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UNIVERSITÄT
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CSC-Tübingen PhD Scholarship Program

2026/2027 application round: prospective PhD positions at the University of Tübingen

Faculty: Science

Institute / Section / Subject: Center for Molecular Biology of Plants (ZMBP)/Genetics and Plant Biochemistry

Supervising Professor(s): Dr. Jessica Lee Erickson

About the Supervisor(s):

Xanthomonas is a genus of Gram-negative bacteria that colonizes the apoplast of hundreds of economically and socially valuable plant species across the world. The type II secretion system ejects proteins into plant tissue, manipulating the bacteria's immediate environment. Although it has been established as an important virulence factor for *Xanthomonas*, as well as for many other bacterial phytopathogens, there are still significant gaps in our understanding of how type II secretion is regulated, exactly what proteins are released and their contributions to bacterial survival and plant immune activation in the apoplast. My group aims to address these questions utilizing molecular biology, biochemistry, protein modeling and evolutionary biology approaches, mostly working with *Xanthomonas* strains infecting tomato, pepper, *Arabidopsis thaliana*, and *Nicotiana benthamiana* plant model systems.

[Group Website](#)

Specification/Project title:

Cut and Run: Protease-mediated bacterial colonization of plants

Topic Description:

Extracellular proteases secreted by Gram-negative phytopathogens remain a largely untapped source of insight into how these organisms subvert host defenses and colonize plant tissue. This project investigates the spatiotemporal dynamics of protease release during infection by *Xanthomonas euvesicatoria* (Xe) and the roles these enzymes play in bacterial spot disease of pepper and tomato. Specifically, we will employ a combination of bacterial transcriptomics, fluorescent promoter fusions and new protease-trap technology to monitor protease expression and identify the targets of newly identified Xe proteases.

Intended Degree: Dr. rer. nat. I would recommend participating in the ZMBP doctoral program

Type of the PhD Study: Full time (complete doctoral studies at the University of Tübingen)

Required Degrees and Qualifications: Master's degree in the natural science and an interest in plant

pathogen interactions

Language Requirements: English is required

Notes: