)

Mentor: Bumsoo Ahn, PhD

Internal Medicine- Gerontology & Geriatric Medicine

"Unacylated ghrelin protects against neurogenic atrophy and contractile dysfunction in age associated sarcopenia"

Yesenia Sosa (University of Texas at San Antonio)

Mentor: Gagan Deep, PhD

Internal Medicine- Cancer Biology

"Cannabidiol treatment overcomes paclitaxel resistance in advanced prostate cancer cells"

Brianna Thompson (University of North Carolina at Chapel Hill)

Mentor: Dhanendra Tomar, PhD

Internal Medicine-Cardiovascular Medicine

"Mitochondrial chaperonin CLPB modulates Mitochondrial Substrate Utilization"

Alexandra Williams (Wake Forest University)

Mentor: Sarah Adjei-Fremah, PhD

Biology-Genetics & Microbiology (WSSU)

"Co-exposure of Dietary Palmitic Acid and GenX Chemical Affects Steatosis and Oxidative Stress in HepaRG Cells"

ENGAGED PARTICIPANTS

Nataley Der (University of Maryland, Baltimore County)

Mentor: Leah Solberg Woods, PhD

Internal Medicine-Molecular Medicine

"Assessing Gene Expression Levels of Adcy3 in Two Genetically Modified Rat Models"

Summayah El Azzoui (Emory University)

Mentor: Ken Kishida, PhD

Physiology & Pharmacology

"Neighborhood Socioeconomic Deprivation Associated with Cognitive Function and Punishment Learning in Treatment-Resistant Depression"

Beatrice Gar (North Carolina A & T)

Mentor: Andrew South, MD, PhD

Pediatrics- Nephrology

"Unmet Social Needs and Sugar-Sweetened Beverage Intake in Youth with Hypertension"

Ivy Greene (Wake Forest University)

Mentor: Kimberly Montez, MD, MPH, FAAP

Pediatrics

"WIC/Healthcare Initiative to Partner via the Electronic Health Record (WHISPER)"

Christian Johnson (Virginia Commonwealth University)

Mentor: Kathryn Callahan, MD

Internal Medicine-Gerontology & Geriatric Medicine

"Characterizing the experiences of frail older adults with community based resources; a qualitative analysis"

ADDITIONAL PARTICIPANTS

Henry Kirby (Virginia Tech)

Mentor: Ana Melo, PhD

Hypertension & Vascular Research Center

"Angiotensin-(1-7) reduces pediatric tumor growth by decreasing angiogenesis"

Arshum Mirzaeifard (University of North Carolina at Chapel Hill)

Mentor: David Soto-Pantoja, PhD

Surgery Hypertension

"Blockage of CD47 modulates mitochondrial membrane potential to regulate cellular energetics"

Claire Stryck (Sewanee: The University of the South)

Mentor: Daniel "Clark" Files, MD

Pulmonary, Critical Care, Allergy and Immunologic Diseases

"Circulating miRNAs in Critically Ill Patients Undergoing In-Bed Cycle Ergometry"