

Anayancy Ramos

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EDUCATIONAL BACKGROUND

- Emory University**, Atlanta, GA **Aug. 2022 – Present**
Ph.D. Candidate, Microbiology & Molecular Genetics
GPA: 4.00/4.00
- Eastern Connecticut State University**, Willimantic, CT **Aug. 2016 – May 2019**
B.S. Biology, Cum Laude
B.S. Computer Science, Cum Laude
GPA: 3.54/4.00
- Georgia State University–Perimeter College**, Decatur, GA **Aug. 2013 – May 2016**
Completed 78 credit hours towards an A.S. in Biology
GPA: 3.77/4.00

RESEARCH & WORK EXPERIENCE

- Emory University**, Atlanta, GA **Aug. 2022 – Present**
Ph.D. Candidate, Microbiology & Molecular Genetics (Advisor: Dr. Timothy Read)
Areas of investigation: bacterial evolution, microbial ecology, polymicrobial infections, cystic fibrosis, bioinformatics
Project: I am interested in understanding how bacterial evolution shapes interactions between pathogenic species within the human host. Specifically, I study competitive dynamics between *Pseudomonas aeruginosa* and *Staphylococcus aureus* in the airways of individuals with cystic fibrosis, using phylogenetic analysis and competition assays to investigate how within-host evolution shapes competitive phenotypes and infection outcomes.
- Georgia Institute of Technology**, Atlanta, GA **Feb. 2021 – Aug. 2022**
Research Technician I (Advisor: Dr. Marvin Whiteley)
Areas of investigation: bacterial gene regulation, transcriptomics, proteomics, infection biology, RNA-Seq, single-cell sequencing
Project: I studied how *Pseudomonas aeruginosa* transitions between chronic and acute infection states. I constructed mutant strains for in vivo infection models, isolated high molecular weight DNA/RNA, and prepared RNA-Seq libraries from clinical and laboratory samples. I also performed expression profiling of prokaryotic single-cell sequencing data. Additionally, I contributed to research developing methods to predict protein abundance from transcriptomic data across diverse bacterial and archaeal species.
- Diagnostic Solutions Laboratory**, Alpharetta, GA **Oct. 2020 – Feb. 2021**
Protein Laboratory Technician
Techniques: protein isolation, ELISA, quality control, equipment calibration
Role: Isolated proteins from human clinical samples and performed ELISA diagnostic testing to identify irregular protein levels and antibodies in the human GI tract. Maintained quality control measures and calibration of laboratory equipment.

Diagnostic Solutions Laboratory, Alpharetta, GA
Specimen Processor I

Oct. 2019 – Oct. 2020

Techniques: viral RNA isolation, DNA isolation, nucleic acid quantification, BSL-2/BSL-3 protocols

Role: Performed high-throughput viral RNA (SARS-CoV-2) isolations of 600+ samples per day. Prepared DNA isolations from human stool samples and quantified isolate purity. Conducted all work under BSL-2 and BSL-3 laboratory safety protocols.

Eastern Connecticut State University, Willimantic, CT

Aug. 2018 – May 2019

Bioinformatics Independent Study (Advisor: Dr. Garrett Dancik)

Areas of investigation: bioinformatics, citation network analysis, cancer genomics, tool development

Project: I designed a citation collection tool that enables researchers to quantify influential cancer-related articles through citation network analysis. I constructed and analyzed citation networks for various cancer-related genes to identify key literature in the field. This research was presented at the 2019 American Association for Cancer Research Annual Meeting.

PUBLICATIONS & PRESENTATIONS

Publications

1. Luu, J. M., Crisan, C. V., Pettis, M. L., **Ramos Facio, A.**, Read, T. D., Goldberg, J. B. (2025) A fluorescence-based protocol to monitor bacterial antagonism. *Microbiology Spectrum* 13, e03183-24.
2. Zhang, M., Zhang, C., **Ramos, A.**, Whitaker, R. J., Whiteley, M. (2025) Conserved cross-domain protein-to-mRNA ratios enable proteome prediction in microbes. *mBio* 16, e01411-25.
3. Cao, P., Fleming, D., Moustafa, D. A., Dolan, S. K., Szymanik, K. H., Redman, W. K., **Ramos, A.**, Diggle, F. L., Sullivan, C. S., Goldberg, J. B., Rumbaugh, K. P., Whiteley, M. (2023) A *Pseudomonas aeruginosa* small RNA regulates chronic and acute infection. *Nature* 618, 358–364.
4. Perpich, J. D., Yakoumatos, L., Stocke, K. S., Lewin, G. R., **Ramos, A.**, Yoder-Himes, D. R., Whiteley, M., Lamont, R. J. (2022) *Porphyromonas gingivalis* Tyrosine Kinase Is a Fitness Determinant in Polymicrobial Infections. *Infection and Immunity* 90, e00170-22.

Presentations

1. **Ramos, A. I.**, Luu, J. M., Diggle, S. P., Goldberg, J. B., Read, T. D. (2026) Within-Host Evolution Generates Variable Competitive Phenotypes between CF-Adapted *Pseudomonas aeruginosa* and *Staphylococcus aureus*. Poster presented at ASM Microbe, Washington, DC.
2. **Ramos, A. I.**, Luu, J. M., Diggle, S. P., Goldberg, J. B., Read, T. D. (2026) Within-Host Evolution Shapes Competitive Interactions between CF-Adapted *Pseudomonas aeruginosa* and *Staphylococcus aureus*. Poster presented at HHMI Investigator Meeting, Ashburn, VA.
3. **Ramos, A. I.**, Luu, J. M., Diggle, S. P., Goldberg, J. B., Read, T. D. (2025) Phylogenetic Variation in Competitive Phenotypes between Cystic Fibrosis-Adapted *Pseudomonas aeruginosa* and *Staphylococcus aureus*. Poster presented at HHMI Gilliam Fellows Annual Meeting, Chevy Chase, MD.
4. **Ramos, A. I.**, Luu, J. M., Diggle, S. P., Goldberg, J. B., Read, T. D. (2024) A phylogenetic study of species interactions between *Staphylococcus aureus* and *Pseudomonas aeruginosa*. Poster presented at HHMI Gilliam Fellows Annual Meeting, Chevy Chase, MD.
5. **Ramos, A.**, Heenehan, M., Dancik, G. M. (2019) Development of a PubMed Central citation collection tool and network analysis of cancer-related genes. Poster presented at American Association for Cancer Research Annual Meeting, Atlanta, GA.

ACADEMIC HONORS & FELLOWSHIPS

- HHMI Gilliam Fellowship for Advanced Study** (~\$200,000 over 3 years) | 2024–2027 – Howard Hughes Medical Institute – One of 50 students selected nationally; recognizes scientific promise and a commitment to advancing excellence and inclusion in science
- George W. Woodruff Fellowship** (~\$25,000 over 5 years) | 2022–Present – Emory University – Flagship fellowship awarded to ~15 doctoral students annually from an incoming class of 300+; recognizes outstanding academic achievement and exceptional promise as future intellectual leaders
- Centennial Scholar Fellow** (~\$20,000 over 5 years) | 2022–Present – Emory University – Awarded to incoming students demonstrating outstanding academic achievement who will contribute to the graduate school's student body
- Upsilon Pi Epsilon** | 2019 – Eastern Connecticut State University – National Honor Society in Computing Sciences
- Beta Beta Beta** | 2018 – Eastern Connecticut State University – National Honor Society in Biology
- Academic Excellence Award** | 2018, 2019 – Eastern Connecticut State University
- TheDream.US Opportunity Scholarship** (~\$80,000 over 4 years) | 2016–2019 – TheDream.US – Full tuition scholarship covering tuition, fees, room, and board for high-achieving DREAMers in states where undocumented students are ineligible for in-state tuition or barred from attending public institutions
- Student of the Year Award in Biological Sciences** | 2016 – Georgia State University, Perimeter College
- J. Fred Hill Honors Scholarship** (\$200) | 2015 – Georgia State University, Perimeter College – Awarded to Perimeter College Honors Program students with GPA ≥ 3.3 who have completed two honors courses
- Phi Theta Kappa Honor Society** | 2015 – Georgia State University, Perimeter College

SERVICE & LEADERSHIP

- Vice President of Communications**, EmoryUnite! | 2026–Present – Emory University – Elected by the membership to lead union-wide communications strategy and member outreach
- Facilitator, Anti-Racist Practices Session**, Microbiology & Molecular Genetics Program | 2026 – Emory University – Led a session on anti-racist practices for my PhD program and advocated for a more transparent, equitable recruitment process.
- Lead, International Student Worker Committee**, EmoryUnite! | 2024–Present – Emory University – Organize direct actions to increase visibility of immigrant student and worker concerns; coordinate with community members to hold Emory accountable for gaps in institutional support and protection for immigrant members of the university community
- Union Steward, Microbiology & Molecular Genetics Program** | 2024–Present – Emory University – Student representative advocating for graduate student interests in matters of working conditions and institutional policy
- Public Advocate for Undocumented Students in STEM** | Featured in New York Times “American Dreamers” project (2016) and Emory Graduate School spotlight (2024); uses public platform to demonstrate pathways into doctoral STEM programs for undocumented students

TEACHING EXPERIENCE

Emory University, Atlanta, GA

Aug. 2023 – Dec. 2023

Teaching Assistant, IBS 504: Introduction to Prokaryotic Molecular Genetics (Graduate Course)

Responsibilities: Held office hours twice weekly to support graduate students with course material; proctored examinations. This is a required core course for all PhD students in the Microbiology and Molecular Genetics program, which I completed the prior year.

Eastern Connecticut State University, Willimantic, CT

Jan. 2019 – May 2019

Teaching Assistant, Biology of Cancer

Responsibilities: Prepared laboratory experiments including aliquoting samples, preparing reagents, and setting up gel electrophoresis equipment. Coordinated weekly tutoring hours to assist students with coursework.

Eastern Connecticut State University, Willimantic, CT

Jan. 2017 – May 2017

Teaching Assistant, Human Biology for Non-Majors

Responsibilities: Assisted students with experiments and understanding related concepts. Led a lab lecture on the basic functions and structures of the heart.