

Charles M. Bridges, M.S., Ph.D.

Microbiologist | Molecular Biologist | Biochemist | Scientific Consultant

Email: charlesmbridgesphd@gmail.com

LinkedIn: [linkedin.com/in/charlesmbridges/](https://www.linkedin.com/in/charlesmbridges/)

Professional Hub: charlesmbridges.github.io/professional

Professional Summary

Results-driven molecular biologist with expertise in microbiology, virology, molecular biology and biochemistry. Demonstrated ability to direct laboratory operations, lead cross-functional teams and deliver innovative solutions that accelerate research outcomes. Skilled in assay development, project execution and data analysis. Strong communicator experienced in managing interdisciplinary projects, data-driven decision-making and client consultation.

Area of Expertise

Laboratory operations: Equipment procurement, safety compliance, team mentorship, project development, project management

Microbiology: Aerobic/anaerobic culture, staining, transformation, mutagenesis

Molecular biology: Nucleic acid preparation, plasmid design, molecular cloning, CRISPRi

Virology: Growth & purification of viral particles, structural analyses

Biochemistry: Ultracentrifugation, protein expression & purification, liquid chromatography (LC)

Synthetic biology: genetic circuit design, chemical & light induction

Genomics: Bacterial & viral genome assembly, annotation, comparative genomics

Microscopy: Fluorescence microscopy, transmission electron microscopy (TEM)

Bioinformatics: Unix/Linux, High Performance Computation (HPC), Bash, Python, R languages

Engineering: Microfluidic device design & fabrication

Artificial Intelligence (AI): Large Language Model (LLM) prompt, response & rubric training

Professional Experience

| | | |
|--------------------------------------|--|---------------------|
| Research Associate 1 | <i>University of Connecticut</i> | Dec. 2025—Present |
| AI Training Fellow | <i>HandshakeAI</i> | Aug. 2025—Dec. 2025 |
| Principal Consultant | <i>Strategic Molecular Solutions LLC</i> | Mar. 2025—Present |
| Adjunct Faculty Instructor, Virology | <i>University of Connecticut</i> | Jan. 2024—May 2024 |
| Postdoctoral Research Associate | <i>University of Connecticut</i> | Jul. 2021—Dec. 2025 |
| Graduate Assistant | <i>University of Connecticut</i> | Aug. 2011—Aug. 2021 |

Education

| | | |
|------------------------------------|--|---------------------|
| Ph.D., Molecular and Cell Biology, | <i>University of Connecticut, Storrs</i> | Aug. 2013—Aug. 2021 |
| M.S., Microbiology | <i>University of Connecticut, Storrs</i> | Aug. 2011—May 2013 |
| B.S., Molecular and Cell Biology | <i>University of Connecticut, Storrs</i> | Aug. 2007—May 2011 |

Advanced Training

| | |
|--|---------------|
| National Center for CryoEM Access and Training (NCCAT) | April 2025 |
| BV-BRC, Argonne National Laboratory | February 2025 |

Selected Publications

1. Juliana R. Cortines, [Charles M. Bridges](#) et. al. (2024). Transition metals and oxidation reactions trigger stargate opening during the initial stages of the replicative cycle of the giant Tupanvirus.
2. Justin C. Leavitt, [..], [Charles M. Bridges](#), et. al. (2023). Bacteriophage P22 SieA mediated superinfection exclusion.
3. Christopher J. Hawxhurst*, Jamie L. Micciulla*, [Charles M. Bridges](#), et. al. (2023). Soil protists can actively redistribute beneficial bacteria along *Medicago truncatula* roots.
4. [Charles M. Bridges](#) & Daniel J. Gage. (2021). Draft genome sequences of *Dysgonomonas* sp. strains GY75 and GY617, isolated from the hindgut of *Reticulitermes flavipes*.
5. [Charles M. Bridges](#), et. al. (2021). Draft genome sequences of *Dysgonomonas* sp. strains BGC7 and HGC4, isolated from the hindgut of a lower termite.
6. [Charles M. Bridges](#) & Daniel J. Gage. (2021). Development and application of aerobic, chemically defined media for *Dysgonomonas*.
7. Azady Pirhanov, [Charles M. Bridges](#), et. al. (2021). Optogenetics in *Sinorhizobium meliloti* enables spatial control of exopolysaccharide production and biofilm structure.

Selected Presentations

| | |
|---|--------------|
| <i>Selected Speaker</i> , XXVIII Biennial Conference on Phage/Virus Assembly | June 2023 |
| <i>Selected Speaker</i> , Pioneer Valley Microbiology Symposium | January 2020 |
| <i>Invited Speaker</i> , Nat. Sci. Dept. Science Colloquium, Castleton University | October 2019 |

Mentorship & Community Engagement

- Established mentoring relationships with numerous graduate and undergraduate researchers, fostering scientific training, technical expertise and career development.
- Participated in numerous STEM outreach programs to engage public audiences and inspire future scientists in K-12 education.

Fellowships, Honors & Awards

| | |
|---|----------------|
| UConn Connects David T. Ouimette Outstanding Mentor Award | September 2023 |
| <i>Best Talk</i> , Pioneer Valley Microbiology Symposium | January 2020 |
| Antonio and Marjorie Romano Graduate Education Fellowship | April 2018 |

Professional Affiliations

| | |
|---|--------------|
| International Society for Viruses of Microorganisms | 2022—Present |
| American Society for Virology | 2022—Present |
| International Society of Protistologists | 2019—Present |
| American Society for Microbiology | 2011—Present |