Erin Margaret Nawrocki
Curriculum Vitae
Updated February 2021

Education

2018 **Ph.D. in Microbiology,** University of Wisconsin-Madison

Dissertation: Mechanisms underlying the transfer of plasmid-borne botulinum neurotoxins in Group I *C. botulinum*

2013 **B.S. in Biology**, *summa cum laude*, Allegheny College

Thesis: Formation and structure of biofilms in wildtype and mutant *Haemophilus ducreyi*
Minor: American Studies

Research Experience

2019- **Postdoctoral Scholar**, Pennsylvania State University (PI: Edward G. Dudley)

- Characterized the production and regulation of a novel antimicrobial peptide that increases Shiga toxin expression in enterohemorrhagic *E. coli*
- Contributed to GenomeTrakr, a national network for surveillance of foodborne pathogens, by performing whole genome sequencing of bacterial isolates
- Investigated the virulence and antibiotic resistance profiles of *E. coli* sequence type 73, a diverse lineage with pathogenic, commensal, and probiotic members
- Mentored graduate and undergraduate students in bacterial genetics, molecular biology, and bioinformatic techniques

2013-2018 **Graduate Student**, University of Wisconsin-Madison (PI: Eric A. Johnson)

- Demonstrated that plasmid-encoded botulinum neurotoxin could be transferred between phylogenetically distant strains of *Clostridium* and expressed in transconjugants
- Participated in purification of a new subtype of botulinum neurotoxin
- Maintained appropriate clearances to research *C. botulinum* and its neurotoxins through the Federal Select Agent Program

2010-2013 **Undergraduate Research Fellow**, Allegheny College (PI: Tricia L. Humphreys)

- Optimized assays for investigating biofilm formation in *H. ducreyi*, a fastidious organism that causes the genital ulcer disease chancroid
- Determined the susceptibility of *H. ducreyi* and *Lactobacillus* to the natural product resveratrol
- Received funded fellowships from Allegheny College, the American Society for Microbiology, and the National Science Foundation (REU in Prokaryotic Biology at the University of Georgia)

Teaching Experience

2019- **Guest Lecturer**, Pennsylvania State University

Course: Food Microbiology
- Prepared instructional materials and delivered lectures on foodborne clostridia

2015-2017 **Microbiology Teaching Fellow**, University of Wisconsin-Madison

Course: Current Topics in Microbiology
- Developed and implemented a "teachable unit" that included lecture materials, homework assessments, and discussion questions
- Led weekly discussions of primary literature articles with classes of 16 students
- Served as instructor of record and evaluated all student work

Course: General Microbiology Laboratory
- Gave introductory lectures and demonstrated laboratory techniques to sections of 30-40 undergraduates
- Graded problem sets, reports, and exams and shared responsibility for writing assessments

2011-2013 **Undergraduate Teaching Assistant**, Allegheny College

Course: Investigative Approaches in Biology
- Aided students in designing and interpreting experiments and editing laboratory reports

Mentoring Experience

2019- USDA Research Experience & Extension for Undergraduates

- Participated in an annual departmental summer program hosting 10-20 students from small colleges and the University of Puerto Rico
- Trained all students in proper laboratory methods and supervised 3-4 student research projects each year

Publications

Peer-Reviewed Articles

Connolly CJ, Kaminsky L, Pinto GN, Sinclair PC, Bajracharya G, Yan R, **Nawrocki EM**, Dudley EG, Kovac J. 2020. Whole-genome sequences of *Salmonella* isolates from an ecological wastewater treatment system. *Microbiology Resource Announcements* 9(23).

Nawrocki EM*, Mosso HM*, Dudley EG. 2020. A toxic environment: a growing understanding of how microbial communities affect *E. coli* O157:H7 Shiga toxin expression. *Applied and Environmental Microbiology* 86:e00509-20. *Equal contributions. Selected for "Spotlight" feature highlighting articles of significant interest in this issue.

Nawrocki EM, Bradshaw M, Johnson EA. 2018. Botulinum neurotoxin–encoding plasmids can be conjugatively transferred to diverse clostridial strains. *Scientific Reports* 8(1):1-11.

Pellett S, Tepp WH, Bradshaw M, Kalb SR, Dykes JK, Lin G, **Nawrocki EM**, Pier CL, Barr JR, Maslanka SE, Johnson EA. 2016. Purification and characterization of botulinum neurotoxin FA from a genetically modified *Clostridium botulinum* strain. *mSphere* 1(1):e00100-15.

Nawrocki EM, Bedell HW, Humphreys TL. 2013. Resveratrol is cidal to both classes of *Haemophilus ducreyi*. *International Journal of Antimicrobial Agents* 41(5):477-479.

Book Chapters

Kovac J, Dudley EG, **Nawrocki EM**, Yan R, Chung T. 2021. Whole Genome Sequencing: The Impact on Foodborne Outbreak Investigations. In: Cifuentes, A. (Ed.), *Comprehensive Foodomics*, vol. 1. Elsevier, pp. 147–159.

Submitted Manuscripts and Preprints

Nawrocki EM, Dudley EG. 2021. Virulence profiles of sequence type 73 *Escherichia coli* isolates from nonhuman sources. [In revision.]

Selected Presentations

Nawrocki EM, Dudley EG. “CirA is the receptor for Mcc1229, a Stx2a-amplifying microcin.” Accepted as a poster at the American Society for Microbiology’s Microbe Meeting in Chicago, IL, June 2020 (conference cancelled).

Loperena-González PN, Padin-López AF, Miranda-Nieves SM*, Yoder K, **Nawrocki EM**, Dudley EG, Malavez-Acevedo Y. “Whole genome sequencing and bioinformatics analysis of *E. coli* isolates from different farm management systems in Puerto Rico.” *Presented as a poster at the Allegheny Branch of the American Society for Microbiology’s Annual Meeting in Loretto, PA, November 2019 and awarded 1st prize in division.

Nawrocki EM, Fredrick CM, Bradshaw M, Johnson EA. “Group I *C. botulinum* plasmids are capable of conjugation.” Presented as a poster at the Molecular Genetics of Bacteria and Phages Meeting in Madison, WI and at the Interagency Botulism Research Coordinating Committee Meeting in San Francisco, CA, Fall 2017.

Nawrocki EM, Bradshaw M, Johnson EA. “Large BoNT-encoding plasmids are transferred by conjugation.” Presented as a poster at the Interagency Botulism Research Coordinating Committee Meeting in Atlanta, GA, October 2016.

Nawrocki EM, Humphreys TL. “Biofilm formation in wildtype and mutant *Haemophilus ducreyi*.” Presented as a poster at the American Society for Microbiology General Meeting in Denver, CO, May 2013.

Nawrocki EM, Humphreys TL. “Biofilm formation in wildtype and mutant *Haemophilus ducreyi*.” Presented orally at the Penn State Behrend-Sigma Xi Undergraduate Research and Creative Accomplishment Conference in Erie, PA, April 2013 and awarded 1st prize in division.

Honors and Awards

2017	Graduate Travel Award, UW-Madison Bacteriology Department
2017	Dorothy Strong Scholarship, UW-Madison College of Agricultural & Life Sciences
2013	Molecular Biosciences Training Grant, UW-Madison (NIH T32 Award)
2013	Outstanding Senior Major Award, Allegheny College Biology Department
2013	Harold M. State Research Fellowship, Allegheny College
2012	Inductee, Phi Beta Kappa
2012	Undergraduate Research Fellowship, American Society for Microbiology
2012	Travel Grant, Council for Undergraduate Research
2012	Outstanding Junior Major Award, Allegheny College Biology Department
2012	Honorable Mention, Barry M. Goldwater Scholarship
2011	Research Experience for Undergraduates Fellowship, NSF

Outreach and Service

2020-	Ad Hoc Reviewer: *mSphere*, *Frontiers in Microbiology*, *PeerJ*
2019	Mentorship Training Certificate, Penn State Office of Postdoctoral Affairs
2016-2017	Alumni Mentor, Pennsylvania Governor’s School for the Sciences
2014	Mentor, Madison Middle School Science Symposium
2012-2013	Chapter President, Beta Beta Beta Biology Honor Society