

Postdoctoral Fellow—Biological Methane Capture with Startup Leadership Path

Employer: Swanson (University of Utah) and Lidstrom (University of Washington) Laboratories

Location: Seattle, WA & Salt Lake City, UT, USA

About Us

The Swanson Group, based in the Department of Chemistry at the University of Utah, uses computational biophysics and multiscale simulation to reveal the molecular mechanisms that drive biological methane oxidation, electrochemical charge transport, protein–membrane targeting, and lasso peptide folding. Our group develops and applies tools ranging from *ab initio* and reactive MD to enhanced sampling and multiscale reactive kinetic modeling to link atomistic mechanisms to emergent behavior. Across all projects, we aim to generate fundamental insight that enables real societal impact.

The Lidstrom Laboratory, in the Departments of Microbiology and Chemical Engineering at the University of Washington, focuses on the molecular and metabolic engineering of methylotrophic bacteria—organisms that grow on methane, methanol, and methylated amines. Systems-wide and synthetic biology approaches are applied to metabolic networks to gain basic understanding and lay the groundwork for systems-based metabolic engineering. The long-term goal of this research is to develop economically viable approaches to utilize stranded methane gas as a feedstock for generating valuable biomass-related products. A central focus of the laboratory is to develop bioreactor-based systems using methane-utilizing bacteria (methanotrophs) to slow climate change by removing methane from the atmosphere at scale.

Why Join Us?

Biological methane capture is one of the few climate interventions capable of substantially reducing near-term warming. Our combined groups are developing the scientific foundations and engineering pathways to make that possible. Doing so requires scientists who can navigate the lab, the pilot system, and the emerging commercial environment.

This fellowship offers deep technical training paired with hands-on exposure to technology deployment and early-stage commercialization. For candidates with aligned interests, it may serve as a pathway into a leadership role—potentially CTO—in an emerging climate-tech startup.

Position Summary

We are recruiting a two-year, co-mentored postdoctoral fellow to accelerate the development and translation of biological methane capture systems. The position will be jointly mentored by Jessica Swanson (University of Utah) and Mary Lidstrom (University of Washington) and is designed for candidates who want to advance the fundamental science and help launch a next-generation climate-tech platform. Additional details can be found [here](#).

Core Responsibilities

- Optimize methanotrophic strains and growth conditions across a range of CH₄ regimes

- Engineer and test the biotic/abiotic interface to maximize conversion efficiency
- Collaborate with engineering teams to test and operate bench- and pilot-scale bioreactors
- Analyze performance data to guide scale-up
- Support field deployments
- Collaborate with technical and business partners to position the technology for real-world use and early investment
- Document and communicate findings through manuscripts, patents, internal reports, and presentations to both technical and non-technical audiences
- Present research at conferences, outreach opportunities, and meetings with industry or corporate partners

Qualifications

While the strongest candidates will possess most of the following qualifications, we recognize that valuable experience comes in many forms. If this position resonates with your experience and goals, we encourage you to apply.

Required:

- PhD in biomolecular sciences, microbiology, bioengineering, chemical engineering, or related field
- Experimental training in microbial physiology, bioprocess/bioreactor work, or related methods (omics, kinetics, controls, or materials)
- Ability to collaborate effectively with mechanical or process engineering teams
- Interest in technology translation and comfort working in dynamic, lab-to-field environments
- Strong written and verbal scientific communication skills
- Collaborative, team-oriented and mission-driven mindset

Nice to Have:

- Experience with gas-fermentation systems, methanotrophs, or materials/interfaces relevant to microbial engineering or gas transport

Compensation

This is a full-time, exempt position with a salary range of \$62,000 – \$75,000 /year, commensurate with experience. As a University of Utah employee, you will receive full benefits as detailed [here](#).

Work Environment

- Two-year appointment condition to semi-annual reviews: Year 1 at UW (Seattle); Year 2 at Utah (Salt Lake City)
- Access to state-of-the-art laboratory facilities, machine shops, pilot-testing spaces, and cross-institutional infrastructure
- Mentorship in scale-up, technology development, market readiness, and early-stage commercialization
- Opportunities to engage directly with technology deployment partners on pilot testing, scale-up evaluations, and field strategies
- Collaborative, supportive lab environments with shared office areas, modern facilities, and strong scientific networks

How to Apply

Please email Professor Swanson at j.swanson@utah.edu with the subject line "Postdoc Application – [Your Name]", and include:

- Resume/CV
- Cover letter that states your interest in the position and career goals
- Names and contact information for two references