

Host institution and country

Leibniz Institute for Agricultural Engineering and Bioeconomy (ATB), Potsdam, Germany

Host supervisor

Dr. Ahmed Abdelfattah

Working Group Microbiome Management, Department Microbiome Biotechnology

Email: AAbdelfattah@atb-potsdam.de

Title of the proposed STSM topic/project

Development of a modular Tn7-based genetic tagging system for plant-associated bacteria

Short description of the research opportunity

This STSM will support the design and optimization of a modular bacterial labelling platform to track and study the colonization dynamics of plant-associated bacterial strains.

The visiting researcher will work with the host group on the conceptual and technical design of a modular system suitable for future use in plant-associated bacteria. The work will focus on construct logic, modular DNA assembly strategy, plasmid map evaluation, compatibility of selectable markers and reporter elements, and the design of a basic validation workflow. Depending on feasibility, this may also include primer design, construct verification strategies, and interpretation of colony- or PCR-based validation results.

The expected outcome is a clear and implementable roadmap for establishing the system under applicable institutional biosafety and genetic engineering regulations. The STSM is ideal for an applicant interested in microbial genetics, molecular tool development, and plant microbiome research.

Expected skills, expertise, or background of the applicant

The applicant should have strong basic knowledge of molecular cloning and microbial genetics, including DNA assembly strategies, plasmid design, primer design, bacterial transformation or conjugation concepts, selectable markers, reporter systems, and interpretation of colony- or PCR-based validation results. Experience with modular cloning approaches such as restriction/ligation, Gibson assembly, Golden Gate, or similar systems would be highly desirable. Experience with plant-associated bacteria would be an advantage but is not essential.

Preferred duration of the STSM

6-8 weeks, preferably between July and September 2026.

Specific requirements or conditions

Applicants should provide a short motivation letter, CV, and a brief statement describing their relevant technical experience in molecular cloning, microbial genetics, or genetic tool development. All work will be conducted in accordance with ATB's institutional biosafety and genetic engineering regulations.

Expected outputs

By the end of the STSM, the applicant should help generate a clear modular bacterial labelling platform, annotated construct maps, a validation strategy, and a short technical report summarizing feasible next steps for implementation in plant-associated bacteria. A short presentation to the host group is also expected.