

# PhD Position in Microbial Physiology

University of Vienna, Austria  
Centre for Microbiology and Environmental Systems Science  
Department of Microbiology and Ecosystem Science

We are looking for a highly motivated, enthusiastic PhD-student to explore respiratory flexibility in soil bacteria.

## Project description:

Habitats having gradients of oxygen (O<sub>2</sub>) concentrations are widely distributed on Earth, ranging from the human intestine and marine environments, to plants and soil environments. Microorganisms harbor enzymes, called low and high-affinity terminal oxidases (TOs), which allow them to use O<sub>2</sub> across these concentration gradients for energy production. It is commonly assumed that the capacity to respire low O<sub>2</sub> concentrations is due to the presence of high-affinity TOs, while low-affinity TOs are used at high concentration of O<sub>2</sub>. Yet, there is growing evidence that utilization of low- and high-affinity TOs does not follow this dogmatic pattern learned from our school textbooks, but that the regulation mechanisms are more complex.

This project seeks to better understand the expression of low- and high-affinity TOs and the (environmental) conditions (beyond O<sub>2</sub> concentration) that regulate their utilization for energy generation in representative soil bacteria. This will be achieved by using a holistic approach of genomics, gene expression, respiratory kinetics and growth-based experiments of environmental relevant model soil microorganisms – select strains of the abundant *Acidobacteriota* and of other representative soil bacteria. This project will be a major contribution to understanding the drivers of the differential use of TOs and can have significant implications in our understanding of microbial physiology.

**Required qualifications.** We are looking for a highly motivated and independently working candidate with an excitement and enthusiasm for microbiology. A successful applicant will have a MSc degree in microbiology, molecular biology or a related biological discipline. Practical experience in the laboratory in basic microbiology techniques is highly favored. Experience in microbial physiology, environmental microbiology and (some) bioinformatics are preferred. The flexibility to travel and spend extended periods (weeks to month) at our collaboration partner (Universidad de Cadiz, Spain) is required. Ability to work independently and on a team is mandatory. Good communication skills in English (written and spoken) and the ability to work in a team are essential.

**What we offer:** A successful candidate will work in an internationally leading Centre in microbial ecology research. The Centre offers a diverse and stimulating work environment. The PhD candidate will be enrolled in the Doctoral School in Microbiology and Environmental Science (<https://vds-mes.univie.ac.at/>), which offers interdisciplinary training at the interfaces of microbiology, ecology and environmental science.

**Conditions of appointment.** The successful candidate will receive funding for up to four years. The salary is according to the salary scheme of the University of Vienna (PhD students 0,75 FTE). The University pursues a non-discriminatory employment policy and values equal opportunities. Perception and recognition of diversity are key fundamental values of the University of Vienna and therefore is committed to promote diversity (<https://diversity.univie.ac.at/>). Qualified applicants will receive consideration for employment without regard to, including but not limited to, age, sex, sexual orientation, race, religion and gender identity.

**Application details.** Applicants should submit a letter of motivation, a detailed CV (including a brief description of research interests, education, previous employments, and publication list if applicable) and provide the name, affiliation and email address of 2-3 professional references. **These documents should be sent as one pdf file to Stephanie A. Eichorst via the email address [stephanie.eichorst@univie.ac.at](mailto:stephanie.eichorst@univie.ac.at), with the subject *PhD Position - Beyond O2*.** The position will remain open until filled.