

# Charlotte B. Francoeur, PhD

Molecular Biologist at USDA-ARS

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## Research Experience

<b>Harrison Lab</b> , USDA-ARS, Postdoc/Molecular Biologist	2024 - Present
<b>Khadempour Lab</b> , Rutgers University – Newark, Postdoctoral Scientist	2022 - 2024
<b>Currie Lab</b> , University of Wisconsin – Madison, Graduate Research Assistant	2017 - 2022
<b>Wu Lab</b> , University of Maryland – College Park, Undergraduate Research Assistant	2014 - 2016
<b>Nou Lab</b> , USDA-ARS, Biological Science Aid	2012 - 2014
<b>Martin Lab</b> , USDA-ARS, High School Research Intern	2011 - 2012

## Publications (# indicates equal contributors)

Harrison, R.L., **Francoeur, C.B.**, & Rowley, D.L. (2024). An alphabaculovirus from the zebra caterpillar, *Melanchra picta* Harris, is an isolate of species *Alphabaculovirus maconfiguratae*. *Journal of Invertebrate Pathology*. [DOI: 10.1016/j.jip.2024.108220]

Gotting, K., May, D.S., Sosa-Calvo, J., Khadempour, L., **Francoeur, C.B.**, et al. (2022). Genomic diversification of the specialized parasite of the fungus-growing ant symbiosis. *PNAS*. [DOI: 10.1073/pnas.2213096119]

**Francoeur, C.B.**#, May, D.S.#, Thairu, M., Hoang, D.Q., Panthofer, O., Bugni, T.S., Pupo, M.T., Clardy, J., Pinto-Tomás, A.A., & Currie, C.R. (2021). *Burkholderia* from fungus gardens of fungus-growing ants produces antifungals that inhibit the specialized parasite *Escovopsis*. *Applied and Environmental Microbiology*. [DOI: 10.1128/AEM.00178-21]

Weng, Y-M., **Francoeur, C.B.**, Currie, C.R., Kavanaugh, D.H., & Schoville, S.D. (2021). A high-quality carabid genome assembly provides insights into beetle genome evolution and cold adaptation. *Molecular Ecology Resources*. [DOI: 10.1111/1755-0998.13409]

**Francoeur, C.B.**, Khadempour, L., Moreira-Soto, R.D., Gotting, K., Book, A.J., Pinto-Tomás, A.A., Keefover-Ring, K., & Currie, C.R. (2020). Bacteria contribute to plant secondary compound degradation in a generalist herbivore system. *mBio*. [DOI: 10.1128/mBio.02146-20]

Liu, N. T., Bauman, G. R., **Francoeur, C. B.**, Shelton, D. R., Lo, Y. M., & Nou, X. (2016). *Ralstonia insidiosa* serves as bridges in biofilm formation by foodborne pathogens *Listeria monocytogenes*, *Salmonella enterica*, and Enterohemorrhagic *Escherichia coli*. *Food Control*, 65, 14–20. [DOI: 10.1016/j.foodcont.2016.01.004]

## Awards and Grants

1. NSF Postdoctoral Research Fellowship in Biology, \$240,000	2023 - 2024
2. Bacteriology Chair's Award for Excellence in Research, \$1000	2022
3. Department of Bacteriology Allen-Lee Fellowship Award, \$32,000	2020 - 2021
4. UW-Madison CALS Dr. Leonard E. Mortenson Graduate Scholarship, \$1250	2020
5. O.N. Allen Soil and Environmental Microbiology Small Grant Recipient, \$4000	2019
6. UW-Madison Student Research Travel Grant - Conference, \$1200	2019
7. UW-Madison CALS Dr. Leonard E. Mortenson Graduate Scholarship, \$1250	2019

## Education

**University of Wisconsin – Madison** 2016 - 2022

PhD Student, Microbiology Doctoral Training Program

Laboratory of Dr. Cameron Currie, Department of Bacteriology

GPA: 4.0/4.0

WISCIENCE Public Service Fellow

Dissertation: The ecology of secondary microbial symbionts: Exploring the diversity and function of bacterial and viral associations with fungus-growing ants

## University of Maryland - College Park

2012 - 2016

Bachelor of Science in Microbiology with a Black Women's Studies Minor

GPA: 3.905/4.0, Cum Laude Latin Honors

Integrated Life Sciences Honors, Cell Biology and Molecular Genetics Departmental Honors

## Mentoring

- **Jordie Urquizo:** LSAMP undergrad, *Assessing microbial succession as fruit rots* 2022 - 2023
- **Indira Sawh:** Master's student, *The microbiome of honeypot ants* 2022
- **Chandler Hellenbrand:** MDTP rotation student, co-mentored with Dr. Margaret Thairu, *Identification of eukaryotic viruses (Reoviridae) in leaf-cutter ants* 2021
- **Damayanti Rodriguez Ramos:** MDTP rotation student, *minION sequencing of fungus garden bacteria* 2020
- **Olivia Panthofer:** Undergraduate Research Scholar, Recipient of the UW Genetics and Genomics Distinguished Research Fellowship 2020-2021, *Metagenomic characterization of bacteriophage from fungus gardens* 2018 - 2022
- **Jennifer Koehler:** REU Student, *Lipid production of Streptomyces on conversion residue.* 2018
- **Donny Hoang:** MDTP rotation student, *Inhibition of Escovopsis by Burkholderia spp.* 2018
- **Josh Daniels:** Undergraduate student, *Investigation of bee-associated Streptomyces* 2017 - 2018
- **Laura Williams:** Undergraduate student, *Characterization of fungus garden-associated Burkholderia spp.* 2017 - 2018

## Teaching

**Assistant Teacher,** Pathogenic Bacteriology 2017

**Undergraduate Teaching Assistant,** Research Applications in the Life Sciences 2016

## Professional Development and Fieldwork

1. International Consortium of Honeypot Ant Researchers Meeting, Southwestern Research Station 2022
  - Trained on the collection, dissection, upkeep, and transportation of honeypot ants (*Myrmecocystus* spp.)
2. Costa Rica Fieldwork, Finca La Anita and La Selva Biological Station 2021
  - Trained two Currie lab members (a postdoc and lab specialist) on fungus-growing ant identification, collection, and maintenance
3. WISCIENCE Public Service Fellows 2020 - 2021
  - Developed an illustrated zine for the UW-Madison Arboretum about microbes, titled The Wonderful World of Microbes. Available for free at <https://arboretum.wisc.edu/learn/resources/>.
4. Active Learning Ambassadors Workshop California State University, Northridge 2019
5. Costa Rica Fieldwork at La Selva Biological Station 2019
6. Ant Course, California Academy of Sciences 2018
  - French Guiana, Nouragues Research Station
  - Acquired training on identification, sample preparation, dissection, and general roles of ants.
7. Costa Rica Fieldwork at La Selva Biological Station 2018
  - Trained on the collection, upkeep, and transportation of fungus-growing ants
8. Anvi'o Workshop, UW-Madison 2017
9. Microbiota Processing and Analysis in R, UW-Madison 2016

## Select Oral Presentations

1. Francoeur, C.B. How Microbes Shape Our Lives, Transform the Environment, and Influence Climate Change. Invited Speaker for the UW-Madison Arboretum Winter Enrichment Lecture Series. 2021
2. Francoeur, C.B. Bacteria contribute to plant secondary compound degradation in a generalist herbivore system. Winner of the Lightning Talk Competition at the 9th Annual UW-Madison Plant Sciences Symposium. 2019
3. Francoeur, C.B. Garden bacteria in fungus-farming ants can metabolize plant secondary compounds. Selected Speaker at the Gordon Research Seminar on Animal-Microbe Symbioses. 2019

## Professional Societies

American Society of Microbiology  
Entomological Society of America

*2017 - Present*

*2018 - Present*