

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

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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.

Core Competencies

Laboratory operations: Establish budget forecast, 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) training

Professional Experience

Research Associate II	<i>University of Connecticut</i>	December 2025-Present
Large Language Model Training Fellow	<i>Handshake AI</i>	August 2025-Present
Principal Consultant	<i>Strategic Molecular Solutions</i>	March 2025-Present
Postdoctoral Research Associate	<i>University of Connecticut</i>	July 2021-December 2025
Adjunct Faculty Instructor, Virology	<i>University of Connecticut</i>	January-May 2024

Education

Ph.D., Molecular and Cell Biology,	<i>University of Connecticut, Storrs</i>	August 2021
M.S., Microbiology	<i>University of Connecticut, Storrs</i>	May 2013
B.S., Molecular and Cell Biology	<i>University of Connecticut, Storrs</i>	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