Postdoctoral researcher in Molecular Microbiology & Microbial Metabolism

80%-100%, Zurich, fixed-term

The human body contains trillions of microbial cells with the highest density lining the digestive tract. Gut microbes are not inert; they interact with chemicals in their host environment including food components and food contaminants, e.g., from food contact materials. The goal of this project is to combine microbial cultivation techniques, mass-spectrometry based screening methods, and next-generation sequencing (NGS) analysis to discover new microbial biotransformations of diverse food contact chemicals. We are looking for experienced candidates interested in multidisciplinary research to join our team.

Job description

You will join a collaborative team of scientists who develop and use molecular, deep sequencing, and bioinformatics methods to study microbiomes at the interface between foods and human health.

You will develop and utilize in vitro cultivation methods for studying microbial metabolism, including in in vitro models of the human colon. You will utilize LC-MS/MS methods, DNA sequencing (16S rRNA marker-gene sequencing and/or shotgun metagenome sequencing), synthetic biology, and bioinformatics techniques to study microbial biotransformations of food contact chemicals.

This project is a collaboration between the laboratory of Food Systems Biotechnology (FSB) in the Department of Health Sciences and Technology at ETH Zurich (The Swiss Federal Institute of Technology) and the laboratory of Microbial Specialized Metabolism (MSM) at EAWAG (the Swiss Federal Institute of Aquatic Science and Technology). FSB develops computational methods and utilizes "omics" technologies to study microbial ecosystems in food production and human health, with the ultimate goal of creating microbial communities and products that optimize food quality, safety, and human health. MSM applies experimental and computational approaches to characterize microbial enzymes and pathways with a focus on metagenome mining and machine learning techniques.

The start date is open. The preferred start date is in 2024 or early 2025.

Profile

You are a scientist with a passion for the microbial world and the use of molecular and computational tools to study microbial ecosystems and metabolism. You are thrilled by the scientific process, and wish to apply your skills to study microbial ecosystems in food production. You are skilled in chemical and/or biological data analysis and comfortable working with different types of data and laboratory techniques. You like new challenges and learning new techniques and technologies, and are not daunted by the emerging challenges in a dynamic research environment. You like to collaborate with others to bring new ideas and projects to fruition.

Key Qualifications:

- Doctoral degree in microbiology, molecular biology, biotechnology, bioinformatics, biology, computational biology, food science, or other relevant fields.
- Outstanding record of scientific communication and publications.
- Excellent interpersonal communication, teamwork and organizational skills
- Ability to plan and direct complex research projects
- English language proficiency (written and spoken)
- Ability to work independently and as part of a team

Desired qualifications include hands-one experience with:

- anaerobic and aerobic bacterial cultivation
- molecular/synthetic biology techniques
- analytical chemistry (specifically in LC-MS/MS analysis)
- Metagenome and/or marker-gene sequencing of microbial communities
- QIIME 2 or other bioinformatics software for microbiome data analysis

– programming with Python (preferred) and/or R

Workplace

We offer

ETH Zurich is a family-friendly employer with excellent working conditions. You can look forward to an exciting working environment, cultural diversity, and attractive offers and benefits. These include a collaborative and supportive team of scientists; an engaging and friendly workplace culture; access to world-class facilities and technology platforms; further training opportunities and mentoring for career development; delicious baked goods.

In general, postdoctoral researchers at ETH Zurich have a full-time employment. A part-time employment may only be considered in exceptional cases (e.g. child- or familycare, other projects or employment).

› Working, teaching and research at ETH Zurich

We value diversity

In line with our values, ETH Zurich encourages an inclusive culture. We promote equality of opportunity, value diversity and nurture a working and learning environment in which the rights and dignity of all our staff and students are respected. Visit our Equal

Opportunities and Diversity website to find out how we ensure a fair and open environment that allows everyone to grow and flourish.

Curious? So are we.

We look forward to receiving your online application with the following materials:

- A letter of intent (1-2 pages) that describes your interest and suitability for the position, your specific goals/vision/proposed research aims, and succinctly conveys your scientific mission.
- An updated curriculum vitae including a list of publications, education, and relevant experience
- Names and contact information of 2-3 professional references

Review of applications will begin on 16 October and continue until a suitable candidate is found.

Please note that we will only consider completed applications that are submitted through our online application portal. Applications sent via email or postal services will not be considered.

For further information about the group please visit the group websites Food Systems Biotechnology (FSB) and Microbial Specialized Metabolism (MSM) . Questions regarding the position can be directed to Prof. Dr Nicholas Bokulich by email nicholas.bokulich@hest.ethz.ch (no applications).

About ETH Zürich

ETH Zurich is one of the world's leading universities specialising in science and technology. We are renowned for our excellent education, cutting-edge fundamental research and direct transfer of new knowledge into society. Over 30,000 people from more than 120 countries find our university to be a place that promotes independent thinking and an environment that inspires excellence. Located in the heart of Europe, yet forging connections all over the world, we work together to develop solutions for the global challenges of today and tomorrow.