Jacob D. Palmer

New Biochemistry
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Curriculum Vitae
March 30, 2021

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Professional Website

SCIENTIFIC EXPERIENCE

2019 – Present **Postdoctoral Researcher**
Department of Zoology; Biochemistry, University of Oxford, UK
Advisor: Prof. Kevin Foster
Research topic: The ecology and evolution of bacterial toxin spectrum

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

PUBLICATIONS

2021 Cunrath, O.* and **Palmer JD***. An overview of *Salmonella enterica* metal homeostasis pathways during infection. *μLife*. Accepted

2020 **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.

2018 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.

2017 **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.

2016 **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.

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. p. 265-347.

** Co-first author*

RESEARCH INTERESTS

Uncovering fundamental principles of microbial ecology and evolution regarding successful strategies and tactics during intra- and interspecies conflict within the mammalian gut.

Development of engineered microbes to sense and eradicate relevant human pathogens via antimicrobial molecule production.

Discovery, characterization, and utilization of naturally occurring and/or chimeric antimicrobial peptides for the development of next-generation antibiotics.

TEACHING

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

2020 Year 2 – Master's in Biology Tutorials
- Posttranslational modification of bacterial weapons
- Interbacterial toxins: strategy and diversity

2015 Current topics in Bioengineering – Instructor of Record

2014 Bioprocess Engineering Laboratory – Laboratory Teaching Assistant

AWARDS AND HONORS

2018 National Institute of General Medical Sciences Scholarship ($2,000)
2015 – 2019 Distinguished Doctoral Fellowship ($96,000 over 4 years)
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, 2011 Academic All Big Ten (Men's Athletics)
2010 - 2012 Ben Korschot Perseverance Award (Full Tuition Scholarship - $8,000/yr)
2010 Purdue University Sportsman of the Year
2009 – 2011 Purdue University Men's Athletics Team Captain

SCIENTIFIC COMMUNITY PARTICIPATION

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

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 **International Genetically Engineered Machines** - Competition Judge

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)
Single nucleotide polymorphism in *hemA* confers phototoxicity resistance to visible light for *Citrobacter rodentium* (Poster)*

** Not presenting author*

UNIVERSITY SERVICE AND OUTREACH

2019	Biochemistry First Year Research Shadowing Volunteer (University of Oxford)
2019	Biochemistry Department Open Day (University of Oxford)
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

WEBSITE

https://jacob-palmer.com/