

23rd Annual One Health Symposium 10th Annual Phi Zeta Research Day



*Theme: Strengthening Health Systems to
Improve Medical Needs for Underserved Communities*



Hybrid
September 19 - 20, 2022

Patterson Hall Auditorium
College of Veterinary Medicine
Tuskegee University



TUSKEGEE UNIVERSITY

OFFICE OF THE PRESIDENT

Greetings from the President



With great pleasure, I welcome you to the Tuskegee University College of Veterinary Medicine's 23rd Annual One Health Symposium, and the 10th Annual Phi Zeta Research Day. This year's theme, "Strengthening Health Systems to Improve Medical Needs for Underserved Communities," is very timely in this period of re-evaluating healthcare needs following the last twenty months.

We have all seen how the pandemic has revealed the distressing impact of COVID-19 on underserved communities. Rural and underserved communities face significant challenges accessing health care services. Academic medicine uses both research and innovative programs to address problems that prevent vulnerable populations from receiving medical care. This symposium addresses these social determinants of health, which leads to better health outcomes in our local communities and saves costs by preventing expensive medical interventions.

With very best wishes for a successful and impactful symposium.

Sincerely,

Charlotte P. Morris, Ph.D.
President



Welcome to the 23rd Annual One Health Symposium (formerly the Biomedical Research Symposium) and the 10th Annual Phi Zeta Research Day being held on September 19 and September 20, 2022. The theme of the symposium **“Strengthening Health Systems to Improve Medical Needs for Underserved Communities,”** acknowledges the continuous focus on the One Health Triad on healthy people, healthy environments, and healthy animals. It also aligns with the work of biomedical leaders in shaping future directions in advancing healthcare and biomedical research. Due to the Covid-19 pandemic, this year’s events are being held virtually and in-person.

The annual symposium underscores our commitment to the overall strategy of providing a forum for advancing biomedical research and heightening awareness of global health disparities. Health disparities in our country are an ongoing problem in various populations and are characterized by limited access to healthcare and inequalities associated with economic factors, environmental issues, and social hazards. Even though it affects people across different racial, ethnic, and socioeconomic groups, individuals with special needs are particularly vulnerable to its impacts. Participants will have the opportunity to hear from dynamic speakers, engaged faculty, and motivated students across colleges and disciplines engaged in the quest for incremental reductions in such disparities and their eventual elimination. This symposium will not only be a forum for research collaboration but will also allow participants to learn about exciting new interventions in biomedical research.

The Phi Zeta Research Day session will further highlight students’ contributions to research as an opportunity for them to share their research experiences through oral and poster presentations. We salute all the outstanding scientists and students making presentations.

I extend my appreciation to One-Health Symposium Co-chairs, Dr. Ehsan Abdalla, Assistant Professor/Director of Analytics Department of Graduate Public Health, and Dr. Teshome Yehualaeshet, Professor of Microbiology/Molecular Biology, Dr. Ida Phillips, Assistant Professor in the Department of Pathology and Dr. Benjamin Adu-Addai, Assistant Professor in the Department of Biomedical Sciences.

Together as a community of researchers, educators, and supporters, we can make a difference by advancing biomedical research with interdisciplinary approaches to enhance the healthcare of our nation. This annual event serves as another forum to promote and foster this mission. Thank you for attending and participating in the 2022 One Health Symposium and Phi Zeta Research Day.

Sincerely,



R L. Perry, DVM, PhD, Diplomate-ACVR
Dean & Professor of Veterinary Radiology

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COLLEGE OF VETERINARY MEDICINE



We are pleased to welcome you to the 23rd Annual One Health Symposium and 10th Phi Zeta Research Day hosted by Tuskegee University, College of Veterinary Medicine. Our theme this year is ***“Strengthening Health Systems to Improve Medical Needs for Underserved Communities.”*** The One Health Symposium brings together biomedical and clinical researchers; graduate and veterinary students; and community leaders engaged in transforming health and healthcare systems.



This landmark annual symposium will include collaborative, multisectoral, and transdisciplinary approach with the goal of achieving optimal health outcomes recognizing the interconnection between people, animals, and their shared environment. We are honored to have prominent speakers to address the selected topics. Dr. Michelle Doose is a program official in the Division of Clinical and Health Services Research at NIMHD. Dr. Wes Stubblefield, District Medical Officer, Northern/Northeastern Districts, Alabama Department of Public Health, Morgan County Health Department. Dr. Sharunda Buchanan Interim Director of the Department of Health and Human Services, Office of Environmental Justice within the Office of Climate Change and Health Equity in the Office of the Assistant Secretary for Health. Dr. Chippewa Thomas directs the Office of Faculty Engagement, a division of the Vice President’s Office for University Outreach at Auburn

University. Dr. Cheryl Davis, Consulting Laboratory Manager, Tuskegee Health Disparities Diagnostic Center COVID-19 LAB, Interim Executive Director, Tuskegee Area Health Education Center, Tuskegee University.

Our afternoon session will begin with a panel discussion fashioned conversation facilitated by Dr. Lucenia Dunn, President/CEO, Tuskegee Macon County Community Foundation, Inc., and moderated by Omer Neal, former Mayor, City of Tuskegee, President/CEO You Got the Power Enterprises, Inc. We are honored to have prominent panelists and speaker to address the following topic ***“Health resources and perspectives for responding to health crises”***.

We extend a very special welcome to our community members and partners who are a part of the symposium as participants and vendors. We invite you to engage in all that we discover and share through this annual event. Special thanks to the vendors and the Vendor Recruitment Committee from the Macon M.E.A.N.S For Cancer Support and Alabama Department of Public Health, Family Services, who plays a major role in reaching out to the vendors and invite them take part in this great event.

We sincerely acknowledge Dr. Ruby Perry, Dean of the Tuskegee University College of Veterinary Medicine, and Dr. Temesgen Samuel, Associate Dean for Research and Advanced Studies, for their continuous support and guidance. We also extend our gratefulness to the Phi Zeta Committee members, the poster presentations.

We look forward to a very successful event and hope that you will find it a valuable platform.

Ehsan Abdalla, DVM, MSc, PhD
Co-Chair, One Health Symposium

Teshome Yehualaeshet, DVM, Ph.D.
Co-Chair, One Health Symposium



COLLEGE OF VETERINARY MEDICINE



September 20, 2022 marks the 10th anniversary of Phi Zeta Research Day at Tuskegee University College of Veterinary Medicine. This event for the past ten years has brought together student investigators with seasoned researchers to display important and groundbreaking discoveries that contribute to the health of both animals and humans.



Due to the COVID-19 pandemic, this year marks the first time since 2019 that Phi Zeta Research Day has been in-person on the beautiful Campus of Tuskegee University. We welcome all members of the Tuskegee University family and community members far and wide to this auspicious occasion. We would like to celebrate and honor all the invited speakers who enthusiastically agreed to share their experiences and expertise in their respective fields. The day's agenda also includes presentations from students and nascent researchers. These participants are the heart and soul of the Phi Zeta Research Day. Tuskegee University veterinary students, graduate students, and postdoctoral fellows from several departments throughout the university (Biology, Agriculture, and Biomedical Sciences) and Auburn University are being represented in both oral and poster presentations. Deserving participants will receive awards.

All researchers within the College of Veterinary Medicine and other institutions are encouraged to participate as this day provides a unique opportunity to share research in a local, encouraging, and instructional environment. It is also an excellent opportunity to network, establish mentorships and research collaborations within the college. The theme for the annual 23rd One Health Symposium and the 10th Phi Zeta Research Day is "Strengthening Health Systems to Improve Medical Needs for Underserved Communities".

As co-chairs, we believe that this is going to be an exciting and stimulating scientific discussions. It is our hope that attendees will enjoy and learn from the quality presentations and apply the gained knowledge both in research and clinical practices. We would like to thank Dr. Ruby Perry, the dean for the college who ten years ago brought her vision to life and established the first Phi Zeta Research Day at TUCVM. We greatly appreciate her continued support and guidance. The Phi Zeta committee members are also deeply appreciated for their planning of and execution of this program.

We would also like to thank the judges for their time in evaluating the student participants. Finally, our depth of gratitude goes to the sponsors of the Tenth Annual Phi Zeta Research Day for their generosity and support of the efforts of the students at the College of Veterinary Medicine.

Sincerely,

Ida L. Phillips, DVM, Ph.D., DACVP
Co-Chair, Phi-Zeta Research Day

Benjamin Adu-Addai, DVM, Ph.D.
Co-Chair, Phi Zeta Research Day

23rd Annual One Health Symposium

Theme: “Strengthening Health Systems to Improve Medical Needs for Underserved Communities”

Tuskegee University, College of Veterinary Medicine

In-Person and Virtual – September 19, 2022 (9:00 a.m. – 4:00 p.m.)

9:00 – 9:05 a.m.	- Opening Session: Teshome Yehualaeshet, DVM, Ph.D., Co-Chair, Professor of Microbiology/Molecular Biology, Department of Pathobiology, College of Veterinary Medicine, Tuskegee University - Moderator – Deloris Alexander, Ph.D., Director, Integrative Biosciences PhD Program, Professor, Department of Agricultural and Environmental Sciences, (CAENS), Department of Biology, (CAS), Department of Pathobiology, (CVM), Tuskegee University
9:05 – 9:15 a.m.	- Greetings: Charlotte Morris, Ph.D., President, Tuskegee University - Welcome: Ruby L. Perry, DVM, MS, Ph.D., Diplomate-ACVR, Dean, College of Veterinary Medicine, Tuskegee University
9:15 – 9:55 a.m.	Virtual Keynote Speaker: Michelle Doose, Ph.D., MPH, Program Official, Division of Clinical and Health Services Research, National Institute on Minority Health and Health Disparities National Institutes of Health <i>Strengthening Integration of Health Services and Systems to Promote Health Equity</i>
9:55 a.m. – 10:20 a.m.	Vendors Introduction
10:20 a.m. – 10:35 a.m.	BREAK - VISIT VENDORS TABLE
10:35 a.m. – 11:10 a.m.	Keynote Speaker: Wes Stubblefield, MD, MPH, FAAP, District Medical Officer, Northern/Northeastern Districts, Alabama Department of Public Health, Morgan County Health Department <i>Updates from the Alabama Department of Public Health</i>
11:10 a.m. – 11:45 a.m.	Virtual Keynote Speaker: Sharunda D. Buchanan, M.S., Ph.D., Director, Office of Priority Projects, Innovation and Environmental Justice, National Center for Environmental Health/Agency for Toxic Substances and Disease Registry, Centers for Disease Control and Prevention (CDC), Concurrently serving as Interim Director, Office of Environmental Justice Working with Arsenio Mataka, Senior Advisor for Climate Change and Health Equity Office of the Assistant Secretary for Health (OASH), Department of Health and Human Services (DHHS) <i>The Intersection of Health Equity and Environmental Health: Addressing Social and Environmental Determinants of Health</i>
11:45 a.m. – 12:15 p.m.	Cheryl Davis, BS, MS, MA, DHA, Consultant, CG Davis Consulting, Tuskegee Area Health Education Center, and Tuskegee University Health Disparities Diagnostics COVID-19 <i>Understanding COVID-19 Virus, Vaccine, and Diagnostic Testing</i>
12:15 p.m. – 12:50 p.m.	Virtual: Chippewa M. Thomas, Ph.D., Director, Office of Faculty Engagement, Vice President’s Office for University Outreach, Professor, Counselor Education (Clinical Mental Health) Department of Special Education, Rehabilitation, Counseling/School Psychology, College of Education, Auburn University <i>The Significance of Engagement for Improving One Health Outcomes</i>
12:50 p.m. – 1:20 p.m.	LUNCH BREAK - VISIT VENDORS TABLE
1:20 p.m. – 2:20 p.m.	COMMUNITY SESSION Topic: Health Resources and Perspectives for Responding to Health Crises - Facilitator: Lucenia W. Dunn, Ph.D., President/CEO, Tuskegee Macon County Community Foundation, Inc. - Moderator: Omar Neal, BS, MS, President/CEO You Got The Power Enterprises, Inc., Tuskegee Institute, Alabama

	<u>Panel Discussion Speakers</u> • Katrina Love, BS, MS, Pastor, St. John A.M.E. Zion Church, Tuskegee Institute, AL • Stephen Olufemi Sodeke, Ph.D., MA (Bioethics and Health Policy) Resident Bioethicist, Center for Biomedical Research, Professor of Bioethics and Allied Health Sciences College of Arts & Sciences Tuskegee University • Guy Trammell, Trainer, Community-based Group Therapy and Family to Family SAMHSA, Director Macon County Minister's Council Food Pantry
2:20 p.m. – 2:30 p.m.	BREAK
2:30 p.m. – 3:50 p.m.	COMMUNITY SESSION (Continued) • James Rich, JD, Project Coordinating Attorney, Legal Services, Birmingham, AL • Sheriff Andre' Brunson, Macon County • Deloris Alexander, Ph.D., Director, Integrative Biosciences Ph.D. Program, "Co-PI, RAVE 2 Project", Tuskegee University
3:50 p.m. – 4:15 p.m.	Virtual: Avia Sutton, BS, MPH, 2022 Graduate of Public Health, Tuskegee University <i>The Effects of Covid-19 Vaccination on Menstruation: Are women with Underlying Reproductive Health Conditions, Particularly Black Women at a Higher Risk for Vaccine-related Menstruation Complications</i>
4:15 p.m. – 4:20 p.m.	Closing Remarks – Ehsan Abdalla, DVM, MS, Ph.D., Co-Chair, Assistant Professor/Director of Analytics, Department of Graduate Public Health, College of Veterinary Medicine, Tuskegee University

Notes:

10th Annual Phi Zeta Research Day
Theme: “Strengthening Health Systems to Improve
Medical Needs for Underserved Communities”
Tuskegee University, College of Veterinary Medicine

In-Person and Virtual – September 20, 2022 (8:30 a.m. – 4:30 p.m.)

8:30 – 8:35 a.m.	Welcome: Ruby L. Perry, DVM, MS, Ph.D., Diplomate-ACVR, Dean, College of Veterinary Medicine, Tuskegee University
8:35 – 8:45 a.m.	Occasion: Benjamin Adu-Addai, DVM, Ph.D., Co-Chair, Assistant Professor, Department of Biomedical Sciences, College of Veterinary Medicine, Tuskegee University
8:45 – 9:35 a.m.	Moderator: Toufic Nashar, DVM, Ph.D., Associate Professor, Virology and Immunology, Department of Pathobiology, College of Veterinary Medicine, Tuskegee University Virtual Keynote Speaker: Paul Goepfert, Ph.D., Professor of Medicine and Microbiology, Department of Medicine, Division of Infectious Diseases, University of Alabama at Birmingham, and the Director of the Alabama Vaccine Research Clinic (AVRC). <i>Can Lessons Learned from the Successful COVID-19 Vaccines be Translated to Success for Vaccines against other Pathogens</i>
9:35 a.m. – 10:25 a.m.	Virtual Keynote Speaker: Suzanne Judd, MPH, Ph.D., Director Lister Hill Center for Health Policy, Professor -School of Public Health, University of Alabama at Birmingham <i>Novel Approaches to Ensure Diversity in Health Disparities Research</i>
10:25 a.m. – 10:40 a.m.	BREAK
10:45 a.m. – 11:35 a.m.	Virtual Keynote Speaker: CDR Temeri Wilder, DVM, MPH, DACLAM, US Public Health Service Officer, Animal Welfare Program Specialist, OLAW, NIH <i>An Officer and a Veterinarian: Being the Bridge between Science and Pandemic Response</i>
11:35 a.m. – 12:05 p.m.	Virtual: Raphael A. Malbrue BS, MS, Ph.D., Associate Director for The Abigail Wexner Research Institute at Nationwide Children’s Hospital (Animal Resources Core) <i>More Than a Mouse Vet...The Role of Veterinarians in Biomedical Research and Beyond</i>
12:05 p.m. – 12:20 p.m.	Kamaria Palmer, Second Year Veterinary Student, College of Veterinary Medicine, Tuskegee University <i>Expression and Localization of Nephron Progenitor and Ureteric Bud Markers in the Feline Developing Kidney</i>
12:20 p.m. – 1:30 p.m.	LUNCH BREAK and POSTER PRESENTATIONS Viewing: 12:20 – 12:50 p.m. (1 st yr. Veterinary Students) 1:00 – 1:30 p.m. (2 nd yr. Veterinary Students)
1:30 p.m. - 2:00 p.m.	Moderator: Dilip Gunturu, BVSc&AH, MVSc, Ph.D., Assistant Professor, Department of Biomedical Sciences, College of Veterinary Medicine, Tuskegee University Nelson Diaz, DVM, MS, MBA, Veterinary Technical Services Veterinarian for Merck Animal Health <i>Veterinary Medicine Beyond Private Practice - The Other Pathways</i>
2:00 p.m. - 2:15 p.m.	Lauryn Duhart, Second Year Veterinary Student, College of Veterinary Medicine, Tuskegee University <i>Synthesis and invitro Evaluation of Irinotecan Loaded Chitosan Nanoparticles Against Colorectal Cancer</i>
2:15 p.m. – 2:45 p.m.	K. Scott Squires, DVM, Veterinarian in Charge Alabama FiOPS District 1, USDA, Animal and Plant Health Inspection Service, Veterinary Sciences <i>USDA APHIS Veterinary Services: Who, What, When, Where and How?</i>

2:45 p.m. – 3:15 p.m.	McCoy Williams, Second Year Veterinary Student, College of Veterinary Medicine, Tuskegee University <i>Potential Use of Biosensor for Rapid and Specific Isolation of Listeria monocytogenes from Fresh Salads, Deli Meat, and Frozen Vegetables</i>
3:15 p.m. – 3:30 p.m.	BREAK
3:30 p.m. – 3:45 p.m.	Pauline Hunter, Third Year Veterinary Student, College of Veterinary Medicine, Tuskegee University <i>Correlations between Periodontal Disease and Systemic Health using Intraoral Radiographs and Clinical Pathology</i>
3:45 p.m. – 4:00 p.m.	Savannah Simon, Second Year Veterinary Student, College of Veterinary Medicine, Tuskegee University <i>Quantitative Analysis of Three Salmonella Serotypes from Different Food Sources</i>
4:15 p.m. – 4:30 p.m.	Awards and Closing Remarks: Ida L. Phillips, DVM, Ph.D., DACVP, Co-Chair, Assistant Professor of Anatomic Pathology, Department of Pathobiology, College of Veterinary Medicine, Tuskegee University

Notes:

One Health Symposium Moderator



Deloris Alexander, Ph.D., is a tenured Professor at Tuskegee University (TU) with triple faculty appointments in the College of Agriculture, Environment and Nutrition Sciences (CAENS), the College of Arts and Sciences (CAS), and the College of Veterinary Medicine (CVM). Alexander is a native of Tuskegee, AL and holds degrees from Alabama State University (BS in Biology; minor in chemistry), Tuskegee University (MS in Environmental Science), Meharry Medical College (Ph.D. in Biomedical Sciences), and post-doctoral experience from the University of North Carolina at Chapel Hill (Cancer Genetics, Host immunity). She is also certified as a Bioethics Trainer (NIH). Most recently, Dr. Alexander has been leading the Community Engagement subcommittee of TU's Community Health Task Force in response to the COVID-19 Pandemic. She is also one of three PI's of the Alabama Department of Public Health COVID Vaccination and Education Grant to TU.

Since arriving at TU as faculty in 2005, Alexander has been intimately involved in the launching of Tuskegee's Ph.D. Program in Integrative Biosciences (IBS), which seeks to address the lack of well-trained, graduate-level, U.S. scientists. The IBS Ph.D. program has provided a mechanism for fostering a more intensive biomedical research and training atmosphere and has produced more than 47 Ph.D. holders and supported an equal number of MS degree graduates in the past 10 years. Alexander has many research interests, all related to infectious diseases. She is an avid researcher who has mentored more than 190 undergraduate and graduate students from various disciplines. In 2015 and 2016 she was recognized as a White House Champion of Change by the White House Initiatives for HBCUs Office. She currently uses her lab to understand how natural products might prove beneficial in the fight against diseases. Alexander, who served as the Deputy Director for Research for Tuskegee University's Health Disparities Institute for Research and Education, has been actively involved in research that seeks to reduce health disparities in the Alabama Black Belt Counties.

Moreover, Alexander has been a member of numerous grant proposal writing teams, which have coordinately been awarded millions of dollars from the Howard Hughes Medical Institute, the National Institutes of Health, the USDA/NIFA, and the National Science Foundation. These awards have supported the education and research of hundreds of high school, undergraduate, and graduate students. Alexander teaches more than a dozen courses each year, including bioethics, parasitology, epidemiology, molecular biology, and environmental health sciences. She has been a reviewer for NSF, HHMI, NOAA, the USDA and several book publishers. Alexander is also a member of the American Society for Microbiology (ASM), the American Association for Cancer Research (AACR), the National Environmental Health Association (NEHA), and Sigma Xi. She also sings, writes short stories, assembles genealogies for African-American families and, occasionally, takes a day off to enjoy a good clearance sale. Alexander is a product of the Tuskegee Public School System.

One Health Symposium Keynote Speaker

Michelle Doose, Ph.D., MPH

Program Official, Division of Clinical and Health Services Research, National Institute on Minority Health and Health Disparities National Institutes of Health



Michelle Doose, Ph.D., MPH, is a Program Official in the Division of Clinical and Health Services Research Program at the National Institute on Minority Health and Health Disparities (NIMHD). She manages and conducts research to advance the science of care coordination within and across healthcare teams and health system boundaries to improve health outcomes and quality of care for multiple chronic conditions among populations that experience health disparities. Her research interests include health care delivery models, healthcare teams and teamwork processes, cancer epidemiology, integration of social care into clinical care, and delivery of high-quality, equitable care.

Prior to joining NIMHD, Doose was a Cancer Prevention Fellow at the National Cancer Institute (NCI) where her research focused on understanding how multidisciplinary care teams coordinate care for individuals with multiple chronic conditions and identifying modifiable points for interventions at the health system and policy level. She has secured funding from the NCI and Robert Wood Johnson Foundation (RWJF) to examine multilevel factors that influence clinical care management of diabetes and hypertension among Black women diagnosed with breast cancer. Doose applies epidemiological methods to the study of care delivery and outcomes using primary and secondary data sources, including surveys, interviews, focus groups, claims data, medical records, and cancer registries. Prior to her doctoral studies, she worked as a bilingual/bicultural health educator helping adolescent and young adult cancer survivors navigate health, wellness, and health insurance after a cancer diagnosis.

Doose earned her Doctor of Philosophy in Epidemiology from Rutgers School of Public Health. She is a graduate of the RWJF's Health Policy Research Scholar Program, a national leadership development program in health equity and health policy for underrepresented doctoral students. She holds a Master of Public Health in Community Health Sciences with a specialization in Health Education and Health Promotion from UCLA Fielding School of Public Health and bachelor's degrees in Spanish and International Studies (emphasis in Latin America) from Pepperdine University.

One Health Symposium Keynote Speaker

Wes Stubblefield, MD, MPH, FAAP

District Medical Officer, Northern/Northeastern Districts, Alabama Department of Public Health, Morgan County Health Department



Wes Stubblefield is a district medical officer with the Alabama Department of Public Health covering the northern and northeastern districts. Originally trained as a pediatrician, Stubblefield practiced general pediatrics for over 14 years before joining ADPH. While practicing pediatrics, he held leadership positions at local, regional, state, and national levels. He completed his M.P.H. at UAB in 2018 and transitioned to a full-time public health role in 2021.



Theme: Strengthening Health Systems to Improve Medical Needs for Underserved Communities

One Health Symposium Keynote Speaker

Sharunda D. Buchanan, M.S., Ph.D.

Director, Office of Priority Projects, Innovation and Environmental Justice, National Center for Environmental Health/Agency for Toxic Substances and Disease Registry (CDC); Interim Director, Office of Environmental Justice



Sharunda D. Buchanan is currently serving in a dual role:

1) She serves as Director of CDC's National Center for Environmental Health/Agency for Toxic Substances and Disease Registry (NCEH/ATSDR) Office of Priority Projects, Innovation, and Environmental Justice (OPPIJ) where she provides leadership and management of large-scale, priority environmental health initiatives, promotes innovation and "big idea" projects and prototypes, and coordinates environmental justice work.

2) Concurrently, Buchanan has just been named as Interim Director of the Department of Health and Human Services' (HHS) Office of Environmental Justice (OEJ) within the Office of Climate Change and Health Equity (OCCHE) in the Office of the Assistant Secretary for

Health (OASH). Having served as Senior Advisor of HHS' Environmental Justice Unit (EJU) over the past few months, she brings a wealth of experience to the Department. Buchanan will: 1) lead initiatives that integrate environmental justice into the HHS mission to improve health in communities across the nation; 2) advise senior leadership at OASH and HHS on environmental justice and health issues; 3) provide leadership and subject matter expertise to develop and implement an HHS-wide strategy on environmental justice and health; and 4) represent OASH and HHS at agency and interagency settings.

After receiving a B.S., M.S., and Ph.D. in chemistry, toxicology, and biochemistry, from Texas Southern University and Clark-Atlanta University, respectively, Buchanan joined the Agency for Toxic Substances and Disease Registry (ATSDR) as an Environmental Health Scientist in the Division of Toxicology in 1990; she later joined CDC as an Epidemic Intelligence Officer assigned to the Division of Environmental Hazards and Health Effects (DEHHE). During her six-year tenure with DEHHE, Buchanan greatly contributed to the expansion of the National Childhood Lead Poisoning Prevention and Healthy Homes programmatic and research agendas. In 2001, Buchanan became Chief of the Environmental Health Services Branch, and served in this capacity until becoming Director of NCEH's Division of Emergency and Environmental Health Services (DEEHS). As DEEHS director for a little over a decade (2007-2017), Buchanan provided leadership, direction and guidance to a multi-disciplinary team overseeing national and international programs related to lead poisoning prevention, food and drinking water outbreak investigations; chemical demilitarization of warfare agents; cruise ship inspections; community design, and overall performance improvement of core and emergency environmental public health services. As co-lead of the Lead Subcommittee of the Presidential Task Force on Environmental Health Safety Risks for Children and CDC/ATSDR's and HHS' representative for the past two years, Buchanan is committed to advancing health equity, attaining environmental justice, and improving environmental public health across the country.

One Health Symposium Speaker

Cheryl Davis, BS, MS, MA, DHA

Consultant, CG Davis Consulting, Tuskegee Area Health Education Center, and
Tuskegee University Health Disparities Diagnostics COVID-19



Cheryl G. Davis is an accomplished Senior Executive, Consultant, and Board Member with more than 30 years of success across the healthcare and higher education industries. Leveraging extensive experience with curriculum development and grant writing, she is a valuable advisor for an organization seeking guidance for assistance with accreditation issues and organizational planning. Her broad areas of expertise include clinical laboratory, leadership, healthcare consulting, strategic planning, higher education, biosafety, and business planning.

Current leadership positions include CG Davis Consulting, Tuskegee Area Health Education Center and Tuskegee University Health Disparities Diagnostics COVID-19 Lab with past positions with Tuskegee University and The Gift of Life Foundation. Board memberships include Medical Advocacy and Outreach of Alabama, Inc. and Alabama 4-H Foundation.

Davis received her B.S. in Medical Laboratory Technology from Alabama State University, B.S. in Medical Technology from Tuskegee University, M.S. in Biology from Alabama State University, M.A. in Health Studies (Health Promotion concentration) from The University of Alabama and Doctor of Health Administration (DHA) from Central Michigan University.

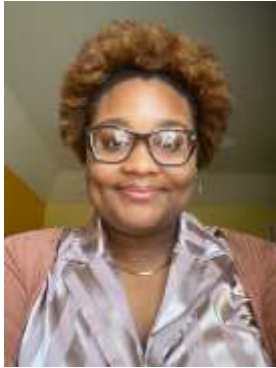


***Theme: Strengthening Health Systems to Improve
Medical Needs for Underserved Communities***

One Health Symposium Speaker

Avia Sutton, BS, MPH

2022 Graduate of Tuskegee University, Public Health Program



Avia Sutton was born in St. Thomas US Virgin Island and received her undergraduate degree in Behavioral Neuroscience from Nova Southeastern University. She recently graduated from Tuskegee University with a Master of Public Health and is currently earning her Masters in Genetic Counseling at the University of North Carolina Greensboro. She plans to become a genetic counselor specifying in neurogenetics and with plans further her education and earn her PhD in Genetics. During her time at Tuskegee, she with the help of her advisor Dr. Ehsan Abdalla, formed her thesis around the effects of Covid-19 vaccination on women's menstruation and hopes to continue this research in some form at her current institution. Avia currently works as the Advocacy Intern at Sepsis Alliance and is a genetic counseling LEND fellow at UNCG.



***Theme: Strengthening Health Systems to Improve
Medical Needs for Underserved Communities***

One Health Symposium Speaker

Chippewa M. Thomas, Ph.D.

Director, Office of Faculty Engagement, Vice President's Office for University Outreach, Auburn University



Chippewa M. Thomas has over 20 years of progressive community counseling, education and engagement leadership experience that includes work with community mental health agencies and higher education institutions. After working as a Clinical Mental health Counselor, Thomas began as a full-time faculty member in the Special Education, Rehabilitation and Counseling (SERC) department at Auburn University, which ultimately led her to a joint appointment as Director of the Office of Faculty Engagement and provides oversight of the Encyclopedia of Alabama, directly reporting to the Associate Provost and Vice President for University Outreach at Auburn University.

As both an administrator and a full professor, she is responsible for providing campus-wide leadership engaging faculty in outreach related work and the development of outreach scholarship. Thomas facilitates joint scholarly, and community engaged projects between faculty and community partners, in keeping with the land-grant mission and strategic priorities of the university.

Thomas is involved in service to the university, professional organizations and in the community. She is president of the Fulbright Association Alabama chapter, serves locally on the board of directors of the Domestic Violence Intervention Center, Inc., and she is faculty advisor for the Black Women in Mental Health student organization on Auburn's campus.

Interesting fact about her is that although Thomas was born in East Africa and grew up in Los Angeles, California, she has lived in Alabama for 30 years. She enjoys traveling, sewing, gardening and amazing seafood as often as she can.

Contact Information: thoma07@auburn.edu, (334) 740-9405 (cell), (334) 844-5701 (office), (334) 844-0515 (fax), 182 S. College Street, 213 Samford Hall, Auburn, Alabama 36849-5638

One Health Symposium

Community Panel Discussion - Facilitator

*Topic: Health Resources and Perspectives for
Responding to Health Crises*

Lucenia W. Dunn, Ph.D.

President/CEO, Tuskegee Macon County Community Foundation, Inc.



The Honorable Lucenia Williams Dunn was the first female Mayor for the City of Tuskegee, Alabama. The hallmark of the career of Lucenia Williams Dunn, Ph.D. has been the innovation to improve the lives of people. Growing up in historic Tuskegee, Alabama, she learned early that giving back to help improve the lives and conditions of others was not just a cliché, but also an important commitment in one's life. She is an administrator who is a visionary and often the first in diverse venues. Her venture into the professional world was through the Tuskegee Institute Community Education Program (TICEP) where she learned about the impact of poverty on communities and the education of children. She taught English, Reading and Social Studies to children by day and English to adults by night. This was also her first effort at recruiting and helping enroll students in college from rural communities through a special program directed by Dr. Bert Phillips, Dean of Students at Tuskegee Institute. Through the TICEP experience, she learned about the Black Belt counties of Alabama and the dire need for focused attention on education, community and economics.

Dunn served as Program Director of the Center for Educational Action, University of Pittsburgh, Pittsburgh, PA, where she managed the development of groundbreaking teacher training programs. She managed also the development of improved curriculum to ensure the success of African American children as well as the inclusion of African American History to make certain all students learned about the countless contributions made by African Americans who made life better for America and the world.

At the National Council of Negro Women, Inc. in Washington, DC, she managed national programs in education, economic development and health education. In her position as Director of the Bethune Education Center, Dunn focused on improving the lives of women through economic and community development projects and programs.

Her professional experience in government included organizing the first *Office of Public Information* for the Department of Consumer and Regulatory Affairs and serving as Manager of Operations for the Office of the City Administrator, District of Columbia Government, Washington, DC. In this experience, Dunn helped to design and implement the "*Model for Excellence Program*" to improve government operations and services to citizens.

Dunn founded the Tuskegee Macon County Community Foundation, Inc. (TMCCF), a 501 (c) (3) non-profit public charity organization in 2002 and in June of 2012, the Board of Trustees appointed her its first President/CEO. In this position she has been responsible for developing the administrative infrastructure and program development strategy. The primary programmatic focus is the reduction of economic and health disparities in rural and impoverished communities. She has been engaged in developing healthcare service delivery that is more appropriate for rural communities and created and published a model for the reduction of health disparities using technology. TMCCF, Inc. also organized and inaugurated the BO Music Festival and the Tuskegee Macon County Music Hall of Fame in 2014 to preserve the rich music history of the region.

Dunn is a member of St. Andrew's Episcopal Church, Tuskegee Institute, Alabama and serves on the Vestry and is Chair of the Financial Audit Committee. She is a graduate of Fisk University (BS), Nashville, TN, Tuskegee Institute (University), (MEd), and University of Pittsburgh, (Ph.D.), Pittsburgh, PA. She is a member of The Links, Inc. and Delta Sigma Theta Sorority, Inc., a life member of the National Council of Negro Women, member of NAACP and Alabama New South Coalition. She is the widow of Reginald L. "Reggie" Dunn and the proud mother of one daughter.

One Health Symposium

Community Panel Discussion – Moderator

Omar Neal, BS, MS
President/CEO You Got the
Power Enterprises, Inc.



Omar Neal possesses an exemplary and veritable career in leadership both in the Private and Public sector. Thousands have completed his training classes which are designed to empower business leaders, high -potential managers, and key professionals to rise to the challenges of their diverse environment. Neal is engaged by professionals whose career paths present them with challenging promotions, organizational shifts, or communication conflicts that demand exceptional leadership qualities. His coaching is grounded in incisive analytic skills that are informed by creativity, along with perceptive candor rooted in a passion for mentoring. The in-depth conversations held with hundreds of top level professionals gives Neal a heightened understanding of the thinking, behaviors and skills that are needed for effective leadership.

Most recently he served as the Mayor of the historic City of Tuskegee, Alabama from 2008 – 2012. Under his leadership, a long-term deficit city budget was brought to fiscal stability, new business and economic growth increased and International relations with West African countries was forged with governmental, municipal, educational, cultural and the private sector to include NGO's (Non-governmental organizations). Neal also served as Macon County District III Commissioner from 1996-2000 where he was a major influence in bringing the county government from deficit spending to having a reserve at the end of his term.

Neal founded, "You Got the Power," Enterprises Inc. in 1991. "You Got the Power" is a communications company that specializes in talk radio, motivational workshops, media consulting, advertising and motivational speaking. His training expertise educates with the understanding that leadership is not an isolated quality. His 360-degree approach teaches with an innovative, integrative, and effective program modality that helps people, organizations, companies, and governments achieve greater successes.

He attended Tuskegee Institute (now Tuskegee University) and earned a Bachelor's degree in Business Administration. After completing his studies at Tuskegee, Neal attended the Montgomery Police Academy. He served as a Youth Counselor with the Outreach Modification Program, a project of the Juvenile Probation Department of Macon County. He also served as a Youth Counselor with the Brantwood Children Home in Montgomery, Alabama. Neal established the Youth Aide Division of the Tuskegee Police Department and served as the department's founding director. Neal also graduated from Troy University with a Master's degree in Public Management. He completed the inaugural Leadership Macon County course and the Next Level Leadership Program where he became a Certified Trainer. He completed the Harvard University, Kennedy School of Government, Senior Executive State and Local Government Education program in July of 2009 and the Delta Leadership Institute in June of 2010. The Delta Leadership Institute is sponsored by the Delta Regional Authority in partnership with the College of Continuing Studies at the University of Alabama. Neal is also founder and president of the International Municipal Collaboration, Inc., www.imcdiaspora.org. He serves as vice-chair to the late Chairman Dr. Maya Angelou of the Community Healing Network (CHN) advisory board.

One Health Symposium Panel Discussion

Katrina Love, BS, MS

Pastor, St. John A.M.E. Zion Church



Katrina Love was born in Tuskegee, Alabama – the home of the historic Tuskegee Airmen. Love graduated from Beauregard High School in Lee County, Alabama; holds a Bachelor of Science in Business Administration, Auburn University at Montgomery (1989); Master of Divinity, Hood Theological Seminary, Salisbury, North Carolina (2013); and received Certificate of Graduation from the Dr. Cindy Trimm, Kingdom School of Ministry, a division of Trimm Institute for Global Leadership (2020).

She is currently the pastor at St. John AME Zion Church, Tuskegee, Alabama and the first woman elected as president of Macon County Ministers' Council, *an organization that brings churches together to serve the community, by fostering a commitment to unity and teamwork to address the issues in Macon County.* Love is an advocate for underserved students and foster children. Love

believes that every child is a gift from God, with proper training, *a little child shall lead them.* (Isaiah 11:6).

Love recently launched **Let's PRAY Tuskegee dba B.A.A.D. K.I.D.D.S.** (Blessed, Anointed, Awesome, Dreamers, Kingdom-minded, Determined, Destined, Successful). She is partnering with Merge & Love My Charity, to give students their own virtual store, with hopes of eliminating poverty in distressed communities.

Love serves as co-chairperson on the Efficient Management Distribution of Resources committee for Macon County Community Partner's COVID Taskforce. Love is a member of 100x Kingdom Acceleration and Wisdom Challenge (California) focused on building Kingdom Entrepreneurs and writes weekly articles in the Tuskegee News Pastor's Corner.

Love helped many families recover in Beauregard / Lee County, Alabama after the 2019 tornadoes devastated lives and homes; and continues that relationship as a volunteer with Alabama Rural Ministry (ARM) to extend LOVE and repair homes.

She believes that God anointed her to be a visionary leader to bring the Kingdom of God to earth. Love encourages the Body of Christ to REPENT and take seriously God's Word in **2 Chronicles 7:14, "If My people who are called by My name will humble themselves, and pray and seek My face, and turn from their wicked ways, then I will hear from heaven, and will forgive their sin and heal their land."** Love stands firmly on the Scriptures, especially the Book of Proverbs for Wisdom and instructions on discipleship, leadership, and stewardship. Kingdom principles will manifest in our lives as we fulfill Christ's commission, *"GO make disciples of all nations and preach the Gospel.* Love has surrendered to the Holy Spirit, and unashamedly uses the name of Jesus, believing that Father God accomplishes His will on earth, as it is in heaven. We PRAY (Prepare to Reign in the Acceptable Year) to receive the Lord's Favor. Love is often asked for spiritual advice. God has led her back to Tuskegee to *rebuild old waste places and raise up the foundation of many generations and called a Repairer of the Breach, Restorer of Streets to Dwell in"* (Isaiah 58:12). Love lives by her name, by showing LOVE and blessing God's people!

One Health Symposium Panel Discussion

Stephen Olufemi Sodeke, Ph.D., MA

Bioethics and Health Policy. Resident Bioethicist, Center for Biomedical Research,
Professor of Bioethics and Allied Health Sciences
College of Arts & Sciences, Tuskegee University



Stephen Olufemi Sodeke is currently Resident Bioethicist at the Center for Biomedical Research, and Professor of Bioethics in the College of Arts and Sciences, Tuskegee University. Over the years, he has served as Associate Director and Director of the Tuskegee University Bioethics Center. He chairs the Tuskegee University Institutional Board, serves on the Alabama Rare Disease Council, and on the NIH All of Us Research Program. His research interests are in the areas of community bioethics, research ethics, gene-ethics, neuro-ethics, health and human rights; ethical issues raised by participation in clinical trials, health disparity, research with vulnerable populations in the United States and in the developing world.

Guy Trammell

Community-based Group Therapy and Family to Family SAMHSA, Director
Macon County Minister's Council Food Pantry



Guy Trammell is a trainer for Community-based Group Therapy and, for “Family to Family” the SAMHSA (Substance Abuse and Mental Health Services Administration) approved mental illness education program, under NAMI (National Alliance for Mental Illness). Trammell is the director for the Macon County Ministers’ Council Food Pantry. He is chair for The Collective 46 Inc. a community-based telehealth fiber network provider, in Macon County, Alabama. His book “Macon 365” is a calendar-based history of Macon County, Alabama. Trammell is founder and CEO of Macon Stories, an educational service interpreting the history of Macon County, Alabama to youth and tourists.

One Health Symposium Panel Discussion

James Rich, JD

Project Attorney, Legal Services Alabama



James Rich serves as the Project Attorney for Legal Services Alabama's Legal Assistance Enhancement Project. He has been with Legal Services for five years. Rich previously served as a housing attorney with Legal Aid Society of Middle Tennessee. He is a resident of Birmingham, Alabama. In his spare time, Rich enjoys hosting live trivia and fostering dogs.

Andre' Brunson

Sheriff Macon County, Alabama



Sheriff Andre' Brunson was born and raised in Lake Wales, Florida. His parents are Louise and the late Anderson Brunson, Sr. He is married to Tuskegee native Courtney Kennedy Brunson. Andre' and Courtney have been together for 31 years (married 25). They have four children, Kambria who is a 2015 graduate of Tuskegee University (Hospitality Management); Tahlia, a 2016 graduate of Tuskegee University (Sociology); Twins, Shonte and Andre' Jr. (both in 11th grade at Booker T. Washington High School). They also have two grandchildren, Jeremy Cloud, Jr (age 7) and Justice Cloud (age 2 months).

After finishing high school at Lake Wales Sr. High School, Brunson attended the prestigious Tuskegee University on a football scholarship where he was a four-year starter on the Golden Tigers Football Team. He was a member of the 1987 Southern Intercollegiate Athletic Conference (SIAC) Championship team. Sheriff Brunson is a proud graduate of Tuskegee University where he earned a Bachelor's Degree in Social Work with a Criminal Justice concentration.

During Brunson's senior year at Tuskegee University, his best friend and roommate was shot and killed while attending an off campus party. It was this incidence that let him into the Law Enforcement Community.

Brunson graduated from the Montgomery Police Academy 1997 where he earned his (APOST) Alabama Peace Officer Standards and Training certification. He later graduated from Basic and Advanced SWAT schools at the North East Law Enforcement Academy at Jacksonville State University. He also completed Safe Schools America Assessor Training, School Violence Training and Active Shooter Training along with other valuable Instructor level Courses.

After working 23 years as the Schools Resource Officer and Chief of Security for Macon County Schools, Andre decided to run for Sheriff of Macon County after Sheriff David Warren decided to retire. He won the Democratic Nomination and was sworn in January of 2015 as the 4th African American Sheriff in the history of Macon County. He is currently serving his second term and went unopposed in the recent election where as of now he has a total of 31 years in Law Enforcement.

Phi Zeta Research Day Moderators



Toufic Nashar is Associate Professor of Virology and Immunology at Tuskegee University, College of Veterinary Medicine. He earned his bachelor degree in Veterinary Medicine at Baghdad University, Ph.D. in Immunology at Bristol University, UK, postdoctoral studies at a number of institutions including, University of Kent, UK, Harvard Medical School, USA, Albany Medical School, USA, New York State Department at David Axelrod Institute, USA. His interests are in immune modulation by bacterial toxins, and prevention of viral diseases. Recent research work looked at the mechanism some bacterial toxins use to disrupt immune cell-cell communication, screening of peptides against ZIKA virus E-protein by phage display, and use of peptides and bacterial toxins to prevent HIV infection *in vitro*.



Dilip Gunturu holds Bachelor of Veterinary Science & Animal Husbandry (BVSc & AH), Master of Veterinary Science (MVSc) Veterinary Pharmacology and Doctor of Philosophy (Ph.D.) Veterinary Pharmacology & Toxicology from S.V. Veterinary University, India. Gunturu is currently working as an Assistant Professor, Biomedical Sciences, College of Veterinary Medicine, Tuskegee University, Tuskegee, AL, and he teaches Pharmacology courses to DVM students and involved in Biomedical research. He is also professionally active as consultant in Veterinary Clinical Pharmacology folder of Veterinary Information Network (VIN). In the past, Gunturu worked in academic and industry roles as Assistant Professor, Veterinary Pharmacology and Toxicology, SV Veterinary University, College of Veterinary Science, Proddatur, AP, India; Senior Executive, Veterinary Services, Indian Immunologicals Ltd, Hyderabad, India; and as Scientist, Biopharmaceutical Research & Development, Panacea Biotec Ltd, New Delhi, India.

History of Phi Zeta Research Day

Phi Zeta Research Day in the College of Veterinary Medicine at Tuskegee University was envisioned by Dr. Ruby L. Perry in September 2012 as part of the annual Biomedical Research Symposium, which is now known as the One Health Symposium. With Dr. Perry's vision, Phi Zeta Research Day has become an annual scientific event. Dr. Ebony Gilbreath chaired the first event. Each year, sessions are scheduled to highlight student accomplishments in research as a way for them to share their research experiences with other DVM students, undergraduate and graduate students, faculty, interns, community members, and other researchers through oral and poster presentations. Students will explore career prospects in research and post-graduate educational programs. Students benefit from learning about how the connectivity of healthy people, good environment, and healthy animals is critical in influencing the future direction of healthcare and biomedical research in conjunction with the One Health Symposium. The yearly event also serves as a forum for scientists and educators to interact and share information to advance translational research toward disease treatments and prevention in human and animal health. Phi Zeta Research Day is designed and integrated with the Phi Zeta Honor Society's goal, which is to “recognize and promote scholarship and research in matters pertaining to the welfare and diseases of animals”. The Rho Chapter of Phi Zeta Honor Society was established at Tuskegee University in 1967. Students at Phi Zeta Research Day are honored with research awards, research scholarship, and other recognitions. From 2012 through 2021, hundreds of students and guests participated, and many students presented their research work in the form of posters and oral presentations.

Objectives of the event are to:

1. Encourage students to share their research with scientific community
2. Enhance the pertinent skill of being able to present and translate research data to a diverse audience
3. Provide a forum for the presentation of research being performed at Tuskegee University College of Veterinary Medicine and facilitate collegial interactions and networks

We are excited and honored to present the 10th Annual Phi Zeta Research Day at Tuskegee University College of Veterinary Medicine. It is our pleasure to present the research of TUCVM students. It is our hope that all the participants of the Biomedical Research Symposium will enjoy the scientific endeavors showcased by our students.



Theme: Strengthening Health Systems to Improve Medical Needs for Underserved Communities

Phi Zeta Keynote Speaker

Paul Goepfert, Ph.D.

Professor of Medicine and Microbiology, Department of Medicine, Division of Infectious Diseases, University of Alabama at Birmingham, and the Director of the Alabama Vaccine Research Clinic (AVRC)



Paul Goepfert is Professor of Medicine and Microbiology, Department of Medicine, Division of Infectious Diseases at the University of Alabama at Birmingham (UAB) and the Director of the Alabama Vaccine Research Clinic (AVRC). His research interests are focused on T cell immunology and vaccine design. Since the start of the pandemic, Goepfert's lab has been analyzing T cell responses to COVID-19 using samples obtained from patients and COVID-19 vaccinees at UAB. He has also led clinical vaccine studies having overseen trials designed to prevent diseases such as HIV, anthrax, HPV, HBV, smallpox, and most recently COVID-19. Goepfert is the co-chair for the Ensemble Study which demonstrated efficacy of

the JNJ COVID-19 vaccine.



Theme: Strengthening Health Systems to Improve Medical Needs for Underserved Communities

Phi Zeta Keynote Speaker

Suzanne Judd, Ph.D.

Internal Medicine Specialist,
Lawrence Internal Medicine Consulting Services, PLLC



Suzanne Judd is the Director of the Lister Hill Center for Health Policy and a Professor in the School of Public Health at the University of Alabama at Birmingham. She received her Ph.D. in Nutrition Sciences from Emory University where she led two vitamin D clinical trials. Judd is multiple PI on both the REGARDS and RURAL cohort studies which are large NIH funded epidemiological cohort studies seeking to understand disparities in chronic disease in the United States. Her experience in the US provided a platform to collaborate with European cohort studies in France through the Fulbright Scholar Program.

Judd's research focuses on the role of diet and the environment as mediators of racial disparities in the risk of hypertension, kidney disease, and stroke. Her unique combination of training in engineering, epidemiology and nutrition as well as industrial experience have provided a solid foundation to guide her research, mentorship, collaboration and public health communication. As such, she is a widely sought out expert in communicating with scientific and non-scientific audiences alike.

Suzanne Judd <https://scholars.uab.edu/display/sejudd>



*Theme: Strengthening Health Systems to Improve
Medical Needs for Underserved Communities*

Phi Zeta Keynote Speaker

CDR Temeri Wilder, DVM, MPH, DACLAM

US Public Health Service Officer, Animal Welfare Program Specialist,
OLAW, NIH



CDR Temeri Wilder is an US Public Health Service Officer currently located in the Office of Laboratory Animal Welfare (OLAW) as an Animal Welfare Program Specialist at the National Institutes of Health (NIH) in Bethesda, Maryland. CDR Wilder is a Class of 2006 graduate of the Tuskegee University College of Veterinary Medicine. Upon graduation, she worked as a Veterinary Medical Officer/Public Health Veterinarian with the US Department of Agriculture Food Safety Inspection Service for two years.

In 2008, she was commissioned into the United States Public Health Service Commissioned Corps as a Lieutenant (LT) and was the first resident accepted into the newly-established Centers for Disease Control and Prevention Laboratory Animal Medicine Residency Program (LAMRP). At the completion of the CDC LAMRP, CDR Wilder became specialty board certified by the American College of Laboratory Animal Medicine in 2011 and joined the National Institute of Allergy and Infectious Diseases Comparative Medicine Branch (NIH) in 2012, where she served for 10 years.

CDR Wilder deploys on humanitarian missions as needed, as well as public health crises such as the current coronavirus pandemic and Ebola Response Mission in Monrovia, Liberia. As a member of the Illustrious Zeta Phi Beta Sorority, Inc. and numerous professional organizations, she is a strong advocate of student mentorship, professional development and educating the community about laboratory animal medicine and science and how they are critical to the advancement of public health.

Phi Zeta Speaker

Raphael A. Malbrue, BS, MS, Ph.D.

Associate Director for The Abigail Wexner Research Institute at Nationwide Children's Hospital (Animal Resources Core)



Raphael A. Malbrue is a native of Baton Rouge, LA. He completed his undergraduate and veterinary school training at Tuskegee University. He then went on to complete a residency program in Laboratory Animal Medicine at Louisiana State University. In conjunction with his residency program, Malbrue also completed a Master's of Science degree in Biomedical and Veterinary Medical Sciences through the Department of Pathobiological Sciences at Louisiana State University and became a Certified Aquatic Veterinarian (WAVMA). He is currently the Associate Director for The Abigail Wexner Research Institute at Nationwide Children's Hospital (Animal Resources Core) where he oversees the clinical medicine, husbandry, and residency training programs. He additionally is an assistant professor-adjunct in the Department of Preventative Medicine, College of Veterinary Medicine for The Ohio State University and is the immediate past president for the National Association for Black Veterinarians (NABV). Dr. Malbrue is an officer (rank-Captain) in the United States Army Reserve (7356th Veterinary Detachment). His research interest includes methods to improve diversity and wellness in veterinary medicine, aquatic animal medicine, and implementation of the three R's (replacement, reduction, and refinement) in biomedical research. He currently serves as a member on both the diversity and admissions committees for The Ohio State University College of Veterinary Medicine.



Theme: Strengthening Health Systems to Improve Medical Needs for Underserved Communities

Phi Zeta Speaker

Nelson Diaz, DVM, MS, MBA

Veterinary Technical Services Veterinarian for Merck Animal Health



Nelson Diaz graduated in Animal Sciences from Purdue University in 1983. He received his MS in Physiology/Pharmacology from the University of Arkansas in 1985, followed by his DVM from Tuskegee University, College of Veterinary Medicine in 1990. Following several years in small animal practice and teaching at San Juan Bautista School of Medicine, he obtained his MBA in Marketing from Turabo University in Puerto Rico. During Diaz's tenure at San Juan Bautista School of Medicine, he was also the Veterinary Director for the Animal Research Center. Diaz then joined Royal Canine Veterinary Diets in 1995 as a Veterinary Development Manager and in 1999; he became a Veterinary Technical Services Veterinarian for Merck Animal Health. Diaz is also a guest lecturer in Pharmacology and Internal Medicine at TUCVM.



*Theme: Strengthening Health Systems to Improve
Medical Needs for Underserved Communities*

Phi Zeta Keynote Speaker

K. Scott Squires, DVM

Veterinarian in Charge Alabama FiOPS District 1
USDA, Animal and Plant Health Inspection Service, Veterinary Sciences



Squires is the Area Veterinarian in Charge for Alabama. He is the chief Federal Veterinarian for Alabama. He is responsible for managing animal disease surveillance programs and response to animal health emergencies such as Highly Pathogenic Avian Influenza and Exotic Newcastle disease. He also manages a variety of regulatory functions including veterinary accreditation, foreign animal disease diagnostics, import and export of animal and animal products and work on other emerging diseases of Livestock (poultry, cattle, swine, horses etc.). He has been employed by Animal and Plant Health Inspection Service (APHIS), Veterinary Services (VS) since 2007 in a variety of positions.

Squires earned his Doctor of Veterinary Medicine from Tuskegee University School of Veterinary Medicine in 1989. Prior to his current position, he was the Assistant Veterinarian in Charge for Veterinary Export Trade Services covering the Southeastern US. He also spent 6 years as a Field Veterinary medical office in North Carolina, three years as an Import/Export Veterinarian in Kentucky. Prior to joining APHIS, he was a Public Health Veterinarian with FSIS and spent several years in private practice.



***Theme: Strengthening Health Systems to Improve
Medical Needs for Underserved Communities***

Phi Zeta Oral Presenter

Kamaria Palmer

Second Year Veterinary Student
College of Veterinary Medicine, Tuskegee University



Expression and Localization of Nephron Progenitor and Ureteric Bud Markers in the Feline Developing Kidney

Kamaria Palmer, Garfield Grimmett, Athema Etzioni, and Pawan Puri

Department of Biomedical Sciences, Tuskegee University College of Veterinary Medicine, Tuskegee, Alabama

Chronic Kidney disease (CKD), characterized by nephron loss, is second among the most common causes of mortality in cats aged five and over. Currently, there are no treatment options to prevent nephron loss and restore renal function in CKD. Nephron progenitor (NPs) cells give rise to all cells of the nephron whereas, ureteric bud (UB) cells develop into collecting ducts. NP-based therapies have the potential to stimulate nephron regeneration to address nephron loss. Molecular markers of feline NPs and UB cells are unknown. We hypothesized that the markers of NPs and UB in the developing feline kidney are highly conserved in sequence, expression, and localization between cats and humans. We utilized NCBI sequence similarity search tool, BLAST, to determine the percent identity between protein sequences of feline and human homologues of NP markers SIX2, SIX1 and ITGA8 and a UB marker, GATA3. We studied the expression and localization of these markers in the feline embryonic and fetal kidney by co-immunofluorescence (Co-IF). BLAST results showed that NP markers SIX2, SIX1, and ITGA8 shared 96%, 99%, and 91% similarity respectively, at the amino acid level between feline and human whereas, a UB marker GATA3 showed 96% similarity. Co-IF data showed that in the feline developing kidney, SIX2 and SIX1 were present in the nucleus of NPs whereas ITGA8 showed membrane localization. Besides NPs, SIX2, SIX1, and ITGA8 expression was also detectable in the NP-derived renal vesicle. GATA3 was expressed in the E cadherin positive UB and mesangial cells of the developing glomerulus. Our results determined markers to identify feline NPs and UB cells and suggest functional significance of these markers in feline renal development.

Research Grant:

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Student Support:

National Institutes of Health project # 5T35OD010432

Phi Zeta Oral Presenter

Lauryn Duhart

Second Year Veterinary Student
College of Veterinary Medicine, Tuskegee University



Synthesis and *invitro* Evaluation of Irinotecan Loaded Chitosan Nanoparticles Against Colorectal Cancer

Lauryn Duhart, Dilip Reddy Gunturu and Temesgen Samuel
Department of Biomedical Sciences (Duhart, Gunturu);
Pathobiology (Samuel), College of Veterinary Medicine, Tuskegee
University, AL 36088

Colorectal cancer is the third most frequent cancer in males, and the second most common cancer in women. The topoisomerase inhibitors that cause apoptosis and are used to treat a variety of malignancies, including colon cancer. Irinotecan (IRI) is a topoisomerase-I inhibitor that is used in this study. It is a fact that anticancer medications alone have not always been successful due to severe adverse effects and therapeutic failures with relapses. The use of nanoparticle drug delivery systems has heralded a new era in cancer research. According to many studies, the formulation of anticancer medicines into nanoparticles is known to boost the efficiency. We synthesized chitosan-tripolyphosphate nanoparticles loaded with IRI to test on colorectal cancer cells. Biodegradability, better drug bioavailability, muco-adhesive characteristics, and greater safety are advantages of employing chitosan nanoparticles. Ionic gelation method is used to synthesize nanoparticles. The synthesized nanoparticles are characterized for loading efficiency and particle size. Furthermore, we evaluated the effect of nanoparticles on colorectal cancer cells and found that the chitosan encapsulated IRI nanoparticles exhibited significantly lower cell viability and encouraging results on cell cycle analysis by flowcytometry. Future research will be conducted based on the findings of current investigations.

Research Grant: This research was supported by grants from NIH T35OD010432, DHHS/HRSA D34HP00001-35-00, and NIH/NIMHD RCMI grant # U54MD007585

Student Support: Boehringer Ingelheim Veterinary Scholars Program and TU-CVM - Center of Excellence

Phi Zeta Oral Presenter

McCoy Williams

Second Year Veterinary Student
College of Veterinary Medicine, Tuskegee University



Potential Use of Biosensor for Rapid and Specific Isolation of *Listeria monocytogenes* from Fresh Salads, Deli Meat, and Frozen Vegetables

McCoy Williams¹; Rawah Faraj¹; Alocilja Evangelyn²; Woubit Abebe¹

¹Center for Food Animal Health, Food Safety, and Food Defense, Department of Pathobiology, College of Veterinary Medicine, Tuskegee University, Tuskegee, Alabama; ²Department of Biosystems and Agricultural Engineering, Michigan State University, East Lansing, Michigan

The use of magnetic nanoparticles (MNP) and gold nanoparticle (GNP) technology in laboratory settings has allowed for the rapid detection of pathogens through their adherence to negatively charged particles (MNP) and their unique colorimetric properties (GNP). This work used *Listeria monocytogenes* (ATCC 19117) as a biosensing and target capture model. *L. monocytogenes* (LM) is an important foodborne pathogen that can grow at low temperatures (1-45°C). The initial GNPs and LM-specific DNA biosensor experiment demonstrated optimal colorimetric detection at 2.5ng/μl DNA of *L. monocytogenes*, even in mixed DNA with non-target *E. coli*. When using MNPs, the capture of *L. monocytogenes* from a pure culture was as low as 1.5 colony-forming units/ml (CFU/ml). Combining MNP capture with GNP biosensor resulted in rapid detection of 1.5 CFUs/ml of *L. monocytogenes* without the extra need for DNA extraction. In the presence of food matrix such as spinach, MNPs captured as low as 15 CFUs/ml of *L. monocytogenes* from naturally contaminated food. Promising evidence of successful direct MNPs capture and specific GNPs detection was obtained with an only 1 hour incubation period of naturally contaminated premade salad. Our finding is noteworthy considering that the approximate infective dose of *L. monocytogenes* is as little as 10 to 100 million CFU in healthy hosts and only 0.1 to 10 million in high-risk individuals. This technology is easily transferable to a field level for the rapid and specific detection of *L. monocytogenes*, helping to reduce possible foodborne illness and complications.

Research Support: USDA/NIFA/CBG 2021-38821-34710, MSU/USDA/NIFA RC113747TU

Students Support: DHHS/HRSA D34HP00001-35-00, NIH/NIMHD RCMI grant # U54MD007585

Phi Zeta Oral Presenter

Pauline Hunter

Third Year Veterinary Student
College of Veterinary Medicine, Tuskegee University



Correlations between Periodontal Disease and Systemic Health using Intraoral Radiographs and Clinical Pathology

Pauline Hunter, Asseged B. Dibaba, Noriko Aoi
Departments of Small Animal Clinical Sciences (Hunter, Aoi), and Pathobiology (Dibaba), College of Veterinary Medicine, Tuskegee University, Tuskegee, Alabama

Periodontal disease (PD) is one of the most common diseases among canines and felines. It is induced by the dental microbial biofilm along with an inflammatory response, which destroys the supporting structure of teeth. As in humans, the prevalence of periodontal disease increases with age in dogs and cats, and it is known to occur more frequently in smaller dogs. As the main entrance to the gastrointestinal tract, it has been speculated that the oral cavity has some association with systemic health in both humans and animals. Suggested systemic associations in humans and dogs include, but are not limited to, cardiovascular disease, diabetes, kidney disease, auto-immune diseases, anemia, and obesity. Our previous study found anemia (low RBC, HCT, HGB), decreased creatinine, and thrombocytosis to be common in canine dental cases that required tooth extractions. Subjects in this study were canine and feline patients who were presented for dental procedures in 2021-2022 at the Veterinary Medical Teaching Hospital at Tuskegee University College of Veterinary Medicine. Here, we retrospectively staged each tooth on the intraoral radiographs to obtain a total PD scores per patient and average PD score per tooth, and then compared with the clinical pathology data (complete blood cell counts and serum chemistry) of each patient to investigate any indications that severity of the PD affected systemic health differently. Logistic regression showed statistically significant increases in globulin with the average PD score per tooth; however, no other statistical differences were found in other items of this study.

Research Grant: DHHS/HRSA D34HP00001-35-00 and NIH/NIMHD RCMI grant # U54MD007585

Student Support: DHHS/HRSA D34HP00001-35-00

Phi Zeta Oral Presenter

Savannah Simon

Second Year Veterinary Student

College of Veterinary Medicine, Tuskegee University



Quantitative Analysis of Three Salmonella Serotypes from Different Food Sources

Savannah Simon; Rawah Faraj; Woubit Abebe

Center for Food Animal Health, Food Safety, and Food Defense,
Department of Pathobiology, College of Veterinary Medicine, Tuskegee
University, Tuskegee, Alabama

Salmonellosis is the second leading cause of foodborne illness in the United States, causing over 1.35 million cases annually and about 400 deaths. In addition, it has been identified as one of the top zoonotic diseases of national concern by organizations, including the CDC and the USDA. Globally, Salmonellosis accounts for over 90 million cases of foodborne illness each year and is associated with billions of dollars in economic loss. Out of over 2,500 *Salmonella* serotypes, approximately 100 of these are responsible for causing disease in humans. Although *Salmonella* can be transmitted via direct contact with infected people or animals, consumption of contaminated food accounts for 70% of cases of Salmonellosis. Based on outbreaks in the United States between 2018-2020, we chose to isolate, identify, and quantify *Salmonella* serovars Schwarzengrund, Braenderup, and Newport from raw ground turkey, eggs, and red onions. We analyzed 31 food samples purchased from grocery stores in the Auburn and Tuskegee area. Using specific agar - XLT4, we identified 15 *Salmonella-positive* samples. After extracting the DNA from Rappaport-Vassiliadis Salmonella Enrichment Broth, we used specific primers to determine the presence of these serovars.

We found *S. Braenderup* in one and *S. Schwarzengrund* in three ground turkey samples. A total of seven samples contained *S. Newport*, including three egg and four ground turkey samples. Specific quantification of each serovar demonstrated different contamination levels ranging from 443 cells for Schwarzengrund to 2070 cells for Newport per 10gm of food sample. The quantitative analysis using TaqMan assay revealed the total level of *Salmonella* contamination at 4.48×10^5 cells per 10gm of ground turkey. Our overall finding of all food samples showed ground turkey to be the most *Salmonella*-contaminated food with a 92 % positivity rate. In addition, through a microplate genotyping array (previously developed in this lab), we detected *S. Braenderup*, *S. Schwarzengrund*, *S. Johannesburg*, and other serovars at a low dose from the same ground turkey food sample. This finding uncovered the likely presence of multiple serotypes; and a potential for simultaneous contamination of food samples with several *Salmonella* serovars.

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Phi Zeta Poster Presenter

Chris Andrews

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Inhibition of Ubiquitin Receptor ADRM1 for the Treatment of Metastatic Breast Cancer

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Adhesion-regulating molecule 1 (ADRM1) is a polyubiquitin receptor on the 26S proteasome. ADRM1 is upregulated in many cancers. In this study, we evaluated the potential prognostic and predictive value of ADRM1 in breast cancer patients. We determined the expression of ADRM1 and its relationship to breast cancer subtypes, using the Cancer Genome Atlas dataset that contained racial and clinical outcomes data totaling 1108 patients. The ADRM1 mRNA expression levels were divided into quartiles to designate the ADRM1 high versus low expression designation. Karanam et. al developed an orally available proteasome inhibitor bis-benzylidene piperidone (RA190), that binds to the ubiquitin receptor RPN13/ADRM1 on the 19S regulatory particle of the proteasome and directly kills cancer cells by triggering proteotoxic stress. RA190 binds to cysteine 88 of ADRM1/RPN13, triggering rapid accumulation of high-molecular-weight poly-ubiquitinated proteins resulting in apoptosis. Up284 is one of a second generation of small molecules that mimic RA190 activity. The objective of this study is to verify the role of ubiquitin receptor RPN13/ADRM1 in metastatic breast cancer samples of European American and African American patients and identify the safe combination of regimens of bortezomib in combination with Up289 to mitigate recurrence, metastasis and reduce mortality in AA TNBC/QNBC. Clinically, this will reveal a new, hitherto unknown targeted regimen for AA QNBC. From the biological perspective, it will provide insights into the underlying molecular changes that are associated with health disparities. Currently available treatments are unable to eradicate metastatic breast cancer specifically those classified as QNBC. Our preliminary analysis of Cancer Genome Atlas (TCGA) indicated that ADRM1 expression is highly expressed in AA versus EA breast cancer patients, resulting in a worse overall survival. Further analysis of ADRM1 in QNBC patients indicated that it was significantly elevated predominantly in African American patients with QNBC.

Research Support

This work is supported by subcontract from R01-CA220297-01 (NIH/NCI) (BK) and U54-MD007585-26 NIH/NIMHD [CY], U54 CA118623 (NIH/NCI) [CY], (NIH/NCI)

Phi Zeta Poster Presenter

Nina Davis

Second Year Veterinary Student
College of Veterinary Medicine, Tuskegee University



Comparison of Lipid Droplets in Oocytes from Small, Intermediate, and Large Ovarian Follicles in Cats

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Oocyte quality improves as ovarian follicles grow in size; hence, oocytes from large follicles are better candidates for in vitro embryo production. Lipid content also affects oocyte quality with higher lipid content found in better quality oocytes. However, high lipid content of oocytes and embryos compromises cryosurvival. The present study was conducted to evaluate the feasibility of using the z-stack to estimate lipid droplets (LD) in oocytes from small, intermediate, and large ovarian follicles. Ovaries were examined for distribution of follicles by size and separated into those with Small, Intermediate and Large follicles. Cumulus-oocyte-cumulus complexes (COCs) were recovered by slicing each follicle in PBS-PVP. COCs were then denuded using 1 $\mu\text{g/ml}$ hyaluronidase. Once cumulus cells were removed, the oocytes were fixed in 4% formalin until staining. Oocytes were taken out of formalin and washed in PBS containing Hoechst 1 $\mu\text{g/ml}$ stain, and transferred to a medium with Nile red 10 $\mu\text{g/ml}$ stain and incubated. The oocytes were then washed in PBS and mounted on to a microscope slide for Imaging and z stacking analysis using the Lionheart microscope. Oocytes from small follicles had the greatest fluorescence intensity and percentage of large lipid droplets, but fewer lipid droplets per oocyte. Oocytes from intermediate follicle had the most amount of total lipid droplets. Oocytes from large follicle had higher percentage of small lipid droplets and lowest fluorescent intensity. It is concluded that, using the Z-stack method, oocytes originating from follicles of different sizes display differences in the presence of LD size, number and fluorescent intensity. Further research is needed to evaluate how these differences affect the actual lipid content of the oocytes.

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Phi Zeta Poster Presenter

Ahmed Ghazy

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Impact of the Application of Red Beetroot and Radish Powders as Natural Nitrite Substitutes on the Quality of the Oriental Sausage

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To explore the efficacy of red beet and radish powder substitution to sodium nitrite in oriental sausage, four groups of sausage batter were processed. The first group (N) was formulated with 100ppm of Sodium nitrite, while the 2nd (BR) was produced with 0.065% beetroot powder, the 3rd (R) was prepared with 0.065% radish powder, and finally, 4th group (NBR) was prepared with 0.065% beetroot powder + 100ppm Sodium nitrite. All sausage groups were examined for the changes in the sensory attributes, physicochemical criteria, nitrite residue, and bacterial load immediately after production and every month for three months during frozen storage at -18 °C. The achieved result revealed that the addition of both red beetroot and radish powder significantly improved the sensorial and instrumental color indexes through the whole storage time. Residual nitrite in NBR was significantly lower than the control group at zero time and 1st month of frozen storage, while at end of the storage period N group showed lower nitrite residue than NBR group. Sodium nitrite and beetroot powder treated group revealed good antimicrobial activity than that of radish powder alone. Beetroot and radish powder considered a good and stable colorant with antimicrobial effect that more investigation is required to explore their role as nitrite substitution in oriental sausage.

Research Support: Faculty of Veterinary Medicine Cairo University

Phi Zeta Poster Presenter

Evan Griggs

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IgY and vitamin D3 Combo prevent *S. aureus* Internalization by HC11 Cells

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Staphylococcus aureus is a ubiquitous gram-positive opportunistic pathogen of the mammary tissue. Infection by *Staphylococcus aureus* within the mammary tissue causes inflammation leading to mastitis. Therefore, the bacteria are shed in the milk and hinder its production. The most cost-effective treatment to date is slaughter. This study aims at exploring an alternative method of controlling mastitis in-vitro by determining the treatment efficacy of combined IgY (IgY) and vitamin D3 (C) on HC11 mouse mammary epithelial cells. Ten treatment concentration combinations were evaluated: Negative control, Positive control, IgY 5µg/mL, IgY 5µg/mL C 20nM, IgY 5µg/mL C 50nM, IgY 5µg/mL C 80nM, IgY 10µg/mL, IgY 10µg/mL C 20nM, IgY 10µg/mL C 50nM, and IgY 10µg/mL C 80nM. The most effective treatments in internalization reduction were IgY 5µg/mL C 50nM and IgY 10µg/mL C 80nM (97%), and IgY 10µg/mL C50nM (96%). These findings provide data on future non-antibiotic treatments for mastitis.

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Phi Zeta Poster Presenter

Mark Harden

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Creation and Validation of PCR Primer Sets to Amplify Two T Cell Receptor Genes in Research Chicken Lines

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The adaptive immune system is the one of, and arguably the most important, defense an organism utilizes to fight invading pathogens and cancers. A critical portion of adaptive immunity are T cells; cells capable of analyzing foreign antigens and allow antigen-specific immune response. With the wide diversity of known and unknown pathogens T cells must in turn diversify themselves, specifically, the receptor regions on the T cell. Two methods to diversity T cell receptors (TCR); from within the individual and from generation to generation, are gene recombination (VDJ recombination) and the TCR germline. VDJ recombination occurs within somatic cells themselves, giving rise to multiple variations in TCR to interact with as many pathogens as possible. TCR germline diversity creates evolutionary pathways in future generations; however, environmental pressures select specific TCR that are viable for said individual's environment, in this case, able to control specific pathogens. As we develop treatments and controls for pathogens and cancers it is essential to understand what TCR genes have high affinity to associated antigens. For the purpose of identifying TCR diversity between individuals and within a population polymerase chain reaction (PCR) is an affordable and practical technique to replicate DNA. In this project, we will be developing PCR amplicons to be used in a next gen sequencing assay, identifying all potential variations in the variable (V) and joining (J) sequences within the TCR Alpha and Beta genes in 3 inbred chicken lines.

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Phi Zeta Poster Presenter

Jamia Mason

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Effects of Supplements and Pellet Size on Cryosurvival of Canine Spermatozoa

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Sperm vitrification is an emerging method of cryopreservation. Egg yolk has been widely used as an addition to semen extenders because of its ability to preserve mammalian spermatozoa against cold shock during the freeze-thaw process. The aim of this study is to examine the effects of selected supplements and egg yolk cooling tolerance and post thaw motility of canine spermatozoa. Sperm samples were extracted from cauda epididymis of dogs using phosphate buffered saline (PBS). Samples were divided into seven treatments: 1) Tris-citric acid-sucrose (TCS), 2) TCS + 1mg/ml myo-inositol (MI), 3) TCS + 0.01% vitamin D (VD), 4) TCS + 1mg/ml beta-alanine (BA), 5) TCS + 1mg/ml MI + 0.01% VD + 1mg/ml BA, 6) TCS + 20% egg yolk (TCS-EY), and 7) TCS-EY + 1mg/ml MI + 0.01% VD + 1mg/ml BA. After cooled for one hour, samples were vitrified in 33 μ l pellets. Pre-freeze and post-thaw total motility (TM), total progressive motility (TPM), percent viability (PV), time-average velocity (VAP), and straightness were analyzed by computer-assisted sperm analysis (CASA). Post thaw TM, TPM, PV, VAP, and straightness were 0-14.6%, 0-4.5%, 1.4 98.6%, 0-139.5 μ m/s, and 0-99%, respectively. Treatments did not affect ($P \geq 0.05$) post-thaw TM, TPM, PV, VAP, and straightness. However, supplementation of media with myo-inositol has beneficial effects on sperm cryosurvival. Further investigation of different concentrations of myo-inositol may be valuable. These findings may be beneficial to food animal production and conservation of endangered species.

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Phi Zeta Poster Presenter

Shakara McGirt

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Evaluation of Food Diagnostic Techniques and Euthanasia Methods in the Detection of *Aeromonas* spp. in Siluriformes

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Aquaculture is the fastest-growing food industry globally. Siluriformes production is the major fish species in the USA, with the Southeastern States accounting for over \$350 million in total sales. Unfortunately, the Siluriformes industry has been plagued with infectious diseases, primarily but not limited to bacterial pathogens. One of such infectious diseases, Motile *Aeromonas* Septicemia (MAS), is caused by *Aeromonas hydrophila*. Since 2009, this infectious disease has caused an annual loss of over \$12 million within the sector. Other *Aeromonas* spp. infections in fish include Red Sore Disease and fin and tail rot. Due to the adverse effect this infectious disease causes within the industry, it is essential that proper screening and diagnostic methods and choices are made before an outbreak occurs. Proper screening and diagnostic approaches will ensure that mitigation strategies are effective. Therefore, this study aimed to (1) evaluate enrichment procedures for detecting *Aeromonas* spp. using food diagnostic approaches and (2) investigating the effect of MS-222 on the detection of *Aeromonas* spp. compared with a nonchemical method of euthanizing fish. Our results showed that it was possible to detect *Aeromonas* spp. using the food diagnostic approach with higher odds of detection using the maceration technique than the rinsing technique. Additionally, MS-222 samples showed a lower prevalence of *Aeromonas* spp. compared with the nonchemical euthanasia option used, suggesting MS-222 may affect the isolation of *Aeromonas* spp.

Keywords: Aquaculture, diagnosis, *Aeromonas* spp., MS-222, Siluriformes

Research Grant: DHHS/HRSA D34HP00001-35-00, NIH/NIMHD RCMI grant # U54MD007585, and USDA/NIFA NI21AHDRXXXXG022

Student Support: Tuskegee Veterinary Scholars Program

Phi Zeta Poster Presenter

Roxanna Neo

Small Animal Rotating Intern
College of Veterinary Medicine, Auburn University



Comparing Mirnas across Farm, Human and Companion Animals to Investigate Potential Biomarkers of Disease in Veterinary Medicine

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The Roslin Institute, University of Edinburgh, Edinburgh,
United Kingdom

MiRNAs are short, single-stranded non-coding RNA molecules which play a key role in post-transcriptional gene regulation. The highly stable nature of circulating miRNAs in biofluids allows for their use as non-invasive biomarkers of diseases. MiRNAs allow for the early detection of diseases, help distinguish specific pathogens and harness the potential to detect latent infections. Although there are studies describing miRNAs as biomarkers in humans, such as in cancer, hepatic disease, and cardiovascular disease, there are limited studies exploring their potential in animals. Current biomarkers in veterinary medicine including canine C-reactive protein and acute-phase proteins have activities easily influenced by exogenous factors such as storage conditions and other clinical abnormalities like inflammation. A systematic review was thus conducted, considering peer-reviewed journal articles published in English since 29th June 2007, using mirBase to identify miRNA homologues across species. Six additional miR-sequencing studies in humans and animals were found and miRNAs compared with that of cattle miRNAs in terms of abundance. Synthesising previously published miRNA tissue expression metadata, particular tissue-specific miRNAs were identified and corroborated with a secondary literature search. It was concluded that there exist potential miRNAs that have yet to be explored in veterinary species, with the need to further confirm the utility of these miRNAs as biomarkers in clinical settings. Specifically, miR-122, a consistently liver-enriched miRNA across all species, has the potential to serve as a reliable diagnostic and prognostic biomarker to detect acute liver failure in canine patients, which will be explored in a future study.

Research Support: The Roslin Institute, University of Edinburgh, Edinburgh, United Kingdom

Phi Zeta Poster Presenter

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Prevalence and Antibiotic Resistance Trends of *Enterococcus* spp. from Siluriformes within Alabama

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Aquatic environments and animals are now considered hotspots for antimicrobial resistance (AMR). Aside from this concern, foodborne illnesses from seafood and fish products have significantly increased over the last decade, overtaking poultry products. With growing public health concerns on food safety and AMR, this study aimed at (1) investigating the prevalence of *Enterococcus* spp. within Siluriformes and (2) investigating the antibiotic trends in *Enterococcus* spp. isolated from Siluriformes within Alabama. In this research, we sampled Siluriformes from RAS and pond facilities within Alabama and cultured them to isolate *Enterococcus*. Disc diffusion assay for antibiotic susceptibility profile was later conducted on these isolates. Our findings showed a percent positive prevalence of 88.29 for *Enterococcus* spp. isolated from Siluriformes. Further analysis revealed a lower prevalence of 80.48% positivity in RAS tanks and 100 positivity in ponds, where Siluriformes are raised to harvest. The AMR findings revealed that *Enterococcus* spp. was resistant to rifampin. Furthermore, *Enterococcus* spp. showed intermediate susceptibility to azithromycin, suggesting gradual resistance of the bacterium to this drug.

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Phi Zeta Poster Presenter

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Kaiso – A Promising Novel Therapeutic Target in the Treatment of Prostate Cancer

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As one of the most common malignancies among men and globally, prostate cancer is still affected by racial disparities relative to a different response to treatment and poor overall survival among patients. Androgen receptor has a pivotal role in the progression of prostate cancer. Therefore, Androgen deprivation therapy (ADT) is the front-line treatment for prostate cancer. But ultimately, they turn into castration-resistant prostate cancer (CRPC), leading to earlier mortality and inadequate prognosis. Kaiso as a transcriptional regulator has been implicated in African American and Caucasian American prostate cancer patients, while the therapeutic role of androgen receptor antagonist enzalutamide was underscored. In an attempt to give further insight into the role of kaiso in cancer disparities, we set to evaluate the effect of low and higher doses of enzalutamide treatments (3,5 & 7 days) on C42B and RC- 77T cell lines while focusing on kaiso-protein and Kaiso-DNA interactions. MTT, RT-qPCR, (Rapid immunoprecipitation mass spectrometry of endogenous protein (RIME) and Cleavage Under Targets and release using nuclease (Cut and Run) assays have been determined to be performed based on their standard procedures. So far, based on the MTT assay, the enzalutamide was cytotoxic to RC-77T cells maximally at 60 μ M across different treatment conditions but to C42B Cell line (CRPC) the enzalutamide resistance was observed on day 5 & 7. However, the result from RT-qPCR on kaiso mRNA levels shows the expression of kaiso on different concentrations of enzalutamide to both RC-77T and C42B. The treatment with enzalutamide maximally upregulated the expression of kaiso at 30 μ M concentration in C42B and upregulated in 10 μ M,20 μ M&30 μ M in RC-77T. Therefore, it implies that kaiso has a correlation with the treatment of the androgen blocker enzalutamide and CRPC.

Research Support: U54 CA118623

Phi Zeta Poster Presenter

Jason White

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Whole-exome Sequencing of Nigerian Prostate updates Tumors from the Prostate Cancer Transatlantic Consortium (CaPTC) Reveals DNA Repair Genes Associated with African Ancestry

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We used whole-exome sequencing of a cohort of 45 advanced-stage, treatment-naïve Nigerian (NG) primary prostate cancer (PCa) tumors and 11 unmatched non-tumor tissues to compare genomic alterations with African American (AA) and European American (EA) TCGA PCa. *BRCA1* (100%), *BARD1* (45%), *BRCA2* (27%), and *PMS2* (18%) had germline alterations in at least two NG non-tumor samples. The AA cohort reflected a pattern [*BRCA1* (68%), *BARD1* (34%), *BRCA2* (28%), and *PMS2* (16%)] similar to NG samples. *BRCA1* showed a statistically ($p \leq 0.05$) higher germline mutation frequency in men of African ancestry (MAA) and increasing variant frequency with increased African ancestry. Driven by rs799917 (T>C), *BRCA1* showed an increasing mutation frequency as African admixture increased. 133 somatic variants were present in 26 PCa-associated genes within the NG tumor cohort. *BRCA2* (27%), *APC* (20%), *ATM* (20%), *BRCA1* (13%), *DNAJC6* (13%), *EGFR* (13%), *MAD1L1* (13%), *MLH1* (11%), and *PMS2* (11%) showed mutation frequencies > 10%. Compared to TCGA cohorts, NG tumors showed statistically significant elevated frequencies of *BRCA2*, *APC*, and *BRCA1*. NG variant patterns shared similarities (cosign similarities ≥ 0.734) with COSMIC signatures 5 and 6, and mutated genes showed significant ($q < 0.001$) enrichment in mismatch repair and non-homologous repair deficiency pathways. Here, we showed that alterations in DNA damage response (DDR) genes were higher in NG PCa samples and that a portion of those alterations correlates with African ancestry. These results present the most comprehensive characterization of the NG PCa exome to date and highlight the need to increase diversity of study populations.

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Phi Zeta Poster Presenter

Jatna Rivas Zarete

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Generation of Smooth Muscle-Specific G Protein-Coupled Estrogen Receptor (GPER) KO Mice

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The involvement of estrogen receptors in smooth muscle activity, health and pathology is not well documented. Estrogen receptors contribute to gastroesophageal reflux and gastroparesis. Gastroparesis risk is increased in men and postmenopausal women; this may be explained by the role of estrogen receptors in peristalsis. Studies show that GPER knockout mice have increased overall body weight, fat content, decreased energy expenditure and brown fat thermogenesis, hyperglycemia, and glucose tolerance impairment. However, there are no smooth muscle-specific GPER knockout models to study its role in gastrointestinal function. In this experiment, a smooth muscle-specific GPER knockout mouse model has been created to enable the exploration of the importance of estradiol and the GPER receptor in the gastrointestinal smooth-muscle. Homozygous GPER floxed mice were purchased from Wake Forest University and bred at the CVM Small Animal Facility to preserve the GPER flox genotype. F1 generation was bred to heterozygous SM22Cre mice (Jackson Laboratories), which produce the Cre recombinase under the control of the mouse smooth muscle transgelin promoter. F2 mice were genotyped by the Celplor LLC. laboratory, revealing heterozygous GPER flox/GPER mice that also carried the Cre gene. These GPER flox/GPER Cre mice were further bred to homozygous GPER flox mice, producing some F3 that were homozygous for GPER flox, and heterozygous for the Cre gene, thus resulting in smooth muscle specific GPER knockout mice with a GPER flox/ GPER flox Cre genotype. This should further the research capacity for gastrointestinal smooth muscle functions that are mediated by the GPER gene.

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Notes:

[illegible]



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Thank You

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