

**POSTDOCTORAL RESEARCH PROGRAM
NATIONAL EXPOSURE RESEARCH LABORATORY
U.S. ENVIRONMENTAL PROTECTION AGENCY
Cincinnati, OH**

Characterization of Potential Viral Biomarkers by Mass Spectrometry

PROJECT # NERL 2004-05

A research project is available through the Postgraduate Research Program at the U.S. Environmental Protection Agency (EPA), National Exposure Research Laboratory (NERL) in Cincinnati, Ohio. Under the guidance of a research mentor, the participant will gain educational benefits through involvement in a project to differentiate between types and strains of microbiological organisms and to study infectivity methods for microbiological organisms. One goal is to investigate the use of Matrix Assisted Laser Desorption Ionization Mass Spectrometry (MALDI-MS) to produce characteristic protein fingerprints of various waterborne viruses of concern to human health. The information gained may be used in the future to identify the organisms in drinking water matrices after amplification by traditional culture methods. Another goal is to use mass spectrometric techniques, such as electrospray (ESI) and MALDI to study and to identify potential viral protein biomarkers of infectivity. These potential protein differences can then be utilized in future projects to develop conventional microbiological methods to rapidly detect low levels of these microorganisms in drinking water.

QUALIFICATIONS: Applicants must have received a bachelor's degree or higher in microbiology and/or analytical chemistry or a closely related discipline within the three years prior to the desired starting date; or completion of all requirements should be expected prior to the starting date. Candidates who have completed all degree requirements prior to the starting date or who wish to perform the research in partial fulfillment of a doctoral program will also be considered. A background in virology and molecular biology are highly desirable. U.S. citizenship or lawful permanent resident status is preferred. The program is open to all qualified individuals without regard to race, sex, religion, color, age, physical or mental disability, national origin, or status as a Vietnam era or disabled veteran.

The participant will be selected based on academic records, recommendations, research interests, compatibility of background and interests with research programs and projects at NERL, and the availability of funds, staff, programs, and equipment. The appointment is full-time for one year and may be renewed upon recommendation of NERL and subject to availability of funds. The participant will receive a monthly stipend based on research area and prior experience. The participant must show proof of health and medical insurance.

For technical questions about the project, contact: Dr. Jody Shoemaker, National Exposure Research Laboratory, U.S. Environmental Protection Agency, 26 W. Martin Luther King Drive, Cincinnati, Ohio 45268, e-mail: shoemaker.jody@epa.gov.

The Postgraduate Research Program for NERL is administered by the Oak Ridge Institute for Science and Education. ***Please reference Project # NERL 2004-05 when calling or writing for information.*** For additional information and application materials contact: Postgraduate Research Program/NERL, Attn: Betty Bowling, Science and Engineering Education - MS 36, Oak Ridge Institute for Science and Education, P.O. Box 117, Oak Ridge, Tennessee 37831-0117, Phone: (865) 576-8503 FAX: (865) 241-5219, e-mail: bowlingb@ornl.gov.

An application can be found at www.ornl.gov/orise/edu/EPA/app-gugrgpd.pdf