

### 3- year PhD position | IBMP, Strasbourg, France

#### Exploring the role of defense autotoxicity protection for plant metabolism evolution

**Project description:** Manipulating plant specialized metabolite (PSM) pathways can lead to the accumulation of toxic intermediates, indicating that in addition to defensive functional selection, autotoxicity avoidance act as a key constraint in the evolution of PSMs. However, the extent to which autotoxicity protection mechanisms co-evolve with defensive functions and shape plant chemodiversity dynamics remains largely unexplored. The successful candidate will integrate the recently funded **ANR-DFG EVOMET** that will employ a **state-of-the-art multiomics** approach to understand the evolution of PSMs in the Solanaceae. This project involves the establishment of metabolomics-transcriptomics atlases as well as functional case-studies to decipher how autotoxicity avoidance and defense deployment are balanced. The doctoral student will notably be in charge of metabolomics and functional biochemistry analyses and will benefit from the strong synergy established with the group of Prof. Dr. Shuqing Xu (University of Mainz, <https://plant-x.uni-mainz.de>), partner of the EVOMET project.

For more details on our recent research on the topic, please see the following publications: Elser et al. (2022) (10.1126/sciadv.ade8984), Heiling et al. 2021 (10.1093/plcell/koab048), Li et al. (2020) (10.1126/sciadv.aaz03)

**Requirements:** We seek a highly motivated PhD student with a Master degree in **plant biology/biochemistry** with experience in some of the following fields: metabolite analysis, protein biochemistry and RNAseq analysis. Experience in **metabolomics** is a strong plus for this position. Interdisciplinary research interests, excellent communication skills as well as proficiency in spoken and written English are expected.

**We offer** a vibrant research environment that includes access to state-of-the art research facilities (MS metabolomics, NGS bioinformatics, MS imaging, ...), an exciting interdisciplinary research project and a dedicated training in emerging techniques in metabolomics and multiomics. The work will be carried out at the Institut de Biologie Moléculaire des Plantes (IBMP, [www.ibmp.cnrs.fr](http://www.ibmp.cnrs.fr)), the largest CNRS institute dedicated to plant biology research. The institute is located in the vibrant city of Strasbourg, at walking distance of thy historical center.

The successful candidate will start on **Feb / March 2024**. The salary will initially be provided for **three years**.

**How to apply:** Applications must include a motivation letter, a CV, and contacts of 1-2 previous mentors.

<https://emploi.cnrs.fr/Offres/Doctorant/UPR2357-EMMGAQ-002/Default.aspx?lang=EN>

Please e-mail enquiries about the project to [emmanuel.gaquerel@ibmp-cnrs.unistra.fr](mailto:emmanuel.gaquerel@ibmp-cnrs.unistra.fr).

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