

中荷 AGD-CSC 项目招生课题目录

Proposal List for 1+3 AGD-CSC Students Call in 2025

No.1 Peptidomes Enhance Nutrient Utilization and Stress Resistance in Maize for Bio-stimulant Development

Small peptides (SPs) are critical signalling molecules that regulate plant growth, development, and stress responses. Specific groups of SPs (e.g., CEPs, CLEs, RGFs) are known to play pivotal roles in nutrient signalling and stress adaptation in model species. The proposal aims to explore the global landscape of nutrient- and stress-responsive peptides in cereal crop maize and to uncover the role and regulatory mechanisms of relevant small peptides in modulating nutrient use and stress tolerance. In collaboration with team members in CAU, the prioritized SPs will be exploited for innovating peptide-based fertilizers or bio-stimulants with cutting-edge synthetic biology tools., with the aim to enhance crop productivity and stress resilience.

What we offer:

1. A stimulating and interdisciplinary research environment at the Department of Plant Nutrition, China Agricultural University (CAU), China and the Laboratory of Biochemistry, Wageningen University & Research, the Netherlands.
2. Opportunities for international collaboration and training.
3. A competitive fellowship.

Your qualifications and skills:

1. A master's degree in biochemistry, plant biology, a molecular life science-related field.
2. Solid background in protein biochemistry and plant biology. Nice to have but not strictly required-background in proteomics.
3. Highly motivated team player with a strong drive to develop as a scientist.
4. Excellent oral and written communication skills in English.

Your tasks:

1. Identify nutrient- and stress-responsive peptidomes in maize using systems biology approaches.
2. Investigate the roles of selected peptides in nutrient use efficiency and stress tolerance.
3. Study the sensing and regulatory mechanisms of prioritized peptides, including receptor identification and signal transduction pathways.

No.2 Deciphering root-microbiome signaling and chemical communication for sustainable crop production

PhD Positions in Plant-Microbiome Interactions for Sustainable Agriculture

We are seeking highly motivated PhD candidates to join our interdisciplinary research team focused on unravelling the complex interactions between plants and their rhizosphere microbiome. Our project, funded by the Agriculture Green Development (AGD) PhD program of China Agricultural University and Wageningen University & Research, aims to develop innovative microbiome-based strategies to enhance crop resilience and productivity. The successful candidates will work on cutting-edge research involving bioinformatics, multi-omics data integration, and experimental validation.

Key Responsibilities:

Develop and validate predictive models for microbial rhizosphere competence using RhizoSMASH 2.0.

Conduct experimental validation of microbial catabolic pathways and plant-beneficial traits.

Analyze rhizosphere metagenomes to identify host-specific microbial profiles.

Collaborate with an international team of researchers and contribute to the development of sustainable agricultural practices.

Requirements:

A Master's degree in (molecular) microbiology, bioinformatics, plant science, or a related field.

Strong background in microbiome research, bioinformatics, and/or plant-microbe interactions.

Experience with (multi-)omics data analysis and experimental validation.

Excellent communication skills and the ability to work in a collaborative environment.

What We Offer:

A stimulating and interdisciplinary research environment at leading institutions in China and the Netherlands.

Opportunities for international collaboration and training.

A competitive salary and benefits package.