

Carl J. Stone

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EDUCATION

Vanderbilt University

August 2020 – Present

Ph.D. Candidate in Biology with a focus on bacterial evolution

University of Minnesota – Twin Cities

August 2014 – May 2018

Bachelor of Science *magna cum laude* in Microbiology

RESEARCH EXPERIENCE

Vanderbilt University, Nashville, TN

May 2021 – Present

Ph.D Candidate in the laboratory of Dr. Megan Behringer, Department of Biological Sciences

- Research investigating genetic and epigenetic adaptations to starvation in *Escherichia coli* adapted to starvation.
- Published an R package for the Comparison of Microbial Methylated Adenines (CoMMA) using third-generation sequencing data
- First author on one publication detailing epigenetic changes in experimentally evolved bacteria
- Author on another publication investigating the emergence of semi-stable subpopulations within experimentally evolved *E. coli* populations

Georgetown University, Washington, DC

September 2018 – June 2020

Research Assistant in the laboratory of Dr. Shaun Brinsmade, Department of Biology

- Studied the nutritional regulation of virulence in *Staphylococcus aureus* using molecular genetics techniques including molecular cloning, phage transduction, qPCR, and construction of GFP reporter fusions
- Mentored two undergraduate students (Fall 2018 – Spring 2020) and trained two graduate students (September 2019 – December 2019)

University of Minnesota, St. Paul, MN

May 2017 – May 2018

Undergraduate Researcher in the laboratory of Dr. Michael Sadowsky, Department of Soil, Water, and Climate

- Compared the accuracy of microbial community ecology packages mothur, QIIME, and DADA2
- Wrote an undergraduate thesis for degree completion with Latin honors

University of Minnesota Veterinary Diagnostic Lab, St. Paul, MN

April 2016 – August 2017

Student Lab Technician, Lab for Udder Health

- Performed microbiological testing including bacterial culture, standard plate counts, antibiotic sensitivity testing, and MALDI-TOF mass spectrometry sample preparation

HONORS AND AWARDS

Vanderbilt University

- Department of Biological Sciences Best Oral Presentation **\$200**, Spring 2024

SouthEastern Population Ecology and Evolutionary Genetics Conference

- Best Graduate Student Oral Presentation, Fall 2021

PUBLICATIONS

Stone CJ, Boyer GF, and Behringer MG. 2023. Differential adenine methylation analysis reveals increased variability in 6mA in the absence of methyl-directed mismatch repair. *Mbio* **14**, e01289-23.

Pendleton A, Yeo W-S, Alqahtani S, DiMaggio DA Jr., **Stone CJ**, *et al.* 2022. Regulation of the Sae two-component system by branched-chain fatty acids in *Staphylococcus aureus*. *Mbio* **13**, e01472-22.

Behringer MG, Ho W-C, Meraz JC, Miller SF, Boyer GF, **Stone CJ**, *et al.* 2022. Complex ecotype dynamics evolve in response to fluctuating resources. *Mbio* **13**, e03467-21.

Mlynek KD, Bullock LL, **Stone CJ**, *et al.* 2020. Genetic and biochemical analysis of CodY-mediated cell aggregation in *Staphylococcus aureus* reveals an interaction between extracellular DNA and polysaccharide in the extracellular matrix. *Journal of bacteriology* **202**, 10–1128.

CONFERENCE PRESENTATIONS

Stone CJ, Behringer MG. A Bayesian framework for longitudinal analysis of transposon insertion-based fitness screens. Montreal, Canada. 3rd Joint Congress on Evolutionary Biology. Oral presentation selected for the symposium *Synthetic biology meets natural variation: fitness effects in the nature and the lab*. July 2024.

Stone CJ, Behringer MG. Differential adenine methylation analysis reveals 6mA variability after experimental evolution. National Harbor, MD. The Allied Genetics Conference 2024. Poster presentation. March 2024.

Stone CJ, Behringer MG. Increased variability in adenine methylation in the absence of methyl-directed mismatch repair in *Escherichia coli*. Cleveland, OH. Evolution 2022. Poster presentation. July 2022.

Stone CJ, Behringer MG. Epigenetic changes during long-term experimental evolution in *E. coli*. Athens, GA. SouthEastern Population Ecology and Evolutionary Genetics Conference. October 2021.

TEACHING AND MENTORING EXPERIENCE

Teaching Assistant, Principles of Genetics Fall 2021 and 2022
Vanderbilt University Department of Biological Sciences

- Guided weekly recitation sessions with 10-20 undergraduate students to review and reinforce lecture material.
- Graded course assessments and reviewed answers to ensure students understood concepts.

Graduate Mentor, Behringer Lab Fall 2021 – Fall 2022
Vanderbilt University