



MICHAEL MCNEIL

Aspiring Physician-Scientist.

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■ ABOUT

Michael McNeil is a Jamaican cell biologist and multidisciplinary professional based in the North Carolina Triad. His research focus lies in cellular dysfunction and public health.

■ CURRENT POSITION

WSSU BIOMEDICAL RESEARCH INFRASTRUCTURE CENTER
Research Assistant

WINSTON-SALEM, NC
June 2024 - Present

■ EDUCATION

ARIZONA STATE UNIVERSITY
Bachelor of Science in Biological Sciences
Concentration in Genetics, Cell, and Developmental Biology

TEMPE, AZ
May 2024
Summa Cum Laude

CENTRAL CAROLINA COMMUNITY COLLEGE
Associate in Science

SANFORD, NC
August 2021

■ ACADEMIC HONORS & AWARDS

ARIZONA STATE UNIVERSITY
Dean's List

ACADEMIC AWARD
2021 / 2022

CENTRAL CAROLINA COMMUNITY COLLEGE
Dean's List

ACADEMIC AWARD
2021

■ RESEARCH EXPERIENCE

WINSTON-SALEM STATE UNIVERSITY / WAKE FOREST UNIVERSITY

WINSTON-SALEM, NC

Research Assistant

September 2024 - Present

Principal Investigator: Sarah Adjei-Fremah, PhD

Biomedical Research Infrastructure Center

Designed and conducted experiments to test serum-free growth media as an ethical and scientifically reproducible alternative to fetal bovine serum, a widely used culture supplement derived from live-stock. Optimized growth conditions for diverse cell lines, including HepG2 (human hepatic), N18 (mu-rine neuroblastoma), SH-SY5Y (human neuroblastoma), Kupffer (human hepatic), and human dermal fibroblast cells. Assessed the efficacy of small molecules to promote cell growth, proliferation, and differentiation under serum-free conditions.

WINSTON-SALEM STATE UNIVERSITY / WAKE FOREST UNIVERSITY

WINSTON-SALEM, NC

Research Assistant

June 2024 - August 2024

Principal Investigator: Sarah Adjei-Fremah, PhD

Biomedical Research Infrastructure Center

Contributed to an NSF-funded study exploring the effects of ammonium 2,3,3,3-tetrafluoro-2-(heptafluoropropoxy)-propanoate (GenX), a novel PFAS compound, on mitophagy in HepG2 (liver carcinoma), MCF7 (breast cancer), and N18 (neuronal) cell lines. Designed and performed cell culture experiments, exposing cells to varying concentrations of GenX, and analyzed mitophagy markers using CytoFLEX flow cytometry.

■ CLINICAL EXPERIENCE

OAK STREET HEALTH

COLUMBIA, SC

Clinical Informatics Specialist

April 2023 - August 2023

Physician: Tad Venn, MD

Practice Manager: Tosha Green

Documented patient encounters with meticulous attention to detail, capturing comprehensive medical histories and current conditions to support accurate diagnosis and treatment planning. Ensured precise coding of treatments and diagnoses while providing patients with clear, actionable after-visit summaries for continued care.

Streamlined clinic operations by managing medical records, coordinating specialist referrals, and ordering diagnostic tests.

Maintained up-to-date patient information to enhance care continuity and operational efficiency.

Collaborated closely with healthcare providers to deliver accurate, high-quality clinical documentation and optimize patient outcomes.

■ INSTRUCTIONAL EXPERIENCE

WINSTON-SALEM STATE UNIVERSITY / WAKE FOREST UNIVERSITY

WINSTON-SALEM, NC

Research Assistant

June 2024 - Present

Provided technical and conceptual cell biology tutorials to undergraduate students of Winston-Salem State and Wake Forest University. Trained and mentored undergraduate researchers, guiding through them each stage of the academic research process—from experimental design, assay selection, protocol preparation, and troubleshooting to data analysis and effective presentation.

Private STEM Instructor

January 2022 - Present

Developed personalized review sessions for middle school, high school, and college-level students in STEM subjects. Tailored each session to meet students' unique learning needs and academic goals, facilitating comprehension of complex concepts and enhancing academic performance. Provided supplemental resources and insightful feedback on key academic parameters.

ORANGEBURG COUNTY SCHOOL DISTRICT

ORANGEBURG, SC

Volunteer Classroom Aide

August 2022 - January 2023

Streamlined student, teacher, and administrator workflow at the Refocus Academy, a transformative specialized school for vulnerable students with documented academic or behavioral obstacles to success. Monitored student activity and progress. Assisted in the design, planning, and execution of various school programs.

SCHOOLHOUSE.WORLD

REMOTE

Certified Volunteer Tutor

April 2021 - March 2023

Introduced learners around the world to new perspectives in mathematics and science via the nonprofit platform Schoolhouse, a peer-to-peer tutoring service from the founder of the globally acclaimed learning resource Khan Academy. Established an international team of STEM tutors to address learners' most pressing needs.

HARNETT COUNTY SCHOOLS

DUNN, NC

Volunteer Academic Tutor

April 2021 - March 2023

Provided free tutoring in a variety of subjects and skills across all high school grade levels. Orchestrated a multifaceted schoolwide program for teacher-driven content remediation, group-driven clubs and community projects, and student-driven peer tutoring. Recruited and organized a robust network of peer tutors. Designed an interactive website to continue this program following a transition to distance learning.

■ RESEARCH HONORS & AWARDS

CENTRAL NORTH CAROLINA SECTION OF THE AMERICAN CHEMICAL SOCIETY

GREENSBORO, NC

2nd Place - Undergraduate Poster Division

April 2025

■ SCIENTIFIC PRESENTATIONS

REGENERATIVE MEDICINE FOR ALL PUBLIC DAY

WINSTON-SALEM, NC

Regenerative Medicine and Bioengineering Programs at NC A&T / WSSU
Professional Panel

June 2025

JOINT SCHOOL OF NANOSCIENCE & NANOENGINEERING POSTER VENDOR NIGHT

GREENSBORO, NC

Small Molecules Modulation of Cellular Viability and Redox Homeostasis in Neuronal and Hepatic Cells Using Xeno-Free Media

April 2025

WSSU REGENERATIVE MEDICINE WORKSHOP - ADVANCED CELL CULTURE TECHNIQUES

WINSTON-SALEM, NC

Traditional Cell Culture Overview Seminar

March 2025

ANNUAL BIOMEDICAL RESEARCH CONFERENCE FOR MINORITIZED SCIENTISTS

PITTSBURGH, PA

GenX-Induced Mitophagy and Mitochondrial Stress Responses in Hepatic, Breast, and Neuronal Cell Lines

November 2024

■ RESEARCH PUBLICATIONS

IN PREP

RESEARCH ARTICLE

Adjei-Fremah, S., **McNeil, M.**, Pratt, T., Harge, D., Wooten, M., Keith, J., Kiren, S., & Marini, F. (TBD). Effect of commercial small molecule supplements on HepG2 and neuronal cell viability and functionality under xeno-free conditions.

IN PREP

REVIEW ARTICLE

Adjei-Fremah, S., **McNeil, M.**, Keith, J., Presley, T., Kemmis, C., & Marini, F. (TBD). Cell culture media optimization: A focus on xeno-free components and growth-promoting small molecules.

IN PREP

RESEARCH ARTICLE

Adjei-Fremah, S. & **McNeil, M.** (TBD). GenX-induced mitophagy and mitochondrial stress responses in hepatic, breast, and neuronal cell lines.

■ RESEARCH PUBLICATIONS, CONTD.

IN PREP

RESEARCH ARTICLE

Hayes, Q., Keith, J., Adjei-Fremah, S., Fitzgerald, R., & **McNeil, M.** (TBD). Synthesis and investigation of antiaging properties of dopamine transporter inhibitor analog on D-galactose-induced SHSY-5Y neuroblastoma cells.

■ RESEARCH COLLABORATIONS

TRAINING + METHODOLOGY ASSISTANCE

POSTER

Miles, S., Adjei-Fremah, S., McNeil, M., & Keith, J. (2025). Dopamine transporter inhibitor analog compound modulates N18 neuronal cell viability under xeno-free conditions.

SECONDARY PROJECT

POSTER

Harge, D., Adjei-Fremah, S., McNeil, M., & Keith, J. (2025). Effect of Fetuin-A and Noggin on cell growth and viability of SH-SY5Y neuronal cells under xeno-free conditions.

SECONDARY PROJECT

POSTER

Wooten, M., Keith, J., & Adjei-Fremah, S. (2025). Effect of nicotinamide on dermal fibroblast cell growth and viability using xeno-free media.

SECONDARY PROJECT

POSTER

Pratt, T., Adjei-Fremah, S., McNeil, M., & Keith, J. (2025). Optimizing serum-free media with dexamethasone for enhanced viability in HepG2 and SH-SY5Y cells.

TRAINING + PRESENTATION ASSISTANCE

POSTER

Nowell, D., Byrne, S., & Presley, T. (2025). The effects of solfeggio frequencies on human aortic endothelial cells in commercial and universal media.

TRAINING + METHODOLOGY ASSISTANCE

POSTER

Miles, S., Awkward, E., Fitzgerald, R., Adjei-Fremah, S., & Keith, J. (2025). Synthesis and testing of WSSU-4, a diphenylpyraline derivative.

TRAINING + METHODOLOGY ASSISTANCE

POSTER

Awkward, E., Fitzgerald, R., Adjei-Fremah, S., & Keith, J. (2024-5). Synthesis and testing of WSSU-4, a diphenylpyraline derivative.

■ RESEARCH COLLABORATIONS, CONTD.

SECONDARY PROJECT

POSTER

Hart, J. & Adjei-Fremah, S. (2024). Assessing mitochondrial DNA damage induced by GenX in HepG2 cells: A quantitative analysis using 8-OHdG.

SECONDARY PROJECT

POSTER

Osei, L. & Adjei-Fremah, S. (2024). PFAS-induced mitochondrial dysfunction and aging in N18 neuroblastoma cells.

SECONDARY PROJECT

POSTER

Fulp, K., Hart, K., McNeil, M., & Adjei-Fremah, S. (2024). GenX exposure induces mitophagy, mitochondrial dysfunction, and mitochondria DNA damage in HepG2 cells.

SECONDARY PROJECT

POSTER

Owusu, T. & Adjei-Fremah, S. (2024). Synergistic inflammatory and metabolic disruptions by PFAS chemicals and lipopolysaccharide exposure in HepaRG cells.

■ PROFESSIONAL CONFERENCES, WORKSHOPS, & ASSEMBLIES

UNIVERSITY OF NORTH CAROLINA ADAMS SCHOOL OF DENTISTRY

CHAPEL HILL, NC

**National Institute of Diabetes and Digestive and Kidney Diseases
R25 2025 Symposium**

July 2025

WAKE FOREST BIOTECH PLACE

WINSTON-SALEM, NC

Wake Forest Regenerative Medicine for All Public Day

June 2025

FORSYTH TECHNICAL COMMUNITY COLLEGE

WINSTON-SALEM, NC

**National Science Foundation / NC Regenerative Medicine Engine
Regenerative Medicine Essentials**

April 2025

JOINT SCHOOL OF NANOSCIENCE AND NANOENGINEERING

GREENSBORO, NC

American Chemical Society Poster Vendor Night

April 2025

WSSU / WAKE FOREST INSTITUTE FOR REGENERATIVE MEDICINE

WINSTON-SALEM, NC

WSSU Regenerative Medicine Workshop - Advanced Cell Culture Techniques

March 2025

DAVID L. LAWRENCE CONVENTION CENTER

PITTSBURGH, PA

Annual Biomedical Conference for Minoritized Scientists

November 2024

■ SELECTED COMMUNITY SERVICE EXPERIENCE

EDUCATION WINSTON-SALEM STATE UNIVERSITY

WINSTON-SALEM, NC

Instructional Volunteer

August 2025

Partnered with Winston-Salem State University and the Greensboro Seventh-Day Adventist Church to lead interactive biology sessions for young learners.

HEALTH PATHWAY TO HEALTH / AMEN CLINIC

GREENSBORO, NC

Patient Care Assistant

October 2024

Promoted the free dental, optical, dermatological, pediatric, obstetric, physiotherapeutic, mental, and general care services of the Mega Triad Clinic, a free pop-up health center, door-to-door in local underserved communities ahead of the event

Directly interfaced with patients during the event to guide them to appropriate channels of care.

EDUCATION GREENSBORO SDA SUMMER SCIENCE EXPO

GREENSBORO, NC

Instructional Volunteer

July 2024

Collaborated with science presenters to optimize compact, engaging, and developmentally appropriate learning experiences in chemistry and physical science.

Directed structured and interactive lessons to enhance science literacy and forge educational connections for elementary, middle, and high school-aged learners.

SOCIAL SERVICES HARNETT COUNTY ELDERLY NUTRITION PROGRAM

DUNN, NC

Food Distribution Volunteer

August 2019 - May 2020

Packaged and delivered hot meals to ill or invalidated senior citizens. Learned how best to treat those in need of comfort or recognition, advocate for the needs of others, and provide care in team settings.

SENIOR CARE DUNN SENIOR ENRICHMENT CENTER

DUNN, NC

Senior Citizen Activity Assistant

August 2019 - May 2020

Facilitated enrichment sessions for senior citizens, including stimulating games and creative activities

POVERTY ALLEVIATION COMBINED UNIFIED COMMUNITY SERVICE

FAYETTEVILLE, NC

Food and Clothing Distribution Volunteer

July 2016 - December 2020

Aided with religious and social improvement projects for disadvantaged adults and youth in the Fayetteville metropolitan area. Packaged and distributed food and clothing donations. Expanded the impact and reach of these projects with custom-designed promotional material.

■ PROFESSIONAL ASSOCIATIONS + AFFILIATIONS

American Association for Cancer Research	December 2024 - Present
American Association for the Advancement of Science	December 2024 - Present
American Society for Cell Biology	December 2024 - Present
Arizona State University Alumni Association	May 2024 - Present
Biomedical Research Infrastructure Center (WSSU)	June 2024 - Present
Wake Forest Institute for Regenerative Medicine (WFU)	June 2024 - Present

■ RESEARCH TECHNIQUES + RELEVANT SKILLS

Cell Culture / Aseptic Technique, Biosafety Hood Workflow and Maintenance, Cell Counting, Cryo-preservation, Growth Optimization, Hemocytometry, Media Preparation, Microscopy, Subculture

Computation / Adobe Creative Cloud (including Adobe Acrobat, Illustrator, and InDesign), AI Solutions, BLAST, Microsoft Office (including Microsoft Excel and Word), R, SPSS, Statistical Data Analysis

Experimental Techniques / Assay Selection, Cell Viability Protocols, Experimental Design, Fluorescent Spectrophotometry, Literature Review, Troubleshooting

Genetics / DNA and RNA Extraction Protocols, NanoDrop Spectrophotometry, Primer Design and Selection

Professional / Planning and Organization, Leadership, Communication, Technical Writing, Collaborative Problem Solving, Project Management

■ PRESS

INNOVATION QUARTER

PROFILE ARTICLE

Innovation Quarter. (2025, April 15). *Michael McNeil, the next generation of cell biologist* in “Keeping the gears moving: Unsung heroes of research in the iQ.” <https://www.innovationquarter.com/articles/keeping-the-gears-moving-unsung-heroes-of-research-in-the-iq/>