

**Haley Atkins**  
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## EDUCATION

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<b>Loyola University Chicago</b>	Chicago, IL
<b>M.S., Bioinformatics</b>	May 2025
<ul style="list-style-type: none"><li>• Research interests: bacteria-phage interactions, genomics, experimental evolution</li><li>• Thesis: ‘<i>Selecting for Lysis in a Temperate Phage Population</i>’</li></ul>	
<b>B.S., Biology &amp; Bioinformatics</b>	May 2024
<ul style="list-style-type: none"><li>• Research Interests: Comparative genomics of <i>Lactobacillus</i> strains in the urinary tract</li></ul>	

## RESEARCH EXPERIENCE

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<b>Graduate Research Assistant; Advisor: Catherine Putonti</b>	2024-2025
Loyola University Chicago, Chicago, IL	

- Investigated whether selective pressure can induce lytic behavior in temperate phages
- Implemented the Appelmans’ protocol from clinical urine samples
- Assessed host range, sequenced evolved phages, and analyzed genomic changes
- Used Breseq and created other pipelines to assess genomic mutations and variations

<b>Undergraduate Research Assistant; Advisor: Catherine Putonti</b>	2022-2024
Loyola University Chicago, Chicago, IL	

- Conducted whole-genome sequencing and comparative genomic analyses of 49 *Lactobacillus* strains, including 16 paired urinary and vaginal samples, to investigate microbial connectivity between these communities.
- Performed ANI, SNP, alignment, and CRISPR analyses, and developed statistical methods to distinguish unrelated, related, and identical strains.
- Assisted with additional projects exploring *Lactobacillus* phages, including attempts to induce lytic behavior.
- Gained experience in microbial genomics, experimental design, DNA extraction, sequencing, and collaborative research.

## INDEPENDENT PROJECTS

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**Mitogenome Assembly Pipeline | GitHub repository: [MitogenomeAssemblyPipeline](#)**

Collaborator: Roza Gawin, Dr. Heather Wheeler, Dr. Yoel Stuart	2023
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- Developed a bioinformatics pipeline to assemble mitogenomes from fish species using next-generation sequencing data

- Integrated tools like GetOrganelle, SPAdes, and BLAST to automate the assembly process
- The pipeline is actively used in Dr. Stuart’s lab and has contributed to a publication under review

## TEACHING & MENTORING

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### **Biology Lab Instructor** 2024-2025

Loyola University Chicago, Chicago, IL

- Designed and led weekly biology lab sessions complementing General Biology I, covering experimental design, systematics, and comparative anatomy and physiology
- Guided students in hands-on observation, experimentation, and dissection
- Developed and graded lab assignments and practical assessments to evaluate student comprehension

### **Peer Mentor** 2024

LAUD NIH-funded Summer Research Program, Loyola University Chicago, Chicago, IL

- Mentored three undergraduates in designing and executing bioinformatics research
- Led computational exercises and designed lectures for designing poster and PowerPoint presentations, literature reviews, and generating hypotheses
- Participated in selection committee for new program cohort

## HONORS AND AWARDS

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### **Presidential Scholarship**

Loyola University Chicago, Chicago, IL

2020-2024

2022

### **Jennifer Bukovsky Scholarship**

Loyola University Chicago, Chicago, IL

## RESEARCH FELLOWSHIPS

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### **Women in Science Enabling Research Fellow**

Loyola University Chicago, Chicago, IL

2022

### **Mulcahy Research Fellowship**

2022-2023

Loyola University Chicago, Chicago, IL

2023

**LAUD Fellowship**

Loyola University Chicago, Chicago, IL

**RELATED PROFESSIONAL EXPERIENCE**

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<b>Microbiology Lab Assistant II</b>	2025–Present
Evanston Hospital (Endeavor Health), Chicago, IL	
<ul style="list-style-type: none"><li>• Perform routine and complex microbiological assays, including culturing and interpreting bacterial growth on agar plates in a Biosafety Level 2 (BSL-2) laboratory</li><li>• Maintain, calibrate, and troubleshoot multiplex instrumentation systems to ensure accuracy and reliability of diagnostic testing</li><li>• Collaborate with clinical and laboratory staff to support diagnostic workflows and uphold quality control and safety standards</li></ul>	
<b>Committee Member, Women in Science Enabling Research (WISER)</b>	2023
<ul style="list-style-type: none"><li>• Participated in the selection committee for the new cohort of undergraduate women entering research</li><li>• Reviewed applications and evaluated research proposals/experience</li></ul>	

**PUBLICATIONS & PRESENTATIONS**

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**Peer-Reviewed Publications**

1. **Atkins H**, Sabharwal B, Boger L, Stegman N, Kula A, Wolfe AJ, Banerjee S, Putonti C. Evidence of *Lactobacillus* strains shared between the female urinary and vaginal microbiota. *Microb Genom.* 2024 Jul;10(7):001267. doi: 10.1099/mgen.0.001267. PMID: 38949867; PMCID: PMC11316553.
2. Morgan CJ, **Atkins H**, Wolfe AJ, Brubaker L, Aslam S, Putonti C, Doud MB, Burnett LA. Phage Therapy for Urinary Tract Infections: Progress and Challenges Ahead. *Int Urogynecol J.* 2025 Jul;36(7):1343-1353. doi: 10.1007/s00192-025-06136-8. Epub 2025 May 13. PMID: 40358692; PMCID: PMC12356746.

**Publications Under Review**

1. **Atkins, H.**, Stegman, N., & Putonti, C. (2025). *Diverse temperate coliphages of the urinary tract.* *Viruses (under review).*
2. Patel, R., Gawin, R., **Atkins, H.**, & Stuart Y.E. (2025) *A new mitochondrial genome for the Illinois Spring Cavefish, *Forbesichthys agassizii*.* **(under review).**

## **Poster Presentations**

1. **Atkins H**, Sabharwal B, Stegman N, Wolfe AJ, Putonti C. 2023. *Lactobacillus* strain comparison. Molecular Genetics of Bacteria and Phages Meeting (Madison, WI).
2. Sabharwal B, **Atkins H**, Banerjee S, Wolfe AJ, Putonti C. *Lactobacillus* strains of the female urogenital microbiome. Midwest Microbial Pathogenesis Conference (Chicago, IL).
3. **Atkins H**, Stegman N, Putonti C. 2023. Characterizing *Escherichia coli* coliphages in the female urinary tract. Midwest Microbial Pathogenesis Conference (Chicago, IL).
4. **Atkins H**, Putonti C. 2024. Engineering bacteriophages to combat *Escherichia coli* associated with UTIs. Great Lakes Bioinformatics Conference (Pittsburgh, PA).
5. **Atkins H**, Putonti C. *Escherichia coli* phage evolution– a modified Appelmans’ Protocol. Molecular Genetics of Bacteria and Phages Meeting (Madison, WI).
6. **Atkins H**, Putonti C. 2024. Temperate phage evolution– a modified Appelmans’ protocol for *Escherichia coli* phages. Midwest Microbial Pathogenesis Conference (Bloomington, IN).
7. Renshaw E, Dapsauski H, Martinez M, **Atkins H**, Putonti C. 2024. Cataloging and comparing mobile genetic elements of the urinary microbiome to other anatomical sites. Midwest Microbial Pathogenesis Conference (Bloomington, IN).