

# Jacob D. Palmer

Science 3  
4400 Vestal Parkway East  
Binghamton, NY 13902

*Curriculum Vitae*  
March 2025

jpalmer10@binghamton.edu  
OrcID: [0000-0001-7928-8673](https://orcid.org/0000-0001-7928-8673)  
<https://palmerlab-binghamton.com>

## **SCIENTIFIC EXPERIENCE**

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### 2024 – Present      **Assistant Professor**

*Department of Biological Sciences, Binghamton University (SUNY), USA*

### 2019 – 2023      **Postdoctoral Researcher**

*Department of Biology; Department of Biochemistry, University of Oxford, UK*

*Advisor: Prof. Kevin Foster*

### 2014 – 2019      **Research Assistant**

*Bioengineering Department, University of Massachusetts Dartmouth, USA*

*Advisor: Prof. Vanni Bucci*

**Thesis title:** “Characterization of Class IIb Microcins and Application Against Antibiotic Resistant Enteric Bacteria”

### 2015 – 2017      **Research Assistant**

*Bioengineering Department, University of Massachusetts Dartmouth, USA*

*Advisor: Prof. Christopher Brigham*

**Research topic:** Utilization of seafood processing waste as carbon and nitrogen feedstock for biodiesel production through the development of engineered *Rhodococcus opacus* PD630.

### 2014 – 2015      **Teaching Assistant**

*Bioengineering Department, University of Massachusetts Dartmouth, USA*

### 2012 – 2014      **Microbiologist**

*Tate and Lyle, PLC, West Lafayette, IN, USA*

## **TRAINING**

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University of Oxford, *Oxford, United Kingdom*

**Postdoc** Department of Biology; Department of Biochemistry

University of Massachusetts Dartmouth, *North Dartmouth, MA, USA*

**Ph.D.** Biomedical Engineering and Biotechnology, 2019

Purdue University, *West Lafayette, IN, USA*

**B.S.** Biological Sciences, 2012

## **PEER-REVIEWED PUBLICATIONS**

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- 1) 2025 [Horizontal gene transfer can reshape bacterial warfare](#). Granato ET, **Palmer JD**, Kirk C, Sharp C, Shillcock G, Foster KR. doi: <https://doi.org/10.1101/2024.08.28.610076>. Accepted *PLOS Biology*
- Start of faculty position – January 2024
- 8) **Palmer JD**<sup>+</sup> and Foster KF<sup>+</sup>. [The evolution of spectrum in antibiotics and bacteriocins](#). *Proceedings of the National Academy of Science*. **2022**; 119 (38) e2205407119.
- 7) **Palmer JD** and Foster KF. [Bacterial species rarely work together](#). *Science*. **2022**; 376(6593): 581-582.
- 6) Mortzfeld BM, **Palmer JD**, et al. [Microcin MccI47 selectively inhibits enteric bacteria and reduces carbapenem-resistant \*Klebsiella pneumoniae\* colonization \*in vivo\* when administered via an engineered live biotherapeutic](#). *Gut Microbes*. **2022**; 14(1):2127633.
- 5) Cunrath, O.\* and **Palmer JD**\*. [An overview of \*Salmonella enterica\* metal homeostasis pathways during infection](#). *microLife*. **2**, **2021**.
- 4) **Palmer JD**, Mortzfeld BM, Piattelli E, Silby MW, McCormick BA, Bucci V. [Microcin H47: A Class IIb Microcin with Potent Activity Against Multi-Drug Resistant \*Enterobacteriaceae\*](#). *ACS Infect Dis*. **2020**; 6(4): 672-679.
- 3) Chakravarty J, Yang C, **Palmer JD**, Brigham CJ. [Chitin Extraction from Lobster Shell Waste using Microbial Culture-based Methods](#). *Appl Food Biotechnol*. **2018**; 5(3): 141-154.

2) **Palmer JD**, Piattelli E, McCormick BA, Silby MW, Brigham CJ, Bucci V. [Engineered Probiotic for the Inhibition of \*Salmonella\* via Tetrathionate-Induced Production of Microcin H47](#). *ACS Infect Dis.* **2018**; 4(1): 39-45.

1) **Palmer JD**, Brigham CJ. [Feasibility of triacylglycerol production for biodiesel, utilizing \*Rhodococcus opacus\* as a biocatalyst and fishery waste as feedstock](#). *Renew Sust Energ Rev.* **2016**; 56: 922-928.

\* Co-first author

+ Co-corresponding author

## PRE-PRINTS, BOOK CHAPTERS, AND PATENTS

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### Prior to start of faculty position – January 2024

2023 [Genetically engineered microorganisms that overexpress microcin-mge and methods of purification and use](#). US Patent Application: 17/801,671. Bucci V, Mortzfeld BM, **Palmer JD**.

2022 [Genetically engineered microorganisms and methods of use](#). US Patent Application: 17/308,053. Bucci V, Mortzfeld BM, **Palmer JD**.

2020 [Genetically engineered microorganisms and methods of use](#). US Patent Application: 16/647,269. Bucci V, **Palmer JD**, Brigham CJ, Silby MW. Approved: October 12, 2022. Patent 11,560,543.

2016 Brigham CJ, Kehail AA, **Palmer JD**. [Ralstonia Eutropha and the Production of Value Added Products: Metabolic Background of the Wild-Type Strain and its Role as a Diverse, Genetically-Engineered Biocatalyst Organism](#). In: Koller M, editor. *Recent Advances in Biotechnology*: Bentham Books; 2016; 265-347.

## TEACHING

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2025 **BIOL 329** – Pre-health Microbiology Lab (Spring – 4 credits)  
Enrollment: 208 undergraduates

2024 **BIOL 480B/580B** – Microbial Community Ecology (Spring – 2 credits)  
Enrollment: 7 undergraduate; 1 graduate  
**BIOL 421** – Microbiology Laboratory (Fall – 4 credits) - Enrollment: 22 undergraduate

### Start of faculty position – January 2024

2021 Year 2 – Master in Biology Tutorials  
- *Salmonella* pathogenesis and nutritional immunity

2020 Year 2 – Master in Biology Tutorials  
- Posttranslational modification of bacterial weapons  
- Interbacterial toxins: strategy and diversity  
- Modeling microbial conflict with differential equations

2015 Current Topics in Bioengineering: Designing a Healthier Planet and its People – Instructor of Record

2014 Bioprocess Engineering Laboratory – Laboratory Instructor

## MENTORING

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2025 – Present Molly Mattaei – Undergraduate Student, BUPNUR program, Binghamton University

2025 – Present Anvi Parkar – Undergraduate Student, BUPNUR program, Binghamton University

2024 – Present Briana Barros – PhD Student. Department of Biology, Binghamton University

2024 – Present Lindsey Moon – PhD Student. Department of Biology, Binghamton University

2024 – Present Mariah Donohue – Prodig+ Postdoctoral Fellow

2024 – Present John Ferrara – Undergraduate Student, Binghamton University

2024 – Present Alexa Mastrangelo – Undergraduate Student, Binghamton University

2024 – Present Lauren Steiner – Undergraduate Student, Binghamton University

2024 – Present Isabella Vento – Undergraduate Student, Binghamton University

2024 (Fall) Ramisa Sharif – High School Student (Queens, NY); AGGY Project Scholar

2024 (Summer) Nimzay Guiets Jimenez – Undergraduate. **NSURP Fellowship**. University of Puerto Rico - Mayaguez – Project awarded Honorable Mention at 2024 NSURP Closing Ceremony

### Start of faculty position – January 2024

2022 – 2023 Louise Collinson – Masters Student. Department of Biochemistry, University of Oxford.

2022 – 2023 Anna Schwarzenbach – Masters Student. Department of Biology, University of Oxford.

2018 – 2019 Charlemya Erasme – Undergraduate. Department of Biology.

2016 – 2019	Aunnesha Bhowmick – High school student.
2015 – 2017	Matthew Phou – Undergraduate. M.S. in Biomedical Engineering.

## **AWARDS, HONORS, AND RECOGNITION**

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Prior to start of faculty position – January 2024

2023	<a href="#"><u>Gilbert S. Omenn Prize</u></a> (\$5,000)
2015 – 2019	Distinguished Doctoral Fellowship – University of Massachusetts (\$96,000 / 4 years)
2018	National Institute of General Medical Sciences Scholarship (\$2,000)
2016	UMass Dartmouth 3-minute Thesis Competition Winner (\$1,000)
2016	American Society of Microbiology Student Travel Award (\$500)
2012	Interns for Indiana Scholarship (\$500)
2010 – 2012	Ben Korschot Perseverance Award (Full Tuition Scholarship - \$8,000 / yr)
2010 – 2011	Academic All Big Ten (Men's Track and Field)
2009 – 2011	Purdue University Men's Track and Field Captain
2010	Purdue University Sportsman of the Year

## **GRANTS (Since January 2024)**

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### **Funded (I = Internal, E = External)**

2025	I - BUPNR (\$1,250 x 2). Internal Award for undergraduate research experience (2 students)
2024	I - Binghamton Undergraduate Research Award (\$650 - John Ferrara)
2024	E – National Summer Undergraduate Research Project. (\$7,500 – Nimzay Guiets Jimenez)

Total Internal \$3,150.00

Total External \$7,500.00

## **Upcoming**

### **Submitted – pending decision**

2024	E - Searle Scholars Program (\$300,000 / 3 years). Internal submission – <a href="#"><u>Nominated for full proposal</u></a> Full proposal: Submitted 09/30/2024
2024	E - NIH NIAID New Innovator's Award (DP2) – PAR-23-198 (~\$1.5million / 5 years). Submitted 10/11/2024: Tracking # GRANT14277982
2024	E - NSF PRFP – Supporting Scientist/Lead Mentor (Applicant: Dr. Mariah Donohue)
2024	E - NSF MRI – Collaborator on submission for NextSeq2000 for the Binghamton University Analytical and Diagnostic Laboratory (ADL) Health Science Core Facility (HCSF)

### **Submitted – not funded**

## **CONFERENCE PARTICIPATION – PRESENTING AUTHOR**

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### ***Invited Talks***

2025	UMass Chan Medical School – Department of Microbiology Seminar Series (Scheduled for May 27)
2025	Cornell University – Department of Microbiology Seminar Series (Scheduled for Apr. 10)
2024	Dartmouth College – Microbiology & Immunology Seminar Series (Nov. 18) – Ecology, Evolution and Application of Bacterial Warfare.

Prior to start of faculty position – January 2024

2023	<b>International Society for Evolution, Medicine, &amp; Public Health</b> – The Evolution of Spectrum in Antibiotics and Bacteriocins. <a href="#"><u>Gilbert S. Omenn Prize Lecture</u></a> .
2023	<b>Bacteriocin International Conference (BIC)</b> – The Evolution of Spectrum in Antibiotics and Bacteriocins.

### ***Oral Presentations***

Prior to start of faculty position – January 2024

2022 **European Society for Evolutionary Biology (ESEB)** – The Evolution of Spectrum in Antibiotics and Bacteriocins. Symposium on Comparative Genomics.

2018 **Boston Bacterial Meeting** - Engineered Probiotic for the Inhibition of *Salmonella* via Tetrathionate-Induced Production of Microcin H47

### **Posters**

Prior to start of faculty position – January 2024

2018 **International Conference on Microbiome Engineering** - Application of Catechol Microcins As Antimicrobial Peptides for the Prevention of Enteric Disease

2018 **Synthetic Biology: Evolution, Engineering and Design (SEED)** - Engineered Probiotic for the Inhibition of *Salmonella* via Tetrathionate-Induced Production of Microcin H47

2016 **Boston Bacterial Meeting** - *N*-acetyl-D-glucosamine as an Advanced Feedstock for Biocatalytic Conversion to Triacylglycerol by *Rhodococcus opacus* PD630, Towards Sustainable Biodiesel Production

2016 **American Society of Microbiology** - *N*-acetyl-D-glucosamine as an Advanced Feedstock for Biocatalytic Conversion to Triacylglycerol by *Rhodococcus opacus* PD630, Towards Sustainable Biodiesel Production

2016 **University of Massachusetts Dartmouth chapter of Sigma Xi** - *N*-acetyl-D-glucosamine as an Advanced Feedstock for Biocatalytic Conversion to Triacylglycerol by *Rhodococcus opacus* PD630, Towards Sustainable Biodiesel Production

### **Internal**

2024 (June 21) – Biofilms group meeting – Introduction of the Palmer Lab (ITC)

2024 (April 12) – Medical Research Interest Club (BU Student Organization) Rm CW325 – Title: Ecology, evolution, and application of bacterial competition

## **SCIENTIFIC COMMUNITY PARTICIPATION**

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Prior to start of faculty position – January 2024

2023 **Bacteriocin International Conference (BIC)** – Scientific organizing committee member

2022 **European Society for Evolutionary Biology (ESEB)** – Symposium Co-organizer: The art of microscopic war: interference competition in microbes.

2018 **Cold Spring Harbor Laboratory Synthetic Biology** - Synthetic Biology course graduate and NIH GMS scholarship

2018 **Jackson Laboratory** - Comprehensive Workshop on Mouse Biomechanics course graduate

2016 **International Genetically Engineered Machines (iGEM)** - Competition Judge

## **UNIVERSITY/DEPARTMENTAL SERVICE AND OUTREACH**

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2025 Hiring Committee Member – Lecturer in Microbiology

2024 – Present Diversity, Equity, and Inclusion Committee

2024 – Present Graduate Committee

2024 Hiring Committee Member – Prodig+ Postdoctoral Fellowship

Prior to start of faculty position – January 2024

2021 – 2023 Skype a scientist

2021 – 2023 New starters representative

2021 – 2023 Research staff forum representative

2019 – 2021 Biochemistry first year research shadowing volunteer

2019 Biochemistry department open day volunteer

2015 – 2019 Synthetic biology club – Founder and member

2015 – 2016 International Genetically Engineered Machines – Head instructor/advisor

2015 – 2016 Freshman Summer Institute - Lead instructor and curriculum developer