THEME:Celebrating Tuskegee's Research Legacy: Advancing Knowledge and Global Impact

September 16-17, 2024

Patterson Hall Auditorium

College of Veterinary Medicine | Tuskegee University

1200 W. Montgomery Road | Kresge Center, Suite 308 | Tuskegee, AL 36088 | Phone: 334-727-8501 | Fax: 334-727-5276
www.tuskegee.edu

/DZUHQFH ³7RQ\´ +D\JRRG -U

Mayor, City of Tuskegee, Alabama

In August 2016, Lawrence “Tony” Haygood, Jr. was elected Mayor of the City of Tuskegee in Alabama. Prior to that time, he served four years on the Tuskegee City Council as Councilman-at-Large, Mayor Pro Tem. The previous governor appointed Mayor Haygood to the Alabama Workforce Development Board in 2016 where he continues to serve to date. He also currently serves on the River Region United Way Board. In 2020, Haygood was selected as Chairman of the Board of the Alabama Municipal Funding Corporation (AmFund). In 2022, he was elected to serve as President of the Alabama League of Municipalities.

Currently, Haygood serves as Chairman of at the Tuskegee-Macon County Community Development Corporation (TMCDC). As Economic/Business Development Specialist, he works closely with the Tuskegee University Cooperative Extension Program and TMCDC staff to promote business and industrial development, land improvement efforts for community corridors, coordinate housing rehabilitation projects, conduct entrepreneurial training, and manage a business incubator with a community revolving loan fund. As a grant writer, Haygood also works with TUCEP and TMCDC staff to acquire substantial grant funding for community programs.

Haygood was Vice-Chairman of the Historically Black Colleges and Universities (HBCU) Community Development Action Coalition (CDAC) national board. Earlier, he served as President of Southern Community College for more than 20 years.

Additionally, Haygood served as a local tour guide and planner for Tuskegee tourism. He was selected as the Alabama State Tree Farmer of the YererS386 ((er)-3orks)-06 ((es85 (Unive)2)-386 cei)-318 (as) Yerskeg

COLLEGE OF VETERINARY MEDICINE

We are pleased to welcome you to the 25th Annual One Health Symposium and 12th Phi Zeta Research Day hosted by Tuskegee University College of Veterinary Medicine (TUCVM).

25th Annual One Health Symposium

Theme: Celebrating Tuskegee's Research Legacy: Advancing Knowledge and Global Impact

Tuskegee University College of Veterinary Medicine

Monday, September 16, 2024

9:00 a.m. – 9:05 a.m.	Opening Session: Athema Etzioni, DVM, MS, Diplomate ACVP, Co-Chair, Associate Professor and Section Chief of Clinical Pathology, Department of Pathobiology, College of Veterinary Medicine, Tuskegee University Moderator: Torhonda C. Lee, Ph.D., MCHES, Associate Professor and Department of Graduate Public Health, College of Veterinary Medicine, Tuskegee University
9:05 a.m. – 9:15 a.m.	Greetings: Mark Brown, Ph.D., President, Tuskegee University Welcome: Ruby L. Perry, DVM, MS, Ph.D., Diplomate ACVR, Dean, College of Veterinary Medicine, Tuskegee University
9:15 a.m. – 9:20 a.m.	Greetings: Lawrence F. "Tony" Haygood, Jr., MBA, Mayor City of Tuskegee
9:20 a.m. – 10:20 a.m.	

2:15 p.m. – 2:45 p.m.	Speaker: Lisa D. Jones, RN, Assistant District Clinic Director, East Central District, Alabama Department of Public Health

12th Annual Phi Zeta Research Day

Theme: Celebrating Tuskegee's Research Legacy:
Advancing Knowledge and Global Impact "

Tuskegee University College of Veterinary Medicine

Tuesday, September 17, 2024

[redacted]

2:50 p.m. – 3:10 p.m.	BREAK
3:10 p.m. – 3:30 p.m.	Jatna Zarete, Integrative Biosciences, Ph.D. Student, Tuskegee University Igy-Based Immunomodulatory Combo Succeeds At Tissular Cure Of Staphylococcus Aureus Mastitis In A Mouse Model

One Health Symposium Moderators

A Deloris Alexander, BS, MS, Ph.D., currently serves as the Interim Dean of Graduate School and Director of the Integrative Biosciences Ph.D. Program at Tuskegee University. Dr. Alexander earned a Bachelor of Science degree in Biology (Chemistry minor) from Alabama State University, a Master of Science degree in Environmental Science from Tuskegee University, and a Ph.D. in Biomedical Sciences from Meharry Medical College. Alexander is a trained microbiologist with specialties in Parasitology, Immunology and Molecular Biology. She has many research interests, all related to microbial ecology. Alexander has published peer-reviewed articles focused on bioremediation, EGFR ligands, Chagas' disease-related pathology, colon cancer, host genetics and disease, gastrointestinal biodiversity and inflammatory diseases in the GI tract. She is also certified in ethics and actively involved in research that seeks to reduce health disparities in the Alabama Black Belt Counties. Alexander 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 and in 2020, she was nominated for a Presidential Award for Excellence in Mentoring.

Moreover, Alexander has been a member of numerous grant proposal writing teams, which have coordinately been awarded millions of dollars from the Alabama Department of Public Health, 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. Dr. Alexander teaches more than a dozen courses each year, including bioethics, parasitology, epidemiology, molecular biology and environmental health sciences.

nomdayenviron (h1-249Presidetoenvironm)joya Presidegoo(environJ Tlog7 (in)-2493 (e. [(

and health organizations that hold service for equity as their mission. Lee's current research interests have expanded to include disparities in maternal mortality and mental health including the influence of adverse childhood experiences (ACEs) on health outcomes.

Vivian Carter, Ph.D., is the Chair of the Department of Psychology at Tuskegee University. Dr. Carter is the Co-MPI and Community Engagement Core Lead for U54 Cancer Research Partnership between MSM, TU, and UAB CCC and the RCMI. Carter is also a Past-President of the National HBCU Research Network for Research and Health Disparities. She is also a former Assistant Director for Community Outreach with The Tuskegee University National Center for Bioethics.

Carter is an experienced social scientist with specialties in organizational development and transformation, medical sociology, race and gender relations. She is an accomplished researcher specializing in Community-Based Participatory Research. Carter has worked internationally with the United Nations Women's Coalition (UN Women) to address sexual assault and gender violence on African College Campuses. Carter serves on several community boards including the Alabama HIV Task Force on Children and Adults, the Alabama Battered Women's Taskforce, the Macon County Cancer Coalition (Co-Founder), and the Mayors Health Advisory Board. In her native state of Oklahoma, she served as the Lead Cultural Diversity Consultant for the Oklahoma Department of Rehabilitation Services strategic plan to increase minority participation in rehabilitation service programs. Carter is the co-author of three community-based cancer research studies that have had a dramatic impact on the health outcomes for women and men in Alabama. She has served as editor and journal reviewer for the Journal of Health Care for the Poor and Underserved, Journal of Health Sciences and Humanities, Sage Publishing Journal of Best Practices, and Journal of International Bioethics, and Health Quarterly.

David Augustin Hodge, Sr. is a native of St. Thomas, U.S. Virgin Islands. Dr. Hodge earned his Bachelor of Arts degree in Bible, Theology, and English from American Baptist College in Nashville, Tennessee (1988); his Master of Arts in Education degree from Oral Roberts University in Tulsa, Oklahoma (1994); his Master of Theological Studies degree from Candler School of Theology, Emory University, Atlanta, Georgia (1997); his Doctor of Ministry degree from Columbia Theological Seminary, Atlanta, Georgia (1998); and his Ph.D. in Philosophy from the University of Miami (2015).

In 2016, Hodge left Florida Memorial University in Miami, Florida, where he led the Religion and Philosophy Department for almost two decades, and moved to Atlanta, Georgia. In Atlanta, he served as an Adjunct Professor in Philosophy at Georgia State University and as a Visiting Lecturer in Philosophy, Theology, and Ethics at the Interdenominational Theological Center. From 2011 to 2016, Hodge taught moral theory and bioethics at Nova Southeastern University. His Ph.D. dissertation at the University of Miami, "Jesus the Virtue Ethicist: A Meta-ethical Anticipation of Moral Sentimentalism, Empathy and Care," has garnered significant readership worldwide. Hodge continues to explore the role of virtue, empathy, and care in addressing existential concerns.

He currently serves as the Director (Interim), Lead Ethicist, and Associate Professor at The National Center for Bioethics in Research and Health Care. Hodge is also a former Visiting Faculty-in-Residence at the Center for Bioethics, Harvard Medical School, an Adjunct Professor of Philosophy at Georgia State University, an Adjunct

Professor in the Department of Communications, Philosophy, and Modern Languages at Tuskegee University, and an Adjunct Professor of Philosophy, Theology, and Ethics at Jamaica Theological Seminary. Hodge is the Director of the Bioethics Honors Program, Editor of the Journal of Healthcare, Science, and the Humanities, and serves on the Board of Directors for Public Responsibility in Medicine and Research (PRIM&R).

He is a frequent national and international lecturer on the moral, social, and political determinants of health, particularly for Black, brown, and poor populations. As a philosophical theologian, he is frequently interviewed our requested for lectures on the field of Christian and Theological Ethics. As a key architect of Black Bioethics and a primary organizer of the Tuskegee Report, Hodge's work represents a 21st-century response to the Belmont Report, focusing on achieving equitable health outcomes. His present research includes a forthcoming monograph for Springer Press, entitled Black Bioethics and Intersectionality.

As a pastor, Hodge has served as minister of education, minister of leadership, and executive pastor in large churches across the Deep South. He has been passionate about developing children's ministries, which he has initiated in each church he has served. Hodge also founded and served as senior pastor of Anastasia Temple in Pembroke Pines, a nondenominational church dedicated to serving the least, the lost, and the left out. The church rapidly grew by focusing on feeding the homeless and supporting children with disabilities and social inequities.

Hodge is married to Theresa Paula Hodge, an enthusiastic and passionate elementary school teacher in Gwinnett County, Georgia. They have three children: David II, B.S. in Science Education from Florida Memorial University; Avia, who holds an MPH from Tuskegee University and a MS in Genetic Counseling from the University of North Carolina, Greensboro; and Jonathan, a junior at Tuskegee University.

Introduction of Keynote Speakers.57 (a)-Ke (Gwhieity)-Olinn,2r

Attorney James has over twenty-five years of legal and public health experience that she utilizes to enhance her roles as Vice-President for Legal Affairs & General Counsel at Tuskegee University. James is a proud mother of one daughter and an active member of Delta Sigma Theta Sorority, Inc.

Kim R. Ortiz serves as the Director of Alumni Relations and Engagement Initiatives and the Coordinator for Program and Events for the Tuskegee University College of Veterinary Medicine. She brings over 25 years of coast-to-coast experiences in community engagement and outreach; corporate sales, customer service, and professional development; federal and state government and private agency grants management; government relations; K-12 school counselor; and student affairs. Prior to joining the College of Veterinary Medicine, Ortiz was the Coordinator for Community Development and Grants and the Project Director for the United States Health and Human Services Office of Minority Health-awarded Advancing Health Literacy Grant for the City of Tuskegee, Alabama. In these capacities, in 2023, Ortiz served as a community panelist for the Tuskegee University College of Veterinary Medicine's 24th Annual One Health Symposium.

She is a native of Mobile, Alabama, and a Cum Laude graduate of Tuskegee University where she earned a Bachelor of Science degree in Finance with a minor in Economics. Ortiz holds a Master of Arts degree in Counseling and Human Development, with a concentration in School Counseling, from Clark Atlanta University (Atlanta, Georgia). Consequently, Ortiz held P-12 school counselor certifications for Alabama, Georgia, and Virginia. She holds a Master of Public Administration degree, with a concentration in Public Human Resource Management, from Troy University (Troy, Alabama) and a postgraduate Educational Specialist degree in Counseling from Old Dominion University (Norfolk, Virginia).

Ortiz is a graduate of the General Electric Capital Mortgage Corporation Leadership Development Program (Raleigh, North Carolina) and the Tuskegee University Continuing Education Program Leadership Macon County Class II. She completed additional leadership professional development from the Yale University Child Study Center School Development Program (New Haven, Connecticut). Most recently, Ortiz completed the Alabama Economic Development Association Leadership Institute; Alabama City/County Management Association Local Government Professional Management Certificate Program; and the Auburn University Government and Economic Development Institute Intensive Economic Development Training Course, Parts I and II.

Professionally and academically, Ortiz is a member of Alpha Kappa Mu National Honor Society; Delta Mu Delta International Honor Society in Business; Who's Who Among Students in American Colleges and Universities; The Honor Society of Phi Kappa Phi; The Global Honor Society for Public Affairs and Administration, Pi Alpha Alpha; Golden Key International Honour Society; and Chi Sigma Iota Counseling Academic and Professional Honor Society International.

Ortiz is honored to be a recipient of the Annie Singleton Award from Alpha Phi Alpha Fraternity, Incorporated, Gamma Phi Chapter and the Excellence in Service to Students Award by the Tuskegee University Chapter of the National Society of Leadership and Success, Sigma Alpha Pi.

Initiated at Tuskegee University, Ortiz is a tremendously proud Life Member of Alpha Kappa Alpha Sorority, Inc., with nearly 35 years of service. Locally, she is a recipient of the Spirit of Excellence Award and Community Service Award. Regionally, she was recognized for her Graduate Advisor service.

For leisure, Ortiz thoroughly enjoys diverse genres of music, live theatre, documentaries, reading, museuming, and the art of couture. An avid adventurer at heart; her absolute favorite pastimes are traveling and tasting cuisines and sweets, especially chocolates.

One Health Symposium Keynote Speaker

Stephanie Miles-Richardson, DVM, Ph.D.

Professor and Founding Chair, Department of Public Health Education; Associate Dean, Graduate Education in Public Health; Director, Master of Public Health Program; Director, Center of Excellence on Climate and Environmental Health
Morehouse School of Medicine, Atlanta, GA

Dr. Stephanie Miles-Richardson is the founding Chair of the Department of Public Health Education at Morehouse School of Medicine (MSM) in Atlanta, GA. Dr. Miles-Richardson also serves as Associate Dean of the division of Graduate Education in Public Health and Director of the Master of Public Health Program. She joined the faculty at MSM in 2008 after over a decade of federal service at the Agency for Toxic Substances and Disease Registry, where she was a United States Public Health Service Commissioned Officer and Scientific Technical Advisor for a $4 million toxicology research program. Miles-Richardson also served as Associate Director of Minority Health and Health Disparities Policy at the Centers for Disease Control and Prevention (CDC). She was appointed in 2015 to the Board of the Council on Education for Public Health (CEPH), an independent agency recognized by the U.S. Department of Education to accredit programs and schools of public health. Joint appointment was made by the American Public Health Association (APHA) and the Association of Schools & Programs of Public Health. Miles-Richardson has made history in academic public health: In 2018, she was the first African American to serve as President of the Association of Accredited Public Health Programs, and in 2019, she was elected President of CEPH, the first African American to serve in this capacity. Miles-Richardson is a member of the Association of Prevention Teaching and Research (APTR), where she served on the One Health Working Group. She was awarded a grant from APTR and CDC to develop an interdisciplinary Climate Justice elective course for dissemination. Miles-Richardson is the recipient of an honorary diploma by the American Veterinary Epidemiology Society for her work in human health, animal health and One Health. She is the founding Director of the Beacon of Hope Center of Excellence on Climate and Environmental Health at MSM and a Governing Councilor of the Environment Section of the APHA.

Miles-Richardson received her undergraduate degree in Biology from Grambling State University, the Doctor of Veterinary Medicine degree from Tuskegee University (class of 1992), and a dual Ph.D. in Pathology and Environmental Toxicology from Michigan State University. She is married to Burnell Richardson, Jr., (ASCP) and they have three children – Brandon, Dhara, and Bryce.

One Health Symposium Speaker

Justin T. George, BS, MPH

Director of Cancer Epidemiology
Cancer Prevention and Control Division
Alabama Department of Public Health (ADPH)

Justin T. George earned his Bachelor of Science in Microbiology from Mississippi State University in 1999 and his Master of Public Health In Epidemiology from the University of Alabama at Birmingham (UAB) in 2005. From 2000 to 2001, he served as a Computer Technician at UAB, School of Public Health. George served as a Statistician at the SITEL Corporation from 2002 to 2006. Then, from 2006 to 2010, he served as an Epidemiologist, at the Alabama Department of Public Health (ADPH), Alabama Statewide Cancer Registry (ASCR). From 2010 to 2013, George became Assistant Director and Epidemiologist at the ADPH, ASCR. From 2013 to the present, he became the Director of Cancer Epidemiology, at the ADPH, Cancer Prevention and Control Division.

One Health Symposium Speaker

H. Anwar Ahmad, BS, MS, Ph.D.

Professor, Biology/Biostatistics
Jackson State University

H. Anwar Ahmad is a tenured Biology/Biostatistics professor with a diversified education and experience in quantitative and research methodologies, disease modeling, and information systems. He has over 30 years of teaching, research, and consulting experience at various institutions of higher learning. His formal education includes a Bachelor of Science, Master of Science, and Ph.D. in animal/life sciences, a Master of Science in computer information systems and a Master of Business Administration. He taught and developed many undergraduate and graduate courses in biostatistics and other disciplines. Besides teaching students and adult learners in a traditional classroom, he had exclusively designed and taught several online courses. Funded by the US Department of State and Higher Education Commission, Pakistan, he established a Biostatistical Consulting Center at the University of Veterinary and Animal Sciences in Lahore. Over 1000 faculty, researchers, and graduate students across 35 institutions were trained in designing/developing and conducting high-impact research through workshops, short-term onsite and video courses, and consultations. The combined funding of his research during the past ten years is approximately over $2.5 million. Besides teaching many subjects, Ahmad has published over 40 peer-reviewed research papers, over 80 abstracts, and 15 invited lectures and seminars. His research areas include 1) Biostatistics Education and Consulting, 2) Disease and Physiological Variables Modeling using traditional and AI approaches, 3) Microbial Risk Assessment, and 4) Animal Growth Modeling.

Abstract

Multidimensional Effects of COVID-19 on Minority Populations in the Southern USA

PURPOSE: This research aimed to comprehend various dimensions of COVID-19 effects, including socioeconomic, behavioral, and food safety, on minority populations in the southern USA. Besides the human toll, the COVID-19 pandemic has dramatically affected the food system from production to consumption. METHODS: Data for the study were collected from various sources, including the COVID-19 Data tracker of the CDC and the Mississippi Department of Health, for the following southern states: Alabama, Florida, Georgia, Louisiana,

Mississippi (82 counties), and Tennessee. The food safety data were collected from The Foodborne Diseases Active Surveillance Network (FoodNet) for 2015-2020. The cumulative Mississippi COVID-19 and socio-demographic data variables were grouped into feature and target variables. The statistical and exploratory data analysis was conducted using Python 3.8.5., including the Pearson Correlation. RESULTS: Significant geographical variations in COVID-19 cases and death rates were observed among various races and ethnic groups. Most cases were observed among the Hispanic and Black populations, and the highest death rates were found among non-Hispanic Blacks and Whites. Asians had the highest vaccination coverage, 77%, compared to 52%, 46%, 42%, and 25% for African Americans, Whites, Hispanics, and American Indians/Alaska Natives, respectively. COVID-19 cases and deaths were positively correlated with per capita income and negatively correlated with the percentage of persons without a high school diploma (age 25+). A significant decline in the incidences of foodborne diseases, 25% and 60% was observed, with a geographical variation between California and other study states. CONCLUSION: COVID-19 had multidimensional adverse effects on minority and economically marginalized populations in the southern USA, except for the higher vaccination rates among African Americans. It had a positive impact on reducing the incidence of foodborne illnesses.

GRANT SUPPORT: This research was supported by the National Institutes of Health/National Institute on Minority Health and Health Disparities Grant # 1U54MD015929-01 through the RCMI Center for Health Disparities Research at Jackson State University.

One Health Symposium Keynote Speaker

Roslyn Holliday Moore, MS
Deputy Director for Programs, Office of Minority Health
U.S. Department of Health and Human Services

In the Office of Minority Health (O

One Health Symposium Speaker

Maxine Kellman, DVM, Ph.D., PMP

Senior Public Health Analyst
Designated Federal Official, National Advisory Committee on Seniors and Disasters (NACSD), Senior Public Health Analyst, Administration for Strategic Preparedness and Response (ASPR), Office of Strategy, Policy, and Requirements (SPR), Policy Division, National Advisory Committees Branch
The Department of Health and Human Services (HHS)

Dr. Maxine Kellman is Senior Public Health Analyst and the Designated Federal Officer (DFO) for the National Advisory Committees on Seniors and Disasters (NACSD) in the National Advisory Committees Branch in the Policy Division of the Office of Strategy, Policy, and Requirements (OSPR) in the Administration for Strategic Preparedness and Response (ASPR) in the Office of the Secretary (OS) for the Department of Health and Human Services (HHS). In this capacity, Dr. Kellman leads federal advisory committee discussions related to scientific, technical, and other matters related to public health emergency preparedness and response.

Kellman has a Bachelor of Science degree in Biology with a concentration in Neurobiology and Behavior from Cornell University, a Doctor of Veterinary Medicine (DVM) from Tuskegee University College of Veterinary Medicine (TUCVM) and Ph.D. in Immunology and Parasitology from the VA-MD College of Veterinary Medicine at Virginia Tech. Her research focused on host immune responses toward parasitic and zoonotic infections. She developed an antigen-specific enzyme-linked immunospot (ELISPOT) assay to detect intestinal antibody responses to the swine whipworm, Trichuris suisand the protozoan parasite, Toxoplasma gondii. Kellman also completed a NIH Post-Doctoral Fellowship at the Uniformed Services University of the Health Sciences using animal models to study host immune responses during allergic reactions.

Kellman has spoken at several scientific symposia including at the World Association for the Advancement of Veterinary Parasitology in Sun City, South Africa, the 141st American Public Health Association Conference in Boston, MA, the American Veterinary Medical Association Annual Convention in Denver, Colorado and the Annual TUCVM Veterinary Medical Symposium.

She is a Certified Project Management Professional (PMP) and a Six Sigma Green Belt and has over 15 years' experience in biomedical research with a focus in zoonotic diseases and program development/project management. Kellman is active as a community volunteer assisting several youth organizations and her focus has been to increase under-rept/project
the18 (gad)-321 (Project)-32321 (a)-Exc(asiology)20rado GT* [nP)toSigmaUnifment of

One Health Symposium Speaker

Lisa Sanders Jones, RN

Assistant Clinical Director
East Central District in Alabama
Alabama Department of Public Health (ADPH)

Lisa Sanders Jones was born into a military family based in San Antonio, Texas. At the age of four, her parents moved back to their hometown of Dadeville, Alabama where she grew up. Jones graduated from Dadeville High School in 1987. It wouldn't be until after the birth of her two oldest daughters that she sought out her dream of becoming a nurse. Jones then attended Central Alabama Community College and graduated in 2001 with an Associates of Science Degree - Registered Nursing. Early in her career she explored the various elements of nursing including long term care, emergency room, hospice, and medical/surgical nursing. After the birth of her third daughter in 2006, Jones took a job at the public health department in Lee County. It was then that she knew she had found her calling. Jones's passion for serving others and her hard work has proven to pay off with her success and growth at the Alabama Department of Public Health. She began her journey as a staff nurse and is now the Assistant District Clinical Director for the East Central District in Alabama. The East Central District includes 11 counties and 12 county health departments. Jones loves serving the people of Alabama and her goal is to make a difference, one patient at a time, by providing quality care, education and empathy to all she encounters. Although Lisa takes great pride in her own accomplishments, her greatest reward was to see her oldest two daughters, Megan and Holland, follow in her footsteps to become accomplished nurses themselves. Her youngest daughter, Hunter, is currently in her first semester at Southern Union State Community College and plans to go into healthcare as well.

One Health Symposium Panel Discussion Speaker

Lucenia Dunn, Ph.D.

Founder and President/CEO of the Tuskegee Macon County Community Foundation, Inc. (TMCCF)

The hallmark of the career of Dr. Lucenia Williams Dunn has been innovations to improve the lives of people. Born in rural Georgia on her grandparent's farm and growing up in historic Tuskegee Institute, Alabama, she learned early that giving back to help improve the lives and conditions of others was not just a cliché, but an important commitment in one's life. Improving lives by fighting for economic growth, educational equity, and social justice, not just by demonstrating in the streets, but as an administrator and decision maker who engages in organizational development that serves the needs of others. Dunn is a visionary who is looking constantly for solutions to the many challenges facing people of color and others living in poverty in rural and urban communities.

Currently, she is the Founder and President/CEO of the Tuskegee Macon County Community Foundation, Inc. (TMCCF). It is a 501 (c) (3) public charity organization that manages philanthropic dollars, addresses community challenges, and develops public/private partnerships. The primary focus of TMCCF is the reduction of health and economic disparities and the development of equity strategies for rural communities. This includes improving healthcare delivery systems and initiating economic systems by creating models using technology.

Previously, Dunn worked in both urban and rural settings, and for profit and non-profit organizations. She served in local governments and community organizations as an administrator as well as taught and managed programs and projects in colleges and universities. As a strong advocate for art by people of African descent, she has been a promotor for the sale and recognition of these incredible expressions worldwide.

Dunn has a passion for history and has been integrally involved in saving and promoting African American History and Culture. Appointed by the Governor of the State of Maryland, and elected Vice Chair, she served on the Commission for the Study of African American History and Culture.ofofslture.and ofc

One Health Symposium Panel Discussion Speaker

One Health Symposium Panel Discussion Speakers

Aretha Dix, MS, MBA

Major Retired, United States Air Force, Medical Service Corps.

Through research, ground-truth surveys and community roundtables, Aretha Dix can identify and educate citizens and agencies of Alabama's Black Belt on the elements of digital equity and inclusion, digital literacy and has provided resources for devices and communication networks. She understands that equity challenges also come in the form of financial literacy, healthcare and access to healthcare. As a retired Air Force Healthcare Administrator, Dix has a diverse background in federal patient care, Medical Logistics, Resource Management, Practice Management and Professional Military Leadership.

She has used those skill sets to not only advance the unserved and underserved communities of the Black Belt from a digital equity and inclusion standpoint, but also, from a preventive and clinical care standpoint Dix recently served as the Administrator for The Mothers of Gynecology Campus and Wellness Pod, where the mission is to expand positive maternal health outcomes amongst vulnerable populations and rural communities of Alabama. Dix's knowledge and unwavering tenacity allows her to facilitate the activities necessary to ensure that all individuals of these communities, including the most disadvantaged citizens, have access to maternal care and total-person wellness. As a key volunteer for The Fifty Fund, she helps to examine approaches to improve pedestrian safety throughout the state of Alabama with a diverse group of professionals that also volunteer their time. Together the members help communities become safe, clean, and beautiful through street-level research, engagement and investment. She most recent worked includes coordination with the Safety Technical Assistance for Counties and Cities program at Auburn University, which is supported through Alabama's Department of Transportation's Office of Safety Operations. Lastly, Dix supports the Mercy House/Ministry About People organization as well as the Homeview Family Life Center, both located in Montgomery, Alabama, by teaching Science, Technology, Engineering, Arts and Math, and gardening.

Isabella Burnett, BS, MS

Director of Student Health & Counseling Services, Tuskegee University

Isabella Burnett currently serves as Director of Student Health and Counseling at historic Tuskegee University. Her journey with Tuskegee began when it was Tuskegee Institute. While at Tuskegee, Burnett joined the Army Reserves and as a military trained laboratory technician, she was privileged to provide healthcare service to the remnant survivors of the Tuskegee Syphilis Experiment at John A. Hospital here on campus. Burnett moved to Chicagoland where she graduated from Big 10 Northwestern University with a Master's degree in Public Policy and

One Health Symposium Speaker

One Health Symposium Poster Presenters
Environmental Health

Investigating the Impact of Biomass Burning on Air Quality and Health in Rural Belle Glade City, Florida

Salem Ibrahim and Gamal El Afandi*
College of Agriculture, Environment and Nutrition Sciences, Tuskegee University, AL 36088, USA

Biomass burning, which includes forest fires, prescribed burns, agricultural fires, residential wood combustion, and power generation, has significant implications for climate, air quality, and human health. Environmental regulations that are selective can influence the dispersion of pollution and determine who bears the associated costs. In South Florida, regulations on wind-driven biomass burning restrict burns when pollution may move toward affluent, densely populated areas. Additionally, in 2019, further limitations were put in place to prevent burning on days with poor air quality. Biomass is a globally important byproduct of crops in agriculture, but its impact on local air quality can be substantial, especially in rural communities where it is predominantly produced. This study aimed to investigate the effects of biomass burning on air pollutant concentrations in rural areas, focusing on assessing the impact on air quality and health, particularly concerning fine particulate matter (PM2.5). By employing a wide array of air quality sensors, the study sought to elucidate the relationship between agricultural activities and the dispersion of air pollutants. The findings of the experiment revealed that the highest levels of PM2.5 originated from the south and peaked at midday, with values exceeding 15. The main goal was to provide insights into sustainable agricultural practices and air quality control policies that promote the health of the local population. The study consistently classified the air quality in the Glades as "Good," which is the highest r

Assessing The Antimicrobial Properties of Lemongrass and Basil-Infused Biodegradable Plastic

Landon Z., Mortley D. Dept. of Ag., College of Ag. Envr. and Nutr. Sciences, Tuskegee University, 1200 W. Montgomery Rd. Tuskegee, AL

Biodegradable plastic is a product of renewable polymers and has the potential to reduce waste in landfills compared to conventional synthetic packaging. Biodegradable plastic is not suitable for packaging meats because it lacks antibacterial properties and cannot prevent the growth and spread of food-borne microorganisms, such as *Salmonella*, *E. coli*. Bacterial pathogens cause illness in over 135 million people in the US annually. Research has shown that essential oil extracts of lemongrass and basil may have antimicrobial properties. Experiments were conducted to determine the antimicrobial efficacy of a biodegradable polymer infused with lemongrass and basil essential extracts. Lemongrass and basil-infused polymers were made using 50 grams of 9032D PLA polymer and 100 ml (about 3.38 oz) of chloroform and stirred for 24 hours, 15 ml (about 0.51 oz) each were infused with 0.5, 1, 1.5 and 2 ml (about 0.07 oz) and then formed into thick plastic sheeting. Chemical and mechanical testing were done to determine the strength and thermal activity of the lemongrass and basil-infused polymer. The polymer's antimicrobial activity was tested using *E. coli* bacteria on agar plates with 2.5 cm^2 strips and 10 µL of the bacterial

amide group to the PLA backbone, enhancing its thermal and mechanical properties. The thermal behavior and crystallinity of the PLA/HC films were investigated using TGA and DSC. Compared with other film samples, the PLA/1 % HC exhibited higher thermal stability of 360.29 oC. The tensile studies show significant enhancement in the flexibility with high elongation strength of PLA/HC composite films compared to neat PLA films. The fracture analysis of the PLA/1 % HC confirms the interfacial compatibility and transformation to plastic deformation due to the chemical bonding of the HC in the PLA matrix. The PLA/HC composite films exhibit UV barrier properties that are recommended for food packing applications.

The Genetic Transformation of Microalgae

Tyler Smith

One Health Symposium Poster Presenters
Human Health

Cardiac Metabolic Gene Expression

Nilajah Buchanan and Martin Young
Experimental Contributors: Mary Latimer, Gobinath Shanmugam

Heart Failure with Preserved Ejection Fraction (HFpEF) is a common form of heart failure wherein the ability of the heart to contract is normal, but it is too stiff to fill properly, preventing the body from receiving sufficient blood,

disease progression & distinct tumor biology influenced by genetic ancestry. We performed Whole Exome (Normal/tumor paired) Sequencing matched with Methyl Seq and Whole transcriptomic Sequencing for three datasets of our African, African American Men (AAM), and European Men (EAM). Additionally, we ran Spatial NanoString high-plex GeoMxDSP for a total of 118 treatment-naive PCa patients (around 500 ROIs).

Research Support: The study was funded by the Centers for Disease Prevention and Control (CDC) and the National Center for Bioethics in Research and Health Care.

The Impact of the Correlates of Infant and Child Feeding Practices on Health Outcomes in the Democratic Republic of Congo.

Johnpaul Kagulire, MSc, MPH Candidate; Asseged Dibaba; Adelia Bovell-Benjamin; Nelson Oranye

Department of Graduate Public Health, College of Veterinary Medicine; Department of Nutrition, College of Agriculture, Environment and Nutritional Studies

The period from conception to a child's second birthday is considered the most crucial in shaping the health, growth, and developmental trajectory of infants and young children. Malnutrition, including stunting, wasting, and micronutrient deficiencies, is a common problem among children under five years old. Many studies have reported on the effect of feeding practices on infant and child health. The nutritional status of children is greatly improved by optimal infant and young child feeding practices. Proper child feeding practices can positively influence child growth, prevent susceptibility to early childhood infectious diseases, and adverse conditions like child mortality. Despite international efforts to improve child health, malnutrition remains a significant public health problem in the Democratic Republic of Congo (DRC). [illegible] outcom

HIV in the Female HBCU Students throughout the Black Belt Counties in Alabama

Deangelo Mahone, MPH, BSPH
Department of Social Work, Tuskegee University

The human immunodeficiency virus (HIV) is known as an infection within the body of an organism that attacks the immune system of its host. This is done by targeting the white blood cells in the body known as the CD4 cells. The virus destroys these cells thus weakening the host immune system making the host more vulnerable to infections such as tuberculosis and fungal infections, severe bacterial infections and some cancers (WHO, 2024).

When examining the equity in healthcare, there is a major public health issue within the United States. HIV/AIDS has shown to disproportionately affect African Americans more than any other racial or ethnic group in the United States of America (Zekeri, 2018). According to the Centers for Disease Control and Prevention (CDC) African Americans make up around 13% of the total population of the United States but present with close to half of the total reported HIV/AIDS cases (Zekeri, 2018). Through this research it was found that the disparity of the health of African Americans stems from the unequal and inherently past inferior status relegated to enslaved Africans (Zekeri, 2018). There was a culture of mistrust created by the Tuskegee Syphilis study in which 399 men who were enrolled in the United States Public Health Service (USPHS) were denied any proper treatment.

This project involved an extensive analysis of the percentage of women in Alabama in the black belt counties who attend HBCUs and have been diagnosed with HIV/AIDS, and to examine the current knowledge of these women on HIV/AIDS. A survey is being created to seek support from these universities to gain current percentages of this disease. This is an on-going project and will require more extensive research.

References: WHO. (2024). HIV. Retrieved from World Health Organization: https://wwwwho.int/health-topics/hiv-aids#tab=tab_1

Funding: The project described was supported by Award Number U54 CA118623 from the NIH NCI. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Cancer Institute or the National Institutes of Health. This work was also supported by a sub-award from the Tuskegee University Center for Biomedical Research/Research Centers in Minority Institutions (TU CBR/RCMI) Program at the National Institute of Health (NIH). The CBR/ RCMI U54 grant number MD007585.

Microglia Interaction with Synapses Containing Pathological α-Synuclein Aggregates with Respect to the Basolateral Amygdala (bla) Brain Region

Toussaint, Takiyah C.T.C.; Gcwensa, Nolwazi, PhD; Volpicelli-Daley, Laura, PhD
University of Alabama at Birmingham (UAB), Birmingham, Alabama 35294, USA

Introduction: Parkinson's Disease (PD) is a neurodegenerative disease. Clinically, PD manifests itself as four cardinal motor symptoms: rigidity, akinesia, tremor, and postural instability. However, PD patients experience non-motor symptoms like depression, hallucinations, and cognitive issues, which affect quality of life. Pathologically, PD is characterized by intracellular inclusions in the brain (Lewy pathology). Lewy pathology contains hyperphosphorylated α-synuclein (p- α-syn) aggregates found in the cell body (Lewy Bodies) or in axons (Lewy Neurites). Lewy pathology is particularly dense in the basolateral amygdala (BLA), a brain region associated with emotional and behavioral regulation. BLA dysfunction correlates to non-motor PD symptoms. Lewy-like pathology can be induced in mouse amygdala, providing a model by which the impact of abnormal α-synuclein (p- α-syn) on BLA function can be analyzed. Previously, our lab showed that synapses harboring p- α-syn aggregates were shown to be enlarged in the BLA. It was shown that microglia (brain macrophages that can remove damaged synapses) interact with these enlarged synapses. We hypothesized that enlarged synapses express the complement protein,

weresho5n to ged5gdala pr(patholo-323 0293)-249

demonstrate how these violations occur in various healthcare environments, emphasizing the importance of stringent compliance measures. These case studies also serve to humanize patients so that patient privacy can be heavily considered by the healthcare industry. These case studies also highlight ways that improvements can be made to the implementation of HIPAA. Additionally, the poster will highlight the repercussions of HIPAA violations, ranging from civil penalties and substantial fines to potential criminal charges and reputational harm. It will underscore the role of the Office for Civil Rights (OCR) in enforcing HIPAA regulations and the impact of their actions on healthcare organizations. This information surrounding these violations is crucial to the effective management and prevention of further violations. The poster aims to equip healthcare professionals with the knowledge of common compliance pitfalls and practical strategies to avoid them, thereby ensuring the protection of patient privacy and upholding the integrity of healthcare services. This poster also aims to inform the public about their rights under HIPPA.

One Health Symposium Poster Presenters
Animal Health

Effects of Replacing Steam-Flaked Corn with Steam-Flaked Wheat Grains in Beef Finishing Diets on Rumen Fermentation Profiles and Greenhouse Gas Emissions at The Laboratory Study

Mariline Hilaire, Byeng Ryel Min*, Hossam Ismael, Rui Chen, Nar Gurung, Sandra Solaiman, Santosh Chaudhary, Heba Abdo, and Frank Abrahamsen
Department of Agricultural and Environmental Sciences, Tuskegee University, Tuskegee, Alabama, USA

Previous studies have found that the average methane (CH_4) production of dairy cows fed wheat grain decreased quadratically with increasing dietary wheat concentration. To validate this hypothesis, an experiment was conducted to determine whether the associative effects of replacing steam-flaked corn (SFC) with steam-flaked wheat (SFW) grains (0, 10, 20, 40, 60% as-fed) in beef finishing diets on an in vitro rumen fermentation, in vitro dry matter disappearance rate (IVDMD), and CH_4 emissions when dietary ingredients were incubated with mixed rumen fluid. For in vitro tests, 6 g of total mixed rations (TMR) were placed in 250 mL ANKOM Gas Production System containing 50 mL of mixed ruminal fluid (pH 6.0) and 40 mL artificial saliva. In triplicate, fermentation bottles were located in a shaking incubator at 39 for 24h, and anaerobic conditions were maintained by flushing bottle head space with CO_2. After 24h incubation, 6.0 mL gas samples (n = 2) were taken from each sample bag for metabolic greenhouse gas analysis (GHG; CH_4, CO_2, and N_2O) and other gas concentrations. The addition of 20, 40, and 60% levels of substituting SFC with SFW grains has dramatically increased the GHG emissions and ruminal pH ($P < 0.05$). At the same time, IVDMD decreased (linear, $P < 0.05$) by increasing SFW supplementation. In the presence of SFW, ruminal acetate, iso-butyrate, and iso-valerate increased linearly ($P < 0.05$), whereas valerate, butanol (quadratic, $P < 0.01$), phenol, and ethanol productions decreased ($P < 0.01$) with increasing SFW. The IVDMD and a molar proportion of acetate ($R^2 = 0.62$; $P < 0.01$) in the rumen were significantly correlated with ruminal CH_4 production. The results indicated that partly substituting ground SFW supplementation has no potential to be effective for mitigating GHG emissions but altering rumen fermentation profiles compared to SFC.
Keywords: Wheat, Corn, Rumen, Methane, Nitrous oxide

Impact of Blueberry ((VACCINIUM ANGUSTIFOLIUM) Antioxidant properties on Selective cardiovascular biomarkers on Spontaneously Hypertensive Rats

Thaniyath Shahnaz, Deborah Omachi, John Onuh, Norma Dawk
Department of Food and Nutritional Sciences, College of Agriculture, Environment and Nutritional Sciences, Tuskegee University.

This study investigates the cardiovascular benefits of blueberry by analyzing bioactive compounds and their impact on cardiovascular disease (CVD), blood pressure, and body weight in a rat model. Blueberries are often considered a

Phi Zeta Research Day Moderators

Dr. Toufic Nashar is Associate Professor of Virology and Immunology at Tuskegee University, College of Veterinary Medicine. He earned his bachelor's degree in veterinary medicine at Baghdad University, Ph.D. in Immunology at Bristol University, UK, postdoctoral studies at a few 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. Nashar's 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. Nashar is currently the head of the Department of Pathobiology.

Dr. Gemechu Wirtu attended Addis Ababa University, Ethiopia, Veterinary Medicine, Virginia Tech (MS), and Louisiana State University (Ph.D. Reproductive Physiology). Since joining the Tuskegee University College of Veterinary

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 scholarships, and other recognitions. From 2012 through 2022, 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

al0 (bei037 (Universied)-3 (the)4-2on)-312 stsposteinaion isEnents able to present th48-250

Phi Zeta Speaker

Commander Wanda Wilson Egbe
DVM, MPH, Dipl. ACVPM
Chief Veterinary Officer and Program Director
Department of Health and Human Services

Commander (CDR) Wanda Wilson Egbe is the Chief Veterinary Officer of the Department of Health and Human Services, Administration for Preparedness and Response (ASPR), National Disaster Medical System (NDMS). She also serves as the Program Director of the National Veterinary Response Team (NVRT). In these roles, CDR Egbe acts as the lead advisor and specialist in veterinary medicine, zoonotic diseases, and the integration of One Health principles, which are essential for enhancing emergency preparedness and response at international, national, and community levels.

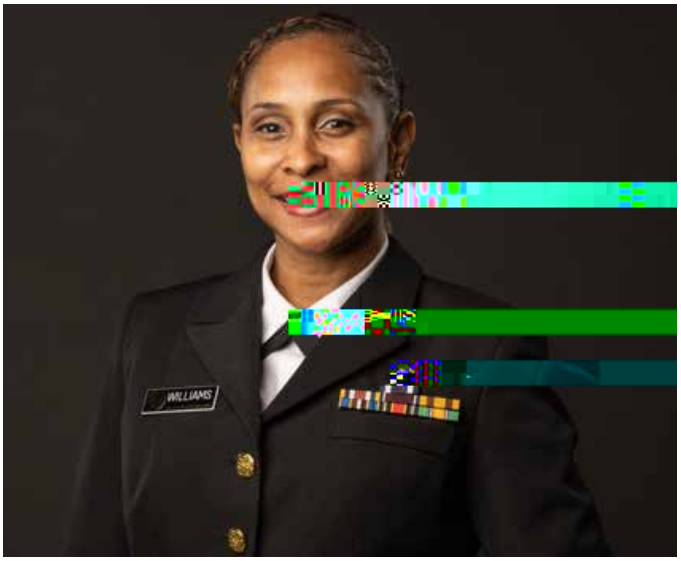
CDR Egbe's work is instrumental in building partnerships both internationally and domestically to enhance the capacity and capability of emergency response systems, including those that address animal health and the protection of human health. Her contributions include designing and executing training programs across various governmental levels, authoring response guidance that is implemented in response programs, and playing key leadership roles in numerous field deployments.

Her academic credentials include a Doctor in Veterinary Medicine degree from the Tuskegee University School (now College) of Veterinary Medicine (Class of 1990) and a Master of Public Health from the University of Iowa. Further establishing her expertise, she is board-certified in veterinary preventive medicine and serves as a senior officer and the Chief Veterinary Officer in the U.S. Public Health Service (PHS) Commissioned Corps.

Phi Zeta Speaker

Lieutenant Commander Angelina Williams, DVM, MPH

Animal Welfare Program Specialist
Office of Laboratory Welfare, National Institute of Health



Lieutenant Commander (LCDR) Angelina Williams is an Animal Welfare Program Specialist at the National Institutes of Health's Office of Laboratory Welfare (OLAW) in Bethesda, Maryland. LCDR Williams provides authoritative guidance on Federal policies and biomedical research policy compliance requirements. She received her Doctor of Veterinary Medicine degree from Tuskegee University (Class of 2004). She later graduated from the University of Texas with her Master of Public Health degree. LCDR Williams has over 20 years of experience as a laboratory animal medicine veterinarian. Her passion for increasing the awareness and prevention of zoonotic diseases led her to a career in Public Health. LCDR Williams currently serves as a member of the American Veterinary Medicine Association (AVMA) Council on Public Health, as an animal health representative. Further establishing her expertise, she is board-certified in Laboratory Animal Medicine and currently board-eligible for Veterinary Preventive Medicine. She was called to Active Duty in the United States Public Health Service (USPHS) Commissioned Corps in October 2021. LCDR Williams was awarded the 2023 Junior Officer of the Year for exemplary performance and contributions in achieving the USPHS mission of improving the Nation's health through veterinary public health activities. In her spare time, she enjoys playing volleyball, running, and spending quality time with her husband Reese, 2 kids (Gabby and Trey) and their dog, Chase.

Phi Zeta Speaker

Lieutenant Commander Regan Harp, DVM

Compliance Officer (CSO),
USFDA, Center for Veterinary Medicine, Division of Drug Compliance

Lieutenant Commander (LCDR) Regan Harp currently serves as a Compliance Officer within the Center for Veterinary Medicine in the Food and Drug Administration (CVM/FDA). His duties primarily involve enforcing the Federal Food, Drug and Cosmetic Act (FDCA), as it relates to the manufacturing of animal drugs and animal drug products. LCDR Harp's current job focus is with current good manufacturing practices (CGMPs), drug imports and exports, product jurisdiction, illegal drug sales, and animal drug recalls. Additionally, he participates in regulatory decisions based on other related laws regarding animal drugs, various guidance documents, and outreach with industry and consumers.

LCDR Harp received his Doctor of Veterinary Medicine degree from Auburn University in 2011. From 2011-2017, he worked as an associate veterinarian in several small animal practices across multiple states, focusing mainly on small animal medicine, while also pursuing additional work in exotics and emergency medicine. He joined the Lap of Love Corporation in 2017 and worked as a full-time veterinary associate, providing mobile hospice/euthanasia services for Nashville, and its surrounding middle Tennessee areas. In

Phi Zeta Keynote Speaker

Ian N. Moore, DVM, Ph.D., DACVP
Chief, Division of Pathology
Emory National Primate Research Center

Dr. Ian N. Moore is a board-certified, investigative, veterinary pathologist and Director of the Division of Pathology at Emory National Primate Research Center and is an Associate Research Professor in the Emory School of Medicine. Prior to Emory, Dr. Moore was Chief of Experimental Pathology within NIH's infectious disease institute (NIAID). Moore is a 2006 graduate of the Tuskegee University College of Veterinary Medicine (TUCVM) and completed his anatomic pathology residency and received his Ph.D. from Michigan State University in 2009 and 2014, respectively. Over his career, Moore's research experience, collaborations and publications have spanned a broad range of infectious and allergic disease conditions including Influenza, Malaria, Zik

Phi Zeta Speaker

Derrick Medley, DVM

Phi Zeta Oral Presenter

Jean Linn

Phi Zeta Oral Presenter

Laila Barnes
Second Year DVM Student
College of Veterinary Medicine, Tuskegee University

Prevalence and Molecular Detection of Rocky Mountain Spotted Fever in Ticks From Dogs and Pigs in the Eastern Area of Alabama

Laila Barnes, Quintera Gordon, Rawah Faraj*
Department of Pathobiology, College of Veterinary Medicine, Tuskegee University, Tuskegee, Alabama

Rocky Mountain Spotted Fever (RMSF) is a life-threatening tick-borne disease caused by the gram-negative, intracellular bacteria Rickettsia rickettsii. that infects vascular endothelium cells. RMSF is the most common rickettsial disease in the United States and mostly affects the Southeast. This study analyzed 50 tick samples collected from dogs and pigs between May 2023 - July 2024 from different counties in the east-central area of Alabama. Individual ticks were processed for DNA extraction and molecular detection of Rickettsia spp. using the PCR method. The outer membrane protein A (ompA), outer membrane protein B (ompB), and high-temperature Requirement A (htrA) gene were used as genetic markers. All rickettsial genes were positive in ticks from dogs and pigs. The prevalence of incidence of Rickettsial spp. including RMSF was 15 out of 50 (30%) tick samples from the animals. Most of the sequenced PCR products were homologous to R. rickettsii and Rickettsia spp. We analyzed the DNA sequences using the NCBI Blast software program and found 94% similarity between our samples and other Rickettsia rickettsii spp. Additionally, our samples displayed 93% similarity with other Rickettsial spp. in the Spotted Fever Group. Infected dogs serve as sentinels to indicate the presence of infected ticks in the east-central area of Alabama. Macon, Lee, Bullock, and Montgomery County residents are at considerable risk of exposure to the SFG including RMSF. With this exposure risk, we can form a brief curriculum our sa

Aò

Phi Zeta Oral Presenter

Jennifer Maharath

Third Year DVM Student

College of Veterinary Medicine, Tuskegee University

The cytokine response of irinotecan-loaded nanoparticles unmasked: developments in colorectal cancer treatment

Jennifer Maharath, Dilip Reddy Gunturu and Temesgen Samuel

Department of Biomedical Sciences (Maharath, Gunturu) and Pathobiology (Samuel), College of Veterinary Medicine, Tuskegee University, AL

Colorectal cancer (CRC) is the third most prevalent cancer affecting both men and women worldwide. Despite being a standard method of treatment, conventional chemotherapy presents significant challenges due to its adverse effects and suboptimal pharmacological properties. Consequently, there is an urgent need to explore alternative therapeutic approaches that focus on the efficacy and safety of CRC treatment. Recent studies have demonstrated the success of nanoparticle formulations in drug delivery, significantly enhancing pharmacological properties and minimizing its harmful effects. Additionally, therapy-induced cytokine response is gaining traction as a crucial aspect of precision medicine. This study aims to evaluate the efficacy of irinotecan, a topoisomerase-I inhibitor, in comparison to irinotecan-loaded nanoparticles. IL-22 has been shown to play a significant role in several regenerative processes while supporting tumorigenesis. Due to the limited data and prognostic significance of IL-22's role in CRC, it has become an important target for therapeutic development. By examining the effects of irinotecan-loaded nanoparticles on cytokine signaling and cell viability, we aim to improve the therapeutic potential of this approach, paving the way for future advancements in precision-based treatment protocols for CRC.

Research Grant: DHHS/HRSA D34HP00001Aò35Aò00 and NIH/NIMHD RCMI grant # U54MD007585

Student Support: NIH T35OD010432 and Boehringer Ingelheim

Phi Zeta Oral Presenter

Kingsley Bentum
Interdisciplinary Pathobiology, Ph.D. Student
College of Veterinary Medicine, Tuskegee University

Prevalence, Antimicrobial Resistance, and Virulence Genes Profile of *Staphylococcus Aureus* Isolated from Retail Chicken Meat in Alabama

Phi Zeta Oral Presenter

Jatna Rivas Zarete
Integrative Biosciences, Ph.D. Student, Tuskegee University

IgY-based Immunomodulatory Combo Succeeds at Tissular Cure of Staphylococcus Aureus Mastitis in a Mouse Model

Jatna I. Rivas Zarete[1,2], Benjamin Adu-Addai[2]

[1]Tuskegee University, Integrative Biosciences Program, [2]Tuskegee University, College of Veterinary Medicine, Department of Biomedical Sciences

Staphylococcus aureus (S. aureus) is a bacterial agent causing 10% of clinical mastitis cases in dairy cows in the United States. Infections persist due to the survival of S. aureus inside the mammary epithelial cells (MECs). MECs are non-professional phagocytes that consume (internalize) S. aureus, which survives. Vitamin D3 and IgY reduce internalization of S. aureus by mammary epithelial cells. IgY inhibits S. aureus' growth, opsonizes, and can inhibit toxins. The peptide RP185 polarizes M2 macrophages to M1 to destroy infected cells and clear S. aureus in the lumen of the gland. Our study

m(inte)226 (13031 (Benjamn=12);-i.15 226 (ihe)-25.[g/m-318 +80nM(ihe7249 (6.498-38e5 Td [(10%)-3i)]TJ 0m

Phi Zeta Poster Presenters

Extracellular Vesicles (EVs) and Canine Sperm Motility: Investigating the Role of Seminal Fluid EVs

Loren Brown, Gemerchu Wirtu and Toufic Nashar
College of Veterinary Medicine, Tuskegee University, Tuskegee, Alabama, USA

Abstract: Extracellular vesicles (EVs) have emerged as essential carriers for transporting proteins, lipids, and nucleic acids throughout the body. These vesicles, including exosomes, microvesicles, and apoptotic bodies, play diverse roles in cell-to-cell communication. While their significance has been well-studied in porcine and bovine species reproduction, the effects of EVs on sperm motility in canines remain to be fully understood. Objective: This study aims to investigate the hypothesis that EVs isolated from male seminal fluid can modulate canine sperm motility. By analyzing sperm motility parameters and examining the uptake of fluorescently labeled EVs, we explored the direct effects of these vesicles on canine sperm function. Methods: Seminal fluid EVs were extracted from the epididymis tail using size exclusion and centrifugation techniques. Sperm were isolated from the less active compartment, the epididymis corpus, through low-speed centrifugation. Sperm were incubated with seminal fluid EVs for varying durations (0, 1, and 2 hours). Computer-assisted sperm analysis was used to assess sperm motility parameters. EVs containing proteins and mRNA were fluorescently labeled. The uptake of labeled EVs by sperm was examined. Results: After 1 hour of incubation, sperm demonstrated uptake of labeled EVs. A consistent trend of increased sperm motility percent was observed with increased doses of EVs. Statistically significant improvements in sperm motility were seen after 1 hour of incubation at the highest EV dose. Other sperm motility parameters, including straight-line velocity, linearity, and straightness, also increased with escalating EV doses. Conclusion: These findings suggest that EVs from male seminal fluid directly influence canine sperm motility. Further research in this area could enhance our understanding of reproductive mechanisms and potentially lead to novel therapeutic approaches for improving fertility in canines.
Acknowledgements: DHHS/HRSA D34HP00033 for student and research support, and NIH/NIMHD RCMI grant # U54MD007585 for research support, and NIH T35OD010432 for both research and student support

Spatial Arrangement of Vibrio Cholerae During Biofilm Formation Mediated By Vibrio Polysaccharide Interactions

Michael Cross[1], Alexis Moreau[2], Jing Yan[2,3] [1]Tuskegee University, Tuskegee, AL [2]Department of Molecular Cellular, and Developmental Biology Quantitative Biology, Yale University, New Haven, CT 3Quantative Biology Institute, Yale University, New Haven, CT

Biofilms are ubiquitous surface-associated bacterial communities embedded in an extracellular matrix containing a mixture of exopolysaccharide (EPS), proteins, and other components. Cellular properties such as growth differentiation, chemotaxis, and cell-to-cell signaling enable biofilm communities to organize structurally during biofilm formation. Here, we investigate the cellmatrix organization in Vibrio cholerae (Vc), the causative agent of cholera, d

Impact of Staphylococcus aureus Mastitic Milk on the Growth and Development of Mouse Pups

Darian Davis, Jatna Rivas, Jamial Miller, Benjamin Adu-Addai
Department of Biomedical Sciences, Tuskegee University

Mastitis, an inflammation of the mammary gland, is often caused by Staphylococcus aureus, a common pathogen in humans and animals. Standard antibiotic treatments are increasingly ineffective. Staphylococcus aureus Protein A (SpA), a virulence factor, exerts immunotoxic effects, but its impact on the health and development of neonates during breastfeeding is poorly understood. Untreated S. aureus mastitis may negatively affect the growth and well-being of nursing offspring, as SpA and other bacterial toxins in mastitic milk may compromise neonatal health. This study investigates the impact of maternal treatments—including Anti-SpA IgY, cholecalciferol, and a peptide—on neonatal health, focusing on pup weight gain as an indicator of healthy development. Despite maternal treatment, pups exposed to S. aureus-infected mastitic milk still exhibited altered weight gain, underscoring the need for further evaluation of these therapeutic approaches. Results showed that pups, both male and female, exhibited strong growth rates overall, with the Vitamin D group showing the highest weight gains. Interestingly, female pups in the negative control group had weight gains nearly equal to those in the Vitamin D group. The peptide group showed stable weights but no significant improvement in combating the infection. The IgY group performed significantly better in males compared to females, indicating a potential gender-specific response. Although the peptide group had a gradual increase in weight, these pups were younger by a week, suggesting that with more time, the peptide treatment could have matched the effectiveness of Vitamin D.
Funded by: USDA 20223882137367

Impact of the Non-nutritive Sweetener Allulose on the Gut Microbiome and Metabolic Syndrome

Courtney Dunning, Katti Crakes, Jotham Suez
Affiliations: W. Harry Feinstone Department of Molecular Microbiology & Immunology, Bloomberg School of Public Health Johns Hopkins University, Baltimore, MD, U.S.A., Mentor: Jotham Suez Ph.D., MSc

Non-nutritive sweeteners (NNS) are commonly consumed sugar substitutes aimed at reducing caloric intake and managing metabolic disorders. However, the outcomes of this approach are conflicting, with some studies reporting that NNS counterintuitively promote metabolic derangements. Our work in preclinical and human models demonstrated that NNS alter the gut microbiome, which is causally linked to the development of metabolic derangements.

Dirofilaria immitis (heartworms) are a major cause of heart disease in canids that do not consistently take prevention. Heartworms are transmitted through infected mosquitos that carry microfilariae. The larvae develop into heartworms that can be in blood vessels (mainly the pulmonary artery), heart or lungs of an infected dog. Performing studies on weight fluctuations during heartworm disease (HWD) stages could be effective in determining usefulness of the method of treatment, condition of the patient during the clinical phases of the disease and

NFKB1 and phospho (p)-CREB, well established regulators of inflammatory pathways. NFKB1 signal was cytoplasmic in the gastric epithelial cells of both control and mutant stomach as well as in the infiltrating CD45^{+ve} leukocytes in mutants. Co-IF with (p)-CREB and CD45 antibodies in the control stomach showed that most of the resident CD45^{+ve} immune cells were already p-CREB^{+ve}, in the mutant stomach, p-CREB^{+ve}/CD45^{+ve} cells were markedly upregulated, although no apparent change in p-CREB intensity was observed. Together our results reveal immune markers and status of inflammation-related signaling pathways in a novel model of gastric preneoplasia.

Research Grant: This research was supported by grants from NIH T35OD010432, NIGMS 5R16GM149389 DHHS/HRSA D34HP00001 35 00, and NIH/NIMHD RCMI grant # U54MD007585
Student Support: National Institutes of Health project # NIH T35OD010432

In-Silico Detection of Gene-Specific Markers for Campylobacter Species Utilizing Pangenome and Core GenomeAnalysis

E. Kuufire[1], K.E. Bentum[1], R. Nyarku[1], V. Osei[1], S. Temesgen[1], W. Abebe[1]
[1] College of Veterinary Medicine, Center for Food Animal Health, Food Safety, and Food Defense, Tuskegee University, Alabama

Campylobacter is a leading contributor to foodborne illnesses globally, causing 1.5 million infections annually in the United States. This bacterium is associated with most human bacterial gastroenteritis and related syndromes and causes animal reproductive issues. Conventional culture-based detection methods for *Campylobacter* are time-consuming and labor-intensive. Therefore, this study conducted a pan-genomic and core-genomic analysis of *Campylobacter* to identify specific genetic markers for its pathogenic species, subspecies, and biovars, providing a foundation for various diagnostic assays. A total of 132 referenced genomes representing 33 species and 9

protein which plays a crucial role in the bacterial response to anaerobic stress. Inhibition of ST4/74 ûfnr shows that

Extracellular Matrix-Derived Chemokines Mediate Smoking-Associated Coronary Atherosclerosis

Joi Axem
College of Agriculture, Environment & Nutrition Sciences, Tuskegee University

Introduction: Smokers have increased risk for coronary artery disease (CAD), which is initiated by endothelial dysfunction. Smoking can also induce neutrophils (PMN) to release exosomes that degrade the extracellular matrix, thereby potentially producing inflammatory matrix-derived chemokines such as Proline-glycine-proline (PGP). We propose

Ruby L. Perry, DVM, MS, Ph.D. Diplomate-ACVR
Dean

Research and Advanced Studies
Temesgen Samuel, DVM, Ph.D.
Associate Dean for Research and Advanced Studies
Tammie Hughley, Executive Assistant/Program Coordinator

25th Annual One Health Symposium Committee
Ehsan Abdalla, Co-Chair
Athema Etzioni, Co-Chair

Gamal El Afandi
Samina Akhter
Chastity N. Bradford
Isabella Burnett
Vivian Carter
Cheryl Davis
David Hodge
Tammie Hughley
April Jones
Stacy Lloyd
Anthony McCloud
Cordelia C. Nnedu
Kim R. Ortiz
Nelson Oranye
Temesgen Samuel
Stephen Sodeke
Lloyd Webb

Judges - One Health Symposium Oral and Poster Presenters
Nelson Oranye, Co-Chair
Lloyd Webb, Co-Chair
Vivian Carter, Asseged Dibaba
David Hodge, Torhonda Lee, Yikal Woube

Partners/Community Committee
Mary Brooks, Doretha Heard
Katrina Love, Florence Pace-Tyner, Shirley Rogers

Vendors Recruitment Committee
Shirley Rogers, Alexis Smith

12th Annual Phi Zeta Research Day Committee

Benjamin Adu-Addai, Co-Chair
Dilip Gunturu, Co-Chair
Rawah Faraj, Yilkal Woube

Judges - Phi Zeta Oral and Poster Presenters

Shereen Abdelkader
Brandon Gines
Sheriff Yusuf Idris
Balasubramanyam Karanam
Stacy Lloyd
Abdelrahman Mohamed
James Mungin
Toufic Nashar
Pawan Puri
Steven Walker
Teshome Yehualaeshet
Alehegne Yirsaw

Thank You

Degrate Bryant
Loni Fleming
Graduate Students
Latesha Howard
Fred Johnson
Jerome Jones
Thomas Martin
Office of the Dean
Anissa Riley
Heidi Robinson
Damien Sears
Quanetta Stewart

Special Thanks to Our Sponsors and Vendors

K W W S Z Z Z] R H W L V F R P http://www.elanco.com

;

VENDORS

- Alabama Department of Public Health (ADPH) Cancer Prevention and Control Division, Alabama Breast and Cervical Cancer Early Detection Program, Alabama Department of Public Health, Montgomery, Alabama – Linda Hayes
- Alabama Department of Public Health (ADPH) Immunization Division, Montgomery, Alabama – Tanita Crowell
- Butler Chapel AME Zion Church –Katrina Love
- Delta Research and Educational Foundation (DREF) All of Us Research Program – Alexis Smith
- Five Horizons Health Services Montgomery, Alabama – Shericka Willams
- Healthy Food Resources –Anthony Williams
- Ladies Let's Live Longer, Hygiene Choices – Lynette Freeman
- Macon M.E.A.N.S. For Cancer Support Group – Shirley Rogers, Roberta Crenshaw, James Sparks, Marjorie Taylor
- Selma Air, Medical Clinic, Selma, Alabama – Ashlynn James
- The O'Neal Comprehensive Cancer Center at the University of Alabama, Birmingham (UAB) – Patricia Gullette
- The South Central Alabama Development Com,Sp