

Taylor A. Dodson, Ph.D.

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Academic History:

Ph.D. Medicinal Chemistry	University of Toledo, Toledo, OH Advisor: Erin G. Prestwich, Ph.D.	2022
B.S. Chemistry	Gardner-Webb University (GWU), Boiling Springs, NC	2017

Professional Experience:

Visiting Assistant Professor of Biology	Pacific Lutheran University, Tacoma, WA	Fall 2022-present
Taught Microbiology for undergraduate biology students and Allied Health students, including the development of laboratory experiments, lesson plans, lecture material, and all assessments. Management of undergraduate Microbiology teaching assistants who prepare reagents, supplies, and other necessary products for laboratory projects.		
Instructor of Microbiology	University of Toledo	Spring 2022
Taught Microbiology for undergraduate and professional students, including working with existing curriculum and the design of new curriculum, and all assessments.		
Teaching Assistant	University of Toledo	2017-2022
Taught Medicinal Chemistry, Targeted Drug Design, Physiological Chemistry II, and Microbiology for Pharmaceutical Professionals discussions; Aided in planning, set up, and instruction of Microbiology and Immunology Lab for undergraduates and professional students.		
Ph.D. dissertation research	University of Toledo	August 2017-2022
Dissertation titled, "Implications of tRNA Modifications in <i>Pseudomonas aeruginosa</i> Biofilm Regulation and Diabetic Murine Cardiology." Bioanalytical chemistry; molecular and chemical biology; microbiology. Nucleic acid chemistry. Post-transcriptional modifications. Biomarker identification. Bioanalytical techniques including, mass spectrometry, HPLC, biomolecule isolation development, electron microscopy, dynamic light scattering, fluorescence microscopy, and gel electrophoresis. Molecular biological techniques including cell cultures (bacterial and mammalian), PCR, and RT-qPCR.		
Graduate student mentor	University of Toledo	2018-2022
Worked one-on-one with undergraduate and professional students seeking experience in laboratory procedures and development of project design; including instruction of microscopy, microbiological techniques, and spectrometry.		
Teaching Assistant	GWU	2016-2017
Taught General Chemistry Lab for freshman and sophomore undergraduate students.		
Note Taker for NOEL Program	GWU	2016
Recorded notes of class lectures for students with disabilities.		

Awards, Honors, and other Experience:

Literature Reviewer	International Elsevier Journal	Fall 2022
Grant writing experience	National Institute of Aging R21 grant American Heart Association (AHA) grant	Spring 2022
Graduate student volunteer, NIH RCR training	Lead breakout room discussions in workshop	Spring 2022
Graduate Student Oral Presentation Award	ACS National Meeting, Chemical Toxicology Division	Fall 2021

NIH NIEHS Travel award	ACS National Meeting, Chemical Toxicology Division	Fall 2021
Academic Trustee Scholarship	GWU	2013-2017
Golf Athletic Scholarship	GWU	2013-2017
M.A. Mosely Senior Chemistry Award, Outstanding Chemistry Senior	GWU	2017
Gamma Sigma Epsilon President, Alpha Iota Chapter	GWU	2017
Big South Conference Scholar Athlete of the Year Women's Golf	GWU	2017

Professional Memberships and Certifications:

Mental Health First Aid Certified	March 2022-25
American Chemical Society (ACS) Chemical Toxicology and Biological Chemistry Divisions	2018-present
American Society for Microbiology (ASM)	2020-present

Publications and Presentations:

Publications:

Taylor A. Dodson, Eric A. Carlson, Nathan C. Wamer, Jennifer N. Gadiant, Chase N. Morse, and Erin G. Prestwich. "Characterization of distinct biofilm cell subpopulations and implications in quorum sensing and antibiotic resistance." *mBio*, **Vol. 13**, e0019122, doi: 10.1128/mbio.00191-22 (2022).

Taylor A. Dodson, Stephan Nieuwoudt, Chase N. Morse, Chao Liu, Valinteshley Pierre, Samuel E. Senyo, and Erin G. Prestwich. "Ribonucleosides from tRNA in hyperglycemic mammalian cells and diabetic murine cardiac models." *Life Sciences*, **Vol. 318**, doi: 10.1016/j.lfs.2023.121462 (2023).

Nathan C. Wamer, Chase N. Morse, Jennifer N. Gadiant, **Taylor A. Dodson**, Eric A. Carlson, and Erin G. Prestwich. (Accepted for publication at ASMS). "Comparative MALDI matrix fragmentation and the analysis of biomolecules in *Pseudomonas aeruginosa*."

Oral Presentations:

"Implications of tRNA Modifications in *Pseudomonas aeruginosa* Biofilm Regulation and Diabetic Murine Cardiology." Dissertation defense, Toledo, OH, July 26, 2022.

"Analysis of post-transcriptional modifications in tRNAs associated with hyperglycemia in diabetes-associated cells." 262nd ACS National Meeting & Exposition, Atlanta, GA, August 22-26, 2021

Posters:

"The identification, isolation, and characterization of distinct biofilm cell subpopulations and implications to antibiotic resistance and quorum sensing," Abstracts of Papers, ASM Microbe 2022, Washington D.C., June 9-13, 2022.

“Robust methods to isolate, identify, and quantify tRNA modifications in prokaryotic and eukaryotic models.” Abstracts of Papers, 23rd Rustbelt RNA Meeting, 2021, Virtual meeting, September 10-11, 2021.

“Analysis of post-transcriptional modifications in tRNAs associated with hyperglycemia in diabetes-associated cells.” Abstracts of Papers, 262nd ACS National Meeting & Exposition, Atlanta, GA, August 22-26, 2021

“Analysis of tRNA post-transcriptional modifications in *Pseudomonas aeruginosa* cell growth phases.” Abstracts of Papers, 262nd ACS National Meeting & Exposition, Atlanta, GA, August 22-26, 2021.

“RNA Modifications in a Novel *P. aeruginosa* Biofilm Model.” Abstracts of Papers, ASM Microbe 2020, Chicago, Illinois, June 18-22, 2020. Accepted but not presented due to COVID-19.

“Quantitative analysis of post-transcriptional modifications from bacterial systems.” Abstracts of Papers, 21st Rustbelt RNA Meeting 2019, Cleveland, Ohio, United States, October 25-26, 2019.

“Quantitative analysis of total RNA from complex bacterial systems.” Abstracts of Papers, 26th Midwest Microbial Pathogenesis Conference, Toledo, Ohio, United States, Sept. 20-22, 2019.

“Development of quantitative solution phase extractions and analysis of total RNA from complex bacterial matrices.” Abstracts of Papers, 50th ACS Central Regional Meeting (CERM), Midland, Michigan, United States, June 4-8, 2019.

“Isolation of Total RNA from Differentiated Bacterial Cells.” Abstracts of Papers, 10th Midwest Graduate Research Symposium (MGRS), Toledo, Ohio, United States, April 6, 2019.