



PhD Position

to study “Processing bodies as a target of pathogenic bacteria”

Research: Common denominator to the research in the Üstün Lab is how protein homeostasis (proteostasis), including translation, sorting and degradation of proteins, shapes the response to environmental stimuli. The control of protein homeostasis in response to environmental stimuli has emerged as a strategy to respond to perturbations ranging from ageing to pathological diseases in animals, and plants. There is mounting evidence that translational reprogramming occurs upon various stresses in different systems. To allow rapid, versatile, and cost-efficient responses to sudden environmental changes, eukaryotes utilize reversible translational arrest caused by compartmentalization of transcripts in cytosolic membraneless aggregates formed by phase separation. One such type of aggregates are processing bodies (PBs), dynamic ribonucleoprotein aggregates conserved among eukaryotes. Based on our previous work on PBs (proximity-labelling, transcriptomics) and their involvement in host-bacteria interactions we propose to study how bacteria utilize PBs to repress translation for their own benefit. We aim to use our model system to understand the composition and formation of PBs during stress conditions and how bacteria utilize PBs to manipulate translation during infection.

We aim to address following key questions/objectives:

- I) *Characterize new PB components with roles in plant-microbe interaction (based on previous proximity-labelling results)*
- II) *How are PB components recycled during infection?*
- III) *Analyze Type-III effector protein(s) that modulate PBs and manipulate translation*

Requirements:

We are looking for a **PhD candidate** (m,f,x) with experience in molecular biology. Experience with plant-microbe interactions and Arabidopsis are advantageous but not required. Excellent English communication skills as well as teamwork abilities are expected. A master's degree in molecular biology, biochemistry or corresponding is required. We offer an innovative, inclusive, and scientifically stimulating environment supported by grants from the DFG and the European Research Council. We use a combination of state-of-the-art techniques (from single-cell RNA sequencing to proximity-labelling) and perform cutting-edge research in plant proteostasis. Work within the project will include microbial, cell biological (confocal microscopy), biochemical (proteomics, in vitro assays), genetic and transcriptomic approaches using *Arabidopsis thaliana* and *Nicotiana benthamiana* as model organisms. More information can be found on our lab homepage: <http://theustunlab.com/>

The position is available from **10/2024 (start date negotiable)**. Reviewing of applications will begin immediately and the position will remain open until a suitable candidate is found. We are looking forward to receiving your application until **17/06/2024** as a composite pdf-file in English. Please include a **letter of motivation** with your research interests/ideas and **how this project motivates you to join our lab**, **CV**, name and addresses of at least **two referees** via email: suayb.uestuen@rub.de