Curriculum Vitae

Marissa Henager
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706.238.7750
Department of Chemistry and Biochemistry,
Berry College

Education

Purdue University *August 2025*
Chemistry M.S., GPA 3.21
Berry College
Chemistry B.S., Magna Cum Laude *May 2022*
American Chemistry Society (ACS) Certified Chemistry Major

Academic Experience

Fall 2022-Summer 2025
Teaching assistant for organic chemistry labs- chemical engineering, majors, and honors
August 2021 – May 2022
Organic Chemistry for Majors Lab Lead Coordinator at Berry College
Communicated with professors to ensure teaching labs were properly prepared and directed the lab prep team members and ensured safe chemical preparation

Research Experience

January 2023 – Summer 2025
David Thompson Lab Graduate Researcher at Purdue University
Synthesis of polycationic beta-cyclodextrin derivatives with highly charged oligopeptides for use in layer-by-layer elastin-like polypeptide nucleic acid nanoparticles (LENN) for targeted drug delivery
Continuous flow synthesis of amides using a pyridine-borane catalyst for use in the synthesis of active pharmaceutical ingredients
June 2020 – May 2022
Mark Turlington Lab Undergraduate Researcher at Berry College
Engaged in multi-step syntheses of a photoaffinity labels derived from the cystic fibrosis drug VX-809 for binding site determination to the cystic fibrosis transmembrane conductance regulator (CFTR) protein

Skills

1. Mentorship experience with undergraduate researchers
2. Experience with lecturing for organic undergraduate labs
3. Tutoring experience
4. Small molecule synthesis
5. Synthesis of highly positively charged large molecules
6. Matrix-Assisted Laser Desorption/Ionization Mass Spectroscopy
7. Nuclear Magnetic Resonance Spectroscopy
8. Continuous flow chemistry
9. Mass Spectrometry
10. High Pressure Liquid Chromatography
11. Gas Chromatography
12. Experience in PyMol, MestreNova, Agilent systems, and Excel

Publications

1. S. Darji, F. Qu, **M. Henager**, A. Prasad, B. Elzey, and D. H. Thompson, "Optimizing mRNA Delivery with Elastin-Like Polypeptide Based LENN Formulation: Insights into Endocytosis Mechanism". *Manuscript under review.*
2. Anna Lester, Madeline Sandman, Caitlin Herring, Christian Girard, Brandon Dixon, Havanna Ramsdell, Callista Reber, Jack Poulos, Alexis Mitchell, Allison Spinney, **Marissa E. Henager**,

Claudia N. Evans, Mark Turlington, and Quentin R. Johnson. "Computational Exploration of the CFTR Binding Site for Type 1 Corrector Drugs." *Biochemistry.* 2023.

3. Phillip J. Alexander, Dillon Button-Jennings, Claudia N. Evans, Mason B. Hemstreet, **Marissa E. Henager**, Stephanie Jacob, Charles S. Jolly, Maayan R. Lantzman, Alexandra Saputo, Nolan R. Stager, Elizabeth L. Whitman, Bohdi J. Young and Gary W. Breton. Introduction of a Computational Chemistry Course-Based Undergraduate Research Experience (CURE) into an Advanced Organic Chemistry Lab: An Investigation of Propellane Formation. *World Journal of Chemical Education*. 2021; 9(3):88-93.

Presentations

- "Development of LENN for Targeted Nucleic Acid Therapeutics", **Marissa Henager**, Joydeep Rakshit, Feng Qu, Saloni Darji, Aayush Aayush, Ankita Prasad, Derek May, Hayden Schneider, Evie Renninger, David Thompson, Herbert C. Brown Lectures in Organic Chemistry, West Lafayette, IN, April 2025 (poster)
- "Synthesis of Photoaffinity Labels Derived from VX-809", Claudia N. Evans, **Marissa E. Henager**, and Mark Turlington, 262nd National Meeting of the American Chemical Society, Atlanta, GA, August 2021 (poster)
- "Synthesis and Crystal Structure of the Potassium Salt of Para-cresol", **Marissa E. Henager** and Ken Martin, Berry College Symposium on Student Scholarship, Mount Berry, GA, April 2021 (poster)
- "Development of Photoaffinity Labels to Identify VX-809 CFTR Binding Site" Claudia N. Evans, **Marissa E. Henager**, and Mark Turlington, Berry College Summer Symposium on Student Scholarship, digital poster presentation, August 2020