

Proteomics Postdoctoral Scholar: Cross-Kingdom Chemical Signaling in Marine Microorganisms

A position of Postdoctoral Scholar is open in the Department of Genome Sciences at the University of Washington in the Nunn Environmental Proteomics Lab. This project is funded by the National Science Foundation in collaboration with the Georgia Tech, University of New Hampshire, and Haverford College. The postdoctoral researcher will be located at the University of Washington, Seattle, WA USA, with the opportunity to visit collaborators at the other project sites. This interdisciplinary project will investigate the role of cross-kingdom chemical signaling in microscopic organisms using stable isotopes and mass spectrometry-based 'omic methods. Specifically, the team will explore and identify mechanisms by which microscopic algae interact with marine bacteria, with impacts on biogeochemical cycles, global climate, and ecosystem health. The technology to be developed will allow the investigating team to identify molecules made by each organism and determine which proteins are synthesized through time under different treatment conditions. A newly emerging picture of the microbial loop suggests that bacteria are not merely passive recipients of dissolved organic matter from phytoplankton; rather they actively control the flow of organic matter depending on how they deploy their chemical arsenal.

This work will be divided across the 4 institutions, each with a postdoctoral fellow, in order to collaboratively characterize the conditions that elicit the production of microbial chemical messengers, the resultant dynamic exchange of metabolites between partners, identify metabolisms influenced by chemical signals passed as a function of time, and the elucidate mechanisms by which bacterial signals assist phytoplankton evasion from viral death to reveal the regulatory logic and coevolutionary history underlying eukaryote-bacterial interactions. The UW postdoc will lead the lab-based proteomic research, mentor an undergraduate research helper, and have the opportunity to co-teach a 7-week hands-on interdisciplinary research course, setting them up for a range of future career opportunities. The primary responsibility of the UW- postdoc in the Nunn-lab will be to design, optimize and test data independent acquisition (DIA)-specific proteomic methods on stable isotope labeled proteins in eukaryote-bacteria time course interactions.

Expertise in any of these areas is desirable: bioanalytical chemistry including chemical separations, mass spectrometry, proteomics, MS-based isotope analyses; transcriptomics; genomics; symbiosis; statistical methods for analyzing complex datasets in R; computational tools for metabolism reconstruction, and probing of metabolic networks.

Candidate must possess a Ph.D. or M.D./Ph.D degree, or foreign equivalent, and demonstrate commitment to valuing diversity and contributing to an inclusive working and learning environment.

Preferences for applicants include: (1) PhD in chemistry, biology, marine science, computational biology, or a related area; (2) Interest in using chemical approaches to understand biological phenomena; (3) Experience designing, executing, and analyzing experiments that include quantitative data; (4) Excellent communication skills including scientific writing.

The Nunn lab is fully integrated with the MacCoss's proteomic mass spectrometry group at the University of Washington. The general lab environment is collaborative, friendly, and constructive. We are seeking a highly motivated and productive scientist with a suitable background as aforementioned. The laboratory nurtures a collaborative environment with ample opportunities for grant writing, professional training, and career

development routes in big data analyses, bioinformatics, genomics, proteomics, and quantitative analyses. The laboratory is highly multidisciplinary and scientifically integrated. Salary is commensurate with experience, and UW employee benefits will be provided.

Diversity is a core value of University of Washington. We believe the power of diversity enriches all of us by exposing us to a range of ways to understand and engage with the world, identify challenges, and to discover, design and deliver solutions. More information on the group's research can be found at <https://www.environmentalproteomics.org/>. University of Washington Department of Genome Sciences (<https://www.gs.washington.edu/>) is ranked 5th in the nation for molecular biology and genetics and located near downtown Seattle.

The position will start as soon as the selected applicant is available and includes competitive salary, benefits, collaborative opportunities in the USA and internationally, and travel budget. Screening of applicants has begun and applications will be considered until position is filled. To apply, please e-mail Brook Nunn (brookh@uw.edu) with a curriculum vitae (CV), a one-page statement of how your research interests are related to this position, and contact information for 3 references.