

DAES Faculty

Deloris Alexander, PhD - Integrative Biosciences

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Curriculum vitae:

a. Professional Preparation

Alabama State University	Montgomery, AL	Biology	B.S.	1992
Tuskegee University	Tuskegee, AL	Environ. Science	M.S.	1995
Meharry Medical College	Nashville, TN	Biomedical Science	Ph.D.	2001
UNC-Chapel Hill	Chapel Hill, NC	Genetics/Cancer	Post-doc	2001-2005
Tuskegee University	Tuskegee, AL	Bioethics Trainer	Certified	2013

b. Appointments

2016-present: Professor (tenured), Departments of Pathobiology (College of Veterinary Medicine), Biology (College of Arts and Sciences), and the Department of Agricultural and Environmental Sciences (College of Agriculture, Environment, and Nutrition Sciences)

2013-present: Associate Director, Health Disparities Institute for Research and Teaching

2012-present: Director, IBS Ph.D. Program, Tuskegee University

2005-2015: Assistant Professor, Departments of Pathobiology (College of Veterinary Medicine), and the Department of Agricultural and Environmental Sciences

2004-2012 Associate Director IBS Ph.D. Program, Tuskegee University

2001-2004: Postdoctoral Fellow, Lineberger Comprehen. Cancer Center, UNC-Chapel Hill

c. Products:

Five most closely related to the proposed project: **(1)** R. H. Casmir, S. L. Gorham, D. Alexander, C. Lane, L. Moore, J. Sumbry, A. Adams, R. Whittington. Serologic and Hematological Values in Geriatric Broad Breasted White Turkeys, British Journal of Poultry Science (2016)

<http://dx.doi.org/10.1080/00071668.2016.1250248>: **(2)** Deloris Alexander, Marcelin Egnin, Olga Bolden-Tiller, and Walter Hill, 2016. "Disruptive Learning Promotes STEM Careers at Tuskegee University." Scaling STEM Success: Nurturing and Retaining STEM Talent. STEM Connector, STEM Higher Education Council Spring; **(3)** Camara A. Blasingame, Leonard H. Billups, Thomas Graham, JaNell Henry, Brianna Carter, David W. Threadgill, and A. Deloris Alexander. "Modulation of Colorectal Cancer and Inflammatory Bowel Disease by the Probiotic Organism Lactobacillus reuteri," PAWJ, Spring 2016 Vol 4:1

(4) A. D. Alexander and Terrisha Buckley. 2015 "Ending the Never Again Refrain. The Challenges of Creating Ethical Consciousness in the Academy." Journal of Healthcare, Science, & the Human., Vol 5:2: 124 Dec. <http://tuskegeebioethics.org/wp-content/uploads/journals/JHSH-V5n2-Fall-2015.pdf> **(5)**

William Witola, and A. D. Alexander. Molecular identification of *Trypanosoma cruzi* in *Anasa tristis*. (April 2014). The FASEB Journal vol. 28 no. 1 Supplement LB268.

Five additional significant products: **(1)** Deloris Alexander, Roger P. Orcutt, JaNell C. Henry, Joseph Baker Jr., Anika C. Bissahoyo, David W. Threadgill1; (2006) Quantitative PCR assays for mouse enteric flora reveal strain-dependent diff. in composition influenced by the microenvironment. Mammalian Genome 17:1093 **(2)** Spector, D; Anthony, M; Alexander, D.; Arab, L.; (2003) Soy Consumption and Colorectal Cancer. Nutr. and Cancer 47(1):1-2 **(3)** Deloris Alexander, Desire Richardson, Lakisha Odom, Kara Cromwell, DeJuana Grant, Micoya Myers, Eddy Cadet, Hamid Mahama, Vijaya Rangari, Ralphenia

Pace, Ramble Ankumah, Kokoasse Kpombrekou-A, Curtis Fluker. 2015 The Biological Consequences of Kaolin Geophagia, PAWJ, 2014 Vol. 2:2 epub 6/15/15 <http://tuspubs.tuskegee.edu/pawj/vol2/iss2/> (4)
Alexander, A.D.; Orcutt, R.P.; Bissahoyo, A.A.; Baker, J.; Threadgill, D.W. 2006 Quantitative PCR Assays for Mouse Enteric Flora Reveal Strain-Dependent Differences in Comp.. Mammalian Genome Dec Vol 17:1093-1104 <https://www.researchgate.net/publication/6706577> (5)
Alexander, A. D., Villalta, F., Lima, M.F. (2003) Receptor-mediated TGF-alpha Induction of *T. cruzi* amastigote proliferation. Infect. Immun. Jul; 71(7):4201-<http://www.ncbi.nlm.nih.gov/pubmed/12819119>

d. Synergistic Activities:

i. Leadership and Contributions to Team-Based Research

PI, Howard Hughes Medical Institute (HHMI) Grant, The Microbiological Investigations into CURE Research on Bioscience Environments (The MICROBE Project) 2012-2017; Renewal pending 2021

- Involved faculty, graduate students, and undergraduates from several departments and worked on CURE teams from several other universities
- More than 400 undergraduate students impacted by the project

ii. Workforce Development and Broadening Participation

PI, NIH Targeted Infusion Project (Catalyst) Tuskegee CURES, HBCU-UP Program (2020-2022)

Project Coordinator: NSF CREATE (Collaborative Research and Education in Agricultural Technologies and Engineering) IGERT (Integrative Graduate Education and Research Traineeship) Program with UC-Davis (2007-2013)

- Trained 27 graduate students including 10 URM STEM doctoral students with 100% completion of their doctoral program (of the 10 URM STEM doctoral students 2 are university faculty, 3 are doing post-docs, 1 is an NIH Fellow, 2 are working for non-profits, and 2 are in industry);
- Developed two summer short courses and one graduate course

Co-PI: Integrative Biosciences Research Experiences for Undergraduates (2; 2009-2013, 2014-2017)

- Provided more than 50 undergraduates from colleges from across the US access to research experience in STEM
- Developed one summer course and a Research Certification Module to provide instructions in Bioethics, Human Subjects Research, Animal Care and Use, Biological Safety, Environmental Safety and Radiation Safety.

Research Mentor, Summer Programs (2005-present):

- Provided access to mentoring and STEM research training to almost 100 high school students via AgriTREK, SciTREK, DiscoveryTREK)

Co-PI NIH Mentoring Students for Diversity in Tox. (MSDT) Prog. (2014-2017; Renewed 2020-2025)

- Introduced 16 URM students to toxicology as a career option
- Assigned students Industry mentors

iii. Promoting Diversity

Co-PI on NSF AGEP Collaborative Grant (with Auburn University and Alabama State University)

"Tuskegee Alliance to Develop, Implement, and Study a Virtual Graduate Education Model for URM Minorities in STEM" Grant # HRD 1433005, 2014-2020, PI: Shaik Jeelani

- Developed a number of interventions to reduce attrition in STEM Predoctoral Programs
- Project is on track to produce 18-20 PhD holders from URM backgrounds by May 2021.

Director, IBS PhD Program, (2012-present)

- Will have produced 50 URM PhD holders in various Integrative STEM disciplines by May 2021

Nominated, Presidential Award for Excellence, in Science, Math, and Engineering Mentoring, 2020

Research Mentor, Tuskegee Univ. (2005-present), Recognized by the White House, 2012, 2013, 2020

- Have mentored more than 190 undergraduates from URM backgrounds, with more than 200 research presentations, publications and other research products

iv. Innovation, Entrepreneurship and Technology Translation

Helped obtain > 12 patents as a member, Intellectual Property Comm., Tuskegee University
v. Teaching Innovation: Co-Developed 5 Degree Programs: 3 PhD Programs; 2 Undergraduate Programs; Forensic Science, Env. Health Sci.; Developed > 15 graduate/undergraduate STEM courses

Research Summary

Dr. Alexander has many research interests, all related to microbial ecology. She is a trained microbiologist with specialties in Parasitology, Immunology and Molecular Biology. She 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 currently uses her lab to understand how natural products might prove beneficial in the fight against inflammatory diseases like colon cancer. Her lab's recent research findings demonstrate a role for species-specific probiotics in reducing colon cancer morbidity and mortality. She is also certified in ethics. Dr. 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. 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. In 2020 she was nominated for a Presidential Award for Excellence in Mentoring.

Moreover, Dr. 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. She has been a reviewer for NSF, HHMI, NOAA, the USDA and several book publishers. She 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.