

Adena B. Collens

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EDUCATION

University of Maryland | College Park, MD

Biological Sciences - Behavior, Ecology, Evolution & Systematics (BEES)

Ph.D. Student | Smithsonian National Museum of Natural History NOAA Fellow in Marine Science

- Honors & Awards:
 - Teaching & Learning Transformation Center Innovation Grant (\$50,000) 2024
 - Dean's Fellowship 2023 - 2024
- Coursework: Algorithms for Evolutionary Biology, Teaching for Biologists, Statistics & Modeling for Biologists

Smith College | Northampton, MA

Biological Sciences B.A., Jewish Studies B.A. | GPA: 3.92/4.0

- Honors: *Cum Laude*, Highest Honors in Biological Sciences
- Dean's List 2017-2018, 2018-2019, 2019-2020
- Coursework: Evolution, Evolutionary Epigenetics Seminar, Intro to Computer Science, Bioinformatics & Comparative Molecular Biology Seminar & Lab, Statistics & Lab, Molecular Biology of Eukaryotes Seminar, Environmental Chemistry, Microbial Diversity Seminar, Advanced Microscopy Techniques: Laser Scanning Confocal Microscope, Transmission Electron Microscope, Genomics & Lab, Plant Ecology & Lab, Microbiology & Lab

RESEARCH EXPERIENCE

Ph.D. Student | August 2023 - Present

Co-Advised by Profs. Allen Collins and Mihai Pop

Collins Lab | NOAA National Systematics Laboratory

Smithsonian Institution National Museum of Natural History Department of Invertebrate Zoology

- Assessing genome skimming data from marine worm, *Convolutriloba longifissura*, and its endosymbiotic green algae, *Tetraselmis*, by assembling and subsequent analysis comparing derived sequences to publically available data to characterize the species to generate species and phylogenetic position of the symbiont and host.

Pop Lab | University of Maryland, College Park Department of Computer Science

- Benchmarking plasmid assembly methods to assess and combine them for a scalable approach to assemble epidemiologically-relevant plasmids from FDA Genome Tracker *Salmonella* genome sequences

University of Maryland, College Park Teaching and Learning Center, Teaching Innovation Grant

PI: Prof. Charles Delwiche

- Working with biological sciences (BSCI) faculty to develop customized bioinformatic modules for existing courses to strengthen the computational biology skills of UMD undergraduate biology majors

Bioinformatician, Computational Biologist | December 2022 - August 2023

University of Michigan Microbiology & Immunology Department, Ann Arbor, MI Schloss Lab

- Using text parsing and machine learning models to identify data availability compliance in

ASM sequencing papers, then pairing manuscripts with their bibliometric data from Clarivate to assess if data accessibility impacts citation count

- Assessing link reliability over time in American Society of Microbiology journals to quantify utility of linked data and resources in published manuscripts

Research Technician Intermediate | August 2021 - December 2022

University of Michigan Chemical Engineering Department, Ann Arbor, MI Lin Lab

- Engineered strains of yeast and bacteria to improve their production of renewable biofuels and biopolymers
- Collaborated with academic and industry experts including engineers at the Avalos Lab at Princeton and Ecovia Renewables Inc. for protocol design and optimization

Undergraduate Research Assistant | January 2018 - May 2021 *Smith College, Northampton, MA Katz Lab for Biodiversity and Genome Evolution of Microbial Eukaryotes*

- **Diversity and Ecology of Epizoic Foraminifera** - Honors Thesis | May 2020 - May 2021
 - Binned, assembled, annotated, and optimized gene trees from >200 metabarcoding samples with an in-house Python scripted pipeline executed in the command line
 - Organized metadata, ran statistical analyses, and visualized findings in R
- **Bacterial Symbionts of Uncultivable Protists** | September 2018 - December 2019
 - Developed and deployed genus-specific fluorescent probes to image bacterial symbionts of protist hosts with widefield and confocal fluorescent microscopy
- **Whole Transcriptome Analysis of Marine *Allogromia* Foraminifera** | January 2019
 - Isolated and sequenced single-cell whole transcriptomes and assessed identity
- **Population Genomics of Uncultivable *Amoeba* from Low-pH Bogs** | January - July 2018
 - Amplified and sequenced single-cell whole genomes to assess population diversity

Publication Data Analyst | January - March 2020

Genome Biology & Evolution

- Statistically analyzed gender bias trends in GBE's article acceptance rates for an editorial by the co-editors in chief on the subject

Skills: R, Bash, Git & GitHub, PCR, PCR Primer Design, DNA & RNA Extraction, MiSeq Sequencing, Light Microscopy, Confocal Microscopy, SEM, TEM, HPLC, Bacterial & Yeast Cell Culture

TEACHING EXPERIENCE

Teaching Assistant - BIO 161 Intro Evolution and Ecology, UMD | Fall 2023

- Led lecture and in-class activity and evaluation of two lab sections
- Lead weekly tutoring sessions and tailored one-on-one instruction to student needs

Teaching Assistant - BIO 232 Evolution and Genetics, Smith College | Fall 2019, 2020

- Assisted in-class activity and evaluation of 50+ undergraduate students
- Lead twice-weekly tutoring sessions and tailored one-on-one instruction to student needs

PUBLICATIONS

Peer-Reviewed Articles:

- Thakur, R., **Collens, A. B.**, Greco, M., Sleith, R. S., Grattepanche, J. D., & Katz, L. A. (2022). Newly designed foraminifera primers identify habitat-specific lineages through metabarcoding analyses. *Journal of Euk. Microbiology*, 69(3), e12913.
- **Collens, A. B.**, Katz, L. A. (2021). OPINION: Genetic conflict with mobile elements

drives eukaryotic genome evolution, and perhaps also eukaryogenesis. *Journal of Heredity*, 12(1), esaa060.

- **Collens, A. B.**, Kelley, E., Katz, L. A. (2019). The concept of the hologenome, an epigenetic phenomenon, challenges aspects of the modern evolutionary synthesis. *Journal of Experimental Zoology B: Molecular & Developmental Evolution*.

In Preparation (Drafts Available):

- Thakur, R., **Collens, A. B.**, Sterner, E., & Katz, L. A. "Metabarcoding survey of epizoic foraminifera diversity across built and open marine environments".
- **Collens, A. B.** & Grow, A. K., Stauduhar, J., Rappaport, H., Gonzalez J. C., Wright, R. M. "Dinoflagellate symbiont abundance among host coral species varies across spatial and temporal scales".

Additional Publications:

- **Collens, A. B.**, "Giant Bacteria, Giant Genomes - The incredible life of *Epulopiscium bacteria*" (2021). Blog post, *That's Life [Science] Blog*.
- **Collens, A.B.**, "Diversity and Community Dynamics of Epizoic Foraminifera" (2021). Honors Thesis, Smith College, Northampton, MA.
- **Collens, A. B.**, "Behind the Science: Starting at the Beginning" (2021). Blog post, *American Genetic Association Blog*.

GRANTS & AWARDS

- International Travel Award, *UMD Biological Sciences, 2024*
- Colwell Travel Fellowship, *UMD Center for Bioinformatics & Computational Biology, 2024*
- International Conference Student Support Award, *The Graduate School UMD, 2024*
- Teaching Innovation Grant, *University of Maryland Teaching & Learning Transformation Center (\$50,000), 2023*
- Dean's Fellowship, *University of Maryland, 2023*
- Career Development Fund for Staff, *University of Michigan, 2023*
- NSF-GRFP Honorable Mention, 2023, 2024
- Margaret Wemple Brigham Prize for Excellence in Microbiology, *Smith College, 2021*
- Semi-finalist, Waitlist, Fulbright U.S. Student Program, 2021
- Scientific Research Honor Society of Sigma Xi, *Smith College, 2021*
- Undergraduate Writing Contest Finalist, *That's Life [Science], 2021*
- Collaborative Change Maker Award, *Smith College Wurtele Center for Leadership, 2020*
- Student Undergraduate Research Fellowship (SURF), *Smith College Clark Science Center, 2018, 2019, 2020*
- Praxis Internship Grant, *Smith College, 2020*
- Jewish Studies Department Research Grant, *Smith College, 2020*
- Student Research in Departments (STRIDE) Scholarship, *Smith College, 2017, 2018, 2019*

PRESENTATIONS

Collens, A. B., Sterner, E., Katz, L. A., Thakur, R. Amplicon survey of animal-associated foraminifera diversity across built and open marine environments. Pioneer Valley Microbiology Symposium; January 2021.

Collens, A. B., Timmons, C., Weiner, A. K. M., Katz, L. A., Yan, Y. Pilot search for bacterial symbionts in uncultivable protists. Pioneer Valley Microbiology Symposium; January 2020.

Collens, A. B., Timmons, C., Weiner, A. K. M., Katz, L.A., Yan, Y. Pilot search for bacterial symbionts in uncultivable protists. Society for Molecular Biology & Evolution; August 2019; Manchester, UK.

Collens, A. B., Ragoonanan, D., Katz, L. A., Yan, Y., Weiner, A. K. M. Hidden relationships: searching for bacterial symbionts in free-living testate amoebae. Pioneer Valley Microbiology Symposium; January 2019; Amherst, MA.

ACTIVITIES & OUTREACH

International Society for Computational Biology 2024 Member

Smithsonian National Museum of Natural History (NMNH) World Ocean Day 2024 Presenter

NMNH Senate of Scientists 2024 Member

The Carpentries Certified Volunteer Workshop Instructor Spring 2023 - Present

University of Michigan and Smithsonian Institution Chapters

- Instructor at University of Rutgers Genomics Data Carpentries workshop of >40 learners, April 2024
- Instructor at Smithsonian Library Carpentries workshop of >30 learners, January 2024

Women + Excelling More in Math Engineering and the Sciences (FEMMES)

2022 - 2023 Volunteer

Society for Women Engineers (SWE)

2022 - Present General Member, University of Michigan Chapter

University of Michigan Women In Science & Engineering (WISE) 2021 - 2022 Member

Out in STEM (oSTEM)

Member, University of Michigan Chapter 2021 - Present Member, University of Massachusetts Amherst Chapter 2019 - 2021

REFERENCES

Professor Mihai Pop, University of Maryland | mpop@umd.edu

Professor Allen Collins, NOAA, University of Maryland | collensa@si.edu