

Uehling lab is now hiring a postdoctoral researcher!! Location: Oregon State University Botany and Plant Pathology Department, Corvallis, OR, USA

Position: Postdoctoral Researcher

POSITION DESCRIPTION The objectives of the position are to support research on fungal bacterial interactions in the Botany and Plant Pathology Department at Oregon State University. This position will support the lab in

- Evaluating microbial pathogenic potential through collecting and analyzing computational molecular data (i.e., DNA/RNA)
- Developing integrative approaches to study fungal bacterial interactions in *in vitro* (on plates in lab) and *in vivo* utilizing phagocytosis assays
- Culturing and sequencing fungal and bacterial symbionts
- Conducting collaborative international field work, lab work, and computational research projects on bacterial fungal symbioses
- Assisting in lab management, ordering materials, and training
- Maintaining laboratory notebooks, protocols and reagents to maximize the efficient use of resources
- Maintaining current knowledge of EHS & OSHA safety rules and ensure that all laboratory personnel are informed and aware of all rules and regulations
- Generating and analyzing data and contributing writing to scientific manuscripts
- provides educational and outreach activities to describe the research to the K-12 level education system in Oregon

SUMMARY: This position will support microbiological research that

1) surveys endosymbiont diversity in environmental and clinical Mucoromycota fungi
2) utilizes comparative evolutionary genomics to quantify the effects on fungi for hosting bacterial symbionts using genomics and transcriptomics; **3)** develops integrative approaches to analyze several sources of genomics data sets; **4)** disseminates the research findings to the public and industries through extension action.

DEADLINE If you are interested in the position(s) below, please send the Application Materials to jessie.uehling@oregonstate.edu before September 30th. We will try to contact the qualified individuals for the first round of interviews within 3 weeks after your package is received.

APPLICATION MATERIALS (a PDF file) include: (1) the cover letter; (2) 2-page research statement; (3) CV; (4) the contact information of three references.

SALARY \$52,704 annually

MINIMUM REQUIREMENTS Ph.D. in molecular medical mycology, bioinformatics, microbial ecology, evolutionary biology OR experience in computational biology, generating genomics data sets, programming in Python and R, Mycology/Bacteriology/Microbiology coursework, field work, and experience isolating fungi from soils, animal tissues, and working with pathogenic fungi.

PREFERRED QUALIFICATIONS Strong writing skills and publication record, public speaking experience, working knowledge of Microsoft Office Programs such as WORD, EXCEL, and OUTLOOK, biosafety level 2 or 3 training, fungal bacterial interactions experimental design, population genomics experience.

PROJECT ABSTRACT The goal of this research is to investigate how endosymbiotic bacteria (EB) affect virulence of their hosts and human fungal pathogens in the phylum Mucoromycota. This position focuses on question 3 below and requires accountability for evaluating evolutionary questions using primarily computational population genomics approaches.

Microbes in the soil are in an arms race, surrounded by friends and foes, that has been going on for millennia. The evidence of this is recorded in their genomes: individual organisms have evolved genetic tools to resist their enemies. There is also evidence of long-standing partnerships between microbes known as endosymbioses, where bacteria live inside fungal cells. Partnerships between bacteria and fungi can allow them to escape amoebae that prey on them in the environment. We hypothesize that the need for fungi and their resident endosymbionts to regularly escape predatory soil amoebae may enable fungal evasion of the phagocytic process. This project brings together three groups with unique expertise in endosymbiosis, fungal pathogenesis, and amoeba biology to investigate three questions:

- 1) How often do bacteria and fungi collaborate to avoid amoebae?
- 2) What are the mechanisms for this?
- 3) How do these partnerships impact the long-term evolution of the individual members, and the team?