

Jacquelynn Benjamino, Ph.D.

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EDUCATION

- 2017 **PhD**, Molecular and Cell Biology | Microbiology, University of Connecticut, Storrs, CT.
Dissertation: “Genomic and Transcriptomic Characterization of the Hindgut Symbiosis associated with the Eastern Subterranean Termite, *Reticulitermes flavipes*”
- 2010 **BS**, Biology, University of Massachusetts Boston, Dorchester, MA
- 2009 **AA**, Liberal Arts Transfer—Science, Massasoit Community College, Brockton, MA

RESEARCH AND LABORATORY EXPERIENCE

- 2017-2018 **Postdoctoral Research**
Advisor: Prof. Joerg Graf, University of Connecticut
Project: Genomic and transcriptomic approaches to study digestive-tract symbioses
- 2011-2017 **Graduate Research**
Advisor: Prof. Joerg Graf, University of Connecticut
Project: Characterization of termite gut microbes using high-throughput sequencing techniques
- 2008 **Undergraduate Research**
Advisors: Dr. Rachel Hirst and Dr. Magdalena James-Pederson, Massasoit Community College/ Stonehill College
Project: Genotyping rhizomorph and spore cell lines of the honey mushroom, *Armillaria gallica*
- 2010-2011 **Microbiology Laboratory Technician**
Massasoit Community College, Brockton, MA
+ Coordinated and prepared laboratories for five upper-level microbiology courses

PUBLICATIONS

6. **Benjamino J.**, S. Lincoln, R. Srivastava, J. Graf. 2018. Low-abundant bacteria drive compositional changes in the gut microbiota after dietary alteration. *Microbiome*. 6:86. DOI: 10.1186/s40168-018-0469-5
5. **Benjamino J**, L. Beka, J. Graf. 2018. Microbiome analyses for toxicological studies. *Current Protocols in Toxicology*.
4. Gogarten JF., TJ. Davies, **J. Benjamino**, JP. Gogarten, J. Graf, A. Mielke, R. Mundry, MC. Nelson, RM. Wittig, FH. Leendertz, S. Calvignac-Spencer. 2017. Factors influencing bacterial microbiome composition in a wild non-human primate community in Taï National Park, Côte d’Ivoire. *ISME*.
3. Lincoln S., **J. Benjamino**, J. Graf, R. Srivastava. 2016. Metabolite overproduction through engineering and optimization of microbiome composition dynamics. *GECCO-Proceedings of the 2016 Genetic and Evolutionary Computation Conference*. DOI: 10.1145/2908961.2908999

2. **Benjamino J.** and J. Graf. 2016. Characterization of the Core and Caste-Specific Microbiota in the Termite, *Reticulitermes flavipes*. *Front. Microbiol.* 7:171. DOI: 10.3389/fmicb.2016.00171
1. Nelson MC., HG. Morrison, **J. Benjamino**, SL. Grim, J. Graf. 2014. Analysis, Optimization and Verification of Illumina-Generated 16S rRNA Gene Amplicon Surveys. *PlosONE*. 9:4. DOI: 10.1371/journal.pone.0094249

PROFESSIONAL PRESENTATIONS

- 2017 **Benjamino J.** "The Relationships between Diet and the Microbiome of the termite, *Reticulitermes flavipes*" (talk), 52nd Annual American Society for Microbiology (ASM) Region I Meeting, University of Connecticut, Storrs, CT
- 2017 **Benjamino J.** "Insights into the Physiology of Endosymbiotic Bacteria of Two Protist Species Living in the Hindgut of the Termite, *Reticulitermes flavipes*" (talk), Gordon Research Conferences—Animal-Microbe Symbioses, Mount Snow West Dover, VT
- 2017 **Benjamino J.** and J Graf. "Insights into the Physiology of Endosymbiotic Bacteria of Two Protist Species Living in the Hindgut of the Termite, *Reticulitermes flavipes*" (poster), Gordon Research Conferences—Animal-Microbe Symbioses, Mount Snow West Dover, VT
- 2016 **Benjamino J.**, S Lincoln, R Srivastava, and J Graf. "Predicting changes in the termite hindgut microbiota through 16S rRNA gene sequencing and artificial neural network analysis" (poster), 6th Annual Conference on Beneficial Microbes, Seattle, WA
- 2016 **Benjamino J.**, S Lincoln, R Srivastava, and J Graf. "The Effects of Diet and Caste on the Termite Hindgut Microbiota as seen through 16S rRNA Gene Sequencing and Artificial Neural Networks" (poster), Vereinigung für Allgemeine und Angewandte Mikrobiologie (VAAM), Jena, Germany
- 2015 Lincoln S., **J Benjamino**, J Graf, R Srivastava. "Towards Microbiome Engineering: A Machine Learning Approach to Infer Intra-Community Interactions" (poster), Biochemical and Molecular Engineering XIX, Puerto Vallarta, Mexico
- 2014 **Benjamino J.** and J Graf. "The effects of starvation and dietary change on the microbiota of the termite, *Reticulitermes flavipes*" (poster), 114th ASM General Meeting, Boston, MA
- 2014 **Benjamino J.** "The termite hindgut microbiome: Insights for biomanufacturing products from lignocellulose" (talk), 3rd Annual Connecticut Symbiosis Symposium, Yale University West Haven, CT
- 2013 **Benjamino J.** and J Graf. "Characterization of the *Reticulitermes flavipes* hindgut microbiome through Illumina 16S rRNA gene sequencing" (poster), 48th Annual ASM Region I Meeting, UConn Storrs, CT
- 2013 **Benjamino J.**, MC Nelson, and J Graf. "Characterization of the *Reticulitermes flavipes* hindgut microbiome by Illumina sequencing of the 16S rRNA gene" (poster), 113th ASM General Meeting, Denver, CO
- 2012 **Benjamino J.**, MC Nelson, and J Graf. "16S rRNA profiling reveals temporal stability of the hindgut microbiome in the termite, *Reticulitermes flavipes*" (poster), 4th Annual Conference on Beneficial Microbes, San Antonio, TX

- 2009 **Benjamino J.**, P Locke, P Tanger, R Hirst, and M James-Pederson. “The IGS-1 regions in *Armillaria gallica* show sequence differences within rhizomorph cell lines but not with spore cell lines” (poster), Eastern New England Biology Conference, UMASS Lowell, MA
- 2008 **Benjamino J.**, P Locke, P Tanger, R Hirst, and M James-Pederson. “The IGS-1 regions in *Armillaria gallica* show sequence differences within rhizomorph cell lines but not with spore cell lines” (talk & poster), STEP Student Research Seminar, Massasoit Community College Brockton, MA

TEACHING EXPERIENCE

Graduate Level Instructor | University of Connecticut, Storrs, CT

- Characterization of Microbial Communities by 16S rRNA Gene Sequencing (MCB5896) (Spring: 2013-2017)
- Genotyping and DNA Sequencing Techniques (MCB5427-003) (Spring 2016 | Spring 2018)
- Introduction to Molecular Biology (MCB5427-001) (Spring 2018)
- Introduction to Real-Time PCR Techniques (MCB5427-002) (Spring 2018)

Teaching Assistant | University of Connecticut, Storrs, CT

- Honors Introduction to Microbiology Laboratory (MCB2610) (Fall: 2015, 2016 | Spring 2016)
- Concepts of Genetic Analysis Laboratory (MCB3413) (Spring 2012)
- Introduction to Microbiology Laboratory (MCB2610) (Fall 2011)

Adjunct Instructor | Massasoit Community College, Brockton, MA

- General Biology I Lecture & Laboratory (Spring 2011 | Summer 2011)

Professional Tutor (CRLA Level II) | Massasoit Community College, Brockton, MA

- General Biology, Microbiology, Anatomy & Physiology, Genetics (2007-2011)

Guest Lecturer

- Mechanisms of Bacterial Pathogenicity (MCB5681) (Fall 2017) | University of Connecticut, Storrs, CT

MENTORSHIP, OUTREACH, AND SERVICE

Graduate Research Mentorship

University of Connecticut, Storrs, CT

- Bryce Santinello, Ph.D. student
- Jennifer Huang, PSM '17
- Austin Ricker, PSM '15

Undergraduate Research Mentorship

University of Connecticut, Storrs, CT

- James McGann '15 (Fall 2013-Spring 2014)
- Daniel Golden '16 (Fall 2014-Spring 2015)

Outreach

- Skype A Scientist (Spring 2017)

- UConn Mentor Connection (Summer 2013, 2014, 2015)
- Connecticut State Museum of Natural History, CLAS Program (October 2012)
- Massasoit Summer Science Experience Camp—MA STEM Program (Summer 2011)

Invited Speaker

- Introduction to Microbiology guest lecture series | University of Connecticut, Storrs, CT

Service

- Reviewer for *The ISME Journal*, *Science Advances*, and *Microbiome*

Professional Membership

- American Society for Microbiology (ASM)

ACADEMIC HONORS, AWARDS, AND FELLOWSHIPS

- 2016 University of Connecticut Doctoral Dissertation Fellowship (\$2,000)
- 2016 American Society for Microbiology (ASM) Beneficial Microbes Travel Award (\$500)
- 2016 University of Connecticut Doctoral Student Travel Award (\$750)
- 2016 University of Connecticut Molecular and Cell Biology Outstanding MCB TA award (\$300)
- 2013 American Society for Microbiology (ASM) Denver Conference student poster award (\$500)
- 2013 University of Connecticut Molecular and Cell Biology (MCB) Retreat student poster award (\$100)
- 2013 American Society for Microbiology (ASM) Regional Conference student poster award (\$25)
- 2008 NSF/STEP Early Research Experience Summer Stipend (Massasoit Community College/Stonehill College) (\$3,500)

ADDITIONAL SKILLS

Laboratory and Field Work Skills

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|--|---|
| • DNA and RNA isolation | • Illumina TruSeq/ TruSeq nano library prep |
| • PCR, qPCR, qRT-PCR | • NEBNext Ultra II low-yield library prep |
| • Droplet digital PCR (ddPCR) | • Illumina MiSeq operation and upkeep |
| • Primer development | • Illumina NextSeq operation |
| • Whole genome amplification (WGA) | • ABI 3500 capillary sequencing (Sanger) |
| • Whole transcriptome amplification (WTA) | • Termite collection and dissection |
| • 16S rRNA gene amplicon sequencing | • Leech collection and dissection |
| • Illumina Nextera/ NexteraXT library prep | • <i>Drosophila melanogaster</i> manipulation |

Computer/Bioinformatic Skills

- **Languages**
 - Unix, R, Python, Biopython, Shell, SQL, Perl

- **16S rRNA Seq- OTU clustering methods**
 - Qiime, Mothur, RDP (Ribosomal Database Project), GreenGenes, R packages
- **16S rRNA Oligotyping- Bioconductor (R)**
 - ggplot2, gridExtra, dada2, msa, phyloseq, DECIPHER, phangorn
- **General Bioinformatic Programs**
 - Geneious, SnapGene, CLC Genomics Workbench, PRISM, BLAST, FigTree
- **Genomics/Metagenomics**
 - ngsShort, SOAPdenovo, Ray, Ray Metagenome, Velvet, MetaVelvet, Bbtools, Diamond, Kbase, VizBin, Trimmomatic, FastQC, QUAST, CheckM, Huttenhower Lab NGS tools, DOE Kbase, Prokka, RAST
- **Transcriptomics/Metatranscriptomics**
 - Glimmer, MEGAN, Paladin, Trinity