Charlotte B. Francoeur, PhD

Molecular Biologist at USDA-ARS
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Research Experience

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

Publications (# indicates equal contributors)

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., Bauchan, 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 *2017 - Present*
Entomological Society of America *2018 - Present*