

Maribel E. Okiye

PhD Chemistry | MS Bioinformatics

PROFILE

Highly motivated and enthusiastic scientist with expertise in designing methodologies for small molecule isolation, characterization, and bioactivity testing, primarily centered around natural products within the human microbiome. Proficient in LCMS and LCMSMS analysis, showcasing a solid understanding of analytical techniques. Possesses intermediate knowledge in R and Python programming, with a specific focus on metabolomic and metagenomic data analysis. Extensive experience in protein expression and elucidating biosynthetic pathways of small molecules, demonstrating a strong background in molecular biology. Demonstrates exceptional skills in oral and written science communication, enabling effective dissemination of research findings. Adept at public speaking and has a proven track record of leadership and mentoring through various roles both within and outside the laboratory.

EDUCATION

Ph.D. Chemistry, University of Michigan May 2018 — Expected Dec 2023	Ann Arbor, MI
M.S. Bioinformatics, University of Michigan Sep 2020 — Expected Dec 2023	Ann Arbor, MI
M.S. Chemistry, University of Michigan May 2018 — Dec 2021	Ann Arbor, MI
B.S. Biochemistry, The Catholic University of America Aug 2014 — May 2018	Washington D.C.

PROFESSIONAL DEVELOPMENT & CERTIFICATES

Diversity Equity & Inclusion Certificate Sep 2020 — Present	University of Michigan, Ann Arbor, MI
Graduate Teaching Certificate Aug 2019 — Present	University of Michigan, Ann Arbor, MI

CURRENT POSITION

Graduate Student Research Fellow, University of Michigan Jan 2019 — Present	University of Michigan, Ann Arbor, MI
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Laboratories of Drs. David H Sherman & Ashootosh Tripathi
Thesis: Game of Microbes: Natural Products as Weapons for Microbial Regulation in the Oral Cavity

Study microbial interactions in the oral cavity using metagenomics and metabolomics during different states of disease

- **Metabolomic Analysis:** Proficient in using methodologies to perform metabolomic analysis of MSMS data.
- **Anaerobic Oral Bacteria Culturing:** Experienced in developing methodologies to sustain large-scale isolate and community cultures of anaerobic oral bacteria.
- **Secondary Metabolite Isolation:** Skilled in characterizing and isolating bioactive secondary metabolites produced by oral microbes.
- **Biological Assays:** Proficient in developing biological assays to test molecules for pro-/anti-inflammatory, anti-biofilm, and antiviral activity.
- **Grant and Manuscript Writing:** Experienced in writing and reviewing grants and manuscripts to secure funding for project progression.
- **Collaboration:** Proven ability to collaborate extensively with researchers in the field, facilitating project advancement.
- **Instrumentation Development:** Proficient in developing methods for analytical instruments to analyze and characterize small molecules and proteins.
- **Metabolic Pathway Evaluation:** Skilled in developing systems to evaluate changes in metabolic pathway activation during controlled challenge experiments.

DETAILS

LinkedIn:
<https://www.linkedin.com/in/maribelokiye/>

Phone:
(340) 998 4807

Email:
mekokiye@gmail.com

LABORATORY SKILLS

Biofilm Development & Screening
ELISA Assay
Intermediate Python
Intermediate R
Luciferase Assays
Mammalian Cell Culture
Mass Spectrometry
Metabolomics
Microbe-Microbe Interactions
MTT Assays
Natural Product Chemistry
Nuclear Magnetic Resonance Spectrometry
Protein Expression
Structural Characterization (Small molecules)
Uni/Multi-variant Statistics

PERSONAL SKILLS

Leadership
Problem Solving
Project Management
Science Communication
Team Management
Training & Mentorship

PREVIOUS EXPERIENCE

Coordinator, Rackham Research University Alliance Office , University of Michigan

Ann Arbor, MI

August 2022 — present

- Conceptualize plans to engage graduate students in RUA programming
- Manage all RE and Postdoc Portal communication
- Facilitate with the RUA partners, coordinate scheduling and hosting for incoming participants, and U-M outgoing participants
- Assist with planning and organizing RUA RE Orientation Sessions, track reporting and travel awards reimbursement
- Develop and implement outreach/advertising of RUA programming to U-M participants
- Attend standing, bi-weekly and monthly RUA meetings
- Assist with annual NSF Site Visit and Reporting preparations

Summer Research Intern

MIT Lincoln National Laboratory

Lexington, MA

May 2022 — Sept 2022

Laboratory of Dr. Roderick Kunz

- Led projects that established pipelines for large-scale biological data (DNA and RNA sequence) analysis
- Used knowledge in statistical methods and critical data to draw robust conclusions from complex datasets
- Presented conclusions and proposals in various research and community settings, including sponsor meetings conferences, and site updates.
- Used proficiency in anaerobic and aerobic bacteriology to develop biological activity assays to test metabolic functions and by-products of oxygenic-sensitive bacteria from the human intestinal tract
- Developed computational methods to evaluate metabolic process imparities in clinical and in-vitro experimentation
- Used current tools to correlate differential gene expression in RNA-seq data from human clinical studies to specific cardiovascular diseases

National Science Foundation (NSF-REU) Undergraduate Research Intern, University of Michigan, College of Pharmacy

Ann Arbor, MI

May 2017 — Aug 2017

Laboratory of Dr. David H. Sherman

- Worked on elucidating the biosynthetic pathways of Nas A and Nas B, which are cyclodipeptide synthases upstream from a well-studied cytochrome P450
- Manipulated Nas A and B's binding site to increase natural product diversity
- Gathered, arranged, and corrected research data to create representative graphs and charts highlighting results for presentations and assessed data using scientific methods

SELECTED FELLOWSHIPS & TRAINEESHIPS

National GEM Consortium Full Science Fellowship (GEM Full Fellow)

Aug 2022

Integrated Training in Microbial Systems Associate Traineeship (ITiMS)

Aug 2021

National Science Foundation Graduate Research Fellowship (NSF-GFRP)

Aug 2020

National Institute of Health Chemical-Biology Interface Traineeship (NIH- CBI)

Aug 2019

Rackham Merit Fellowship (RMF)

Aug 2018

SELECTED HONORS & AWARDS

Gordon Research Seminar on Metabolomics & Human Health Co-Chair

Mar 2025

Gordon Research Seminar on Marine Natural Products Co-Chair

Mar 2024

2024 WCC/Pfizer Emergent Leader Award

Mar 2024

NOBCChe Winifred Burks-Houck Graduate Leadership Award

Sept 2023

Colgate's Smile with Science Symposium 1st Place Presentation Award

Jul 2023

American Society of Microbiology Future Leaders Mentoring Fellowship

Apr 2023

REFERENCES

Dr. David Sherman

davidhs@umich.edu

Dr. Ashootosh Tripathi

ashtri@umich.edu

Dean Anna Mapp

amapp@umich.edu

Dr. Cherie Dotson

crdotson@umich.edu

Katie Foster

katfost@umich.edu

American Society of Microbiology Michigan Chapter Oral Presentation Award

Mar 2023

ACS Huron Valley Section - Outstanding Student Leadership Award

May 2023

Gordon Research Conference Carl Storm Fellowship

Mar 2022

Life Sciences Institute's David & Michelle Kroin Scholarship

Dec 2021

NOBCCChE Chemical Biology and Medicinal Chemistry Division Oral Presentation Award

Sept 2021

Life Science Institute Outreach Award

Jan 2021

PUBLICATIONS

Okiye, M. E. K. et al. Investigating Metabolic Trends in the Oral Cavity to Identify Novel Metabolites. 2023.06.26.546600. <https://doi.org/10.1101/2023.06.26.546600> (2023)

"Oral Microbe Secondary Metabolites found to increase Oral Carcinoma Cancer Cells."

In progress

"Development of Biofilm Screening Method for Investigating Oral Microbe Metabolite Dynamics Leads to the Discovery several Biofilm Enhancer Metabolites from Oral Microbes."

In progress

SELECTED PRESENTATIONS & SYMPOSIA

"Metabolomic and metagenomic analysis of the salivary metabolome during induced gingivitis exposes delayed metabolic response in oral health remediation"

2023 National Organization on Metabolomics & Human Health
New Orleans, LA - September 2023

"Exploring the Metabolic Diversity of the Human Oral Microbiome for the Discovery of Novel Bioactive Secondary Metabolites Using Anaerobe Culturomics, Metabolomics, and High-Throughput Screening"

2023 Chemistry-Biology Interface Training Program Annual Symposium
Ann Arbor, MI - August 2023

"Metabolic alterations in the human oral cavity reveal new diagnostic biomarkers."

2023 Colgate's Smile with Science Symposium
Virtual - July 2023

"Unveiling the biological potential of the human oral microbiome ."

2023 Gordon Research Conference on Metabolomics & Human Health
Barga, Lucca, Italy - Mar 2023

"Metabolic alterations in the human oral cavity reveal new diagnostic tools."

4th SIMB International Conference On Natural Product Discovery In The Genomic Era
San Diego, CA - Jan 2023

"Game of microbes: Natural products as weapons for microbial regulation in the oral cavity."

2022 Gordon Research Conference on Marine Natural Products
Ventura, CA - Mar 2022

"Game of microbes: Natural products as weapons for microbial regulation in the oral cavity."

2022 ACS Spring Meeting Bonding through Chemistry
San Diego, CA - Mar 2022

"Game of microbes: Natural products as weapons for microbial regulation in the oral cavity."

2021 Metabolomics Association of North America Virtual Conference
Virtual - Nov 2021

"Exploration of the human oral metabolome throughout induced gingivitis."

2021 SACNAS NDISTEM Digital Conference
Virtual - November 2021

"Using summer internships as pre-graduate school experiences."

Life Science Institute Undergraduate Forum
Virtual - October 2021

SELECTED DISCIPLINE-RELATED OUTREACH/INITIATIVES

Chemistry Biology Recruitment Initiative University of Michigan Sept 2022— Present	Ann Arbor, MI
Rackham RUA Coordinator University of Michigan Sept 2022— Present	Ann Arbor, MI
Graduate Success Partner, University of Michigan Oct 2021— Present	Ann Arbor, MI
Graduate Student Facilitator, Girls Who Code, University of Michigan Sep 2020 — Present	Ann Arbor, MI
Volunteer Tutor, 826 Michigan Jul 2020 — Present	Ann Arbor, MI
Presenter and Group Leader, MiRcore Jan 2019 — Present	Ann Arbor, MI
NSF REU Informational Coordinator, Catholic University of America Sep 2017 — Feb 2018	Washington DC

SELECTED DIVERSITY-RELATED OUTREACH/INITIATIVES

Coordinator , Chemistry Biology Recruitment Initiative Jun 2022 — Present	University of Michigan, Ann Arbor, MI
Life Sciences Institute Trainee Committee Aug 2020 — Present	University of Michigan, Ann Arbor, MI
President & Founder, commUNITY @ UM Chemistry May 2021 — May 2022	AAAC Delta Sigma Theta Sorority, Inc., Ann Arbor, MI
Delta Sigma Theta Sorority, Inc. Delta GEMS Program May 2021 — May 2022	University of Michigan, Ann Arbor, MI
Diversity Advisory Council, Life Sciences Institute Aug 2020 — May 2022	University of Michigan, Ann Arbor, MI