

# Jacob D. Palmer

New Biochemistry  
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*Curriculum Vitae*  
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[Professional Website](#)

## SCIENTIFIC EXPERIENCE

### 2019 – Present      **Postdoctoral Researcher**

*Department of Biology; Department of Biochemistry, University of Oxford, UK*  
*Advisor: Prof. Kevin Foster*

### 2016 – 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*

## EDUCATION

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

- 1) **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.
- 2) **Palmer JD** and Foster KF. [Bacterial species rarely work together](#). *Science*. 2022; 376(6593): 581-582.
- 3) 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.
- 4) Cunrath, O.\* and **Palmer JD**\*. [An overview of \*Salmonella enterica\* metal homeostasis pathways during infection](#). *microLife*. 2, 2021.
- 5) **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.
- 6) 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.
- 7) **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.
- 8) **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

<sup>+</sup> Co-corresponding author

## PRE-PRINTS, BOOK CHAPTERS, AND PATENTS

- 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.
- 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

- 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

- 2022 – present Louise Collinson – Masters Student, Department of Biochemistry, University of Oxford
- 2022 – present Anna Schwarzenbach – Masters Student, Department of Biology, University of Oxford
- 2018 – 2019 Charlemya Erasme – Undergraduate research experience. Current: Education program coordinator at the Harvard Clinical and Translational Science Center.
- 2016 – 2019 Aunnesha Bhowmick – High school research experience. Current: University of California Berkeley, Molecular and Environmental Biology. Class of 2024.
- 2015 – 2017 Matthew Phou – Undergraduate research experience. M.S. in Biomedical Engineering

## AWARDS AND HONORS

- 2015 – 2019 Distinguished Doctoral Fellowship (\$96,000 over 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 Korscht 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

## CONFERENCE PARTICIPATION – PRESENTING AUTHOR

- 2022 **European Society for Evolutionary Biology (ESEB)** – The Evolution of Spectrum in Antibiotics and Bacteriocins. ([Oral Presentation](#)) Symposium on Comparative Genomics
- 2018 **International Conference on Microbiome Engineering** - Application of Catechol Microcins As Antimicrobial Peptides for the Prevention of Enteric Disease (Poster)
- 2018 **Synthetic Biology: Evolution, Engineering and Design (SEED)** - Engineered Probiotic for the Inhibition of *Salmonella* via Tetrathionate-Induced Production of Microcin H47 (Poster)
- 2018 **Boston Bacterial Meeting** - Engineered Probiotic for the Inhibition of *Salmonella* via Tetrathionate-Induced Production of Microcin H47 ([Oral Presentation](#))
- 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 (Poster)
- 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 (Poster)
- 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 (Poster)

## SCIENTIFIC COMMUNITY PARTICIPATION

- 2022 **European Society for Evolutionary Biology (ESEB)** – Symposium Co-organizer: The art of microscopic war: interference competition in microbes.
- 2019 **International Conference on Microbiome Engineering** - Towards Engineered Probiotics to Deliver Narrow-Spectrum Antimicrobial Peptides Against Drug-Resistant Enteric Bacteria (Poster)\*
- 2019 **Synthetic Biology: Evolution, Engineering and Design (SEED)** - Engineered Probiotic for the Inhibition of *Salmonella* via Tetrathionate-Induced Production of Microcin H47 (Poster)\*
- 2018 **Cold Spring Harbor Laboratory Synthetic Biology** - Synthetic Biology course graduate and NIH GMS scholarship
- 2018 **Jackson Laboratory** - Comprehensive Workshop on Mouse Biomethods course graduate
- 2016 **International Genetically Engineered Machines** - Competition Judge
- 2016 **University of Massachusetts Dartmouth Chapter of Sigma Xi** - Single nucleotide polymorphism in *hemA* confers phototoxicity resistance to visible light for *Citrobacter rodentium* (Poster)\*

\* Not presenting author

## UNIVERSITY SERVICE AND OUTREACH

- 2021 – present Skype a Scientist
- 2021 – present Research Staff Forum Representative
- 2021 – present New Starters Representative
- 2019 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

## EQUALITY, DIVERSITY, AND INCLUSION TRAINING

- 2022 Active bystander training
- 2022 Fostering an inclusive culture

## ONLINE PRESENCE

[Professional Website](#)

[Google Scholar](#)

OrcID: [0000-0001-7928-8673](https://orcid.org/0000-0001-7928-8673)

[Github](#)