

# PhD Position: Light-dependent localization and functions of SR splicing regulators in early seedling development

**JGU Mainz, Research group Prof. Dr. Andreas Wachter**

The Wachter group examines mechanisms and functions of RNA processing in plants (<https://mps-imp.biologie.uni-mainz.de/>), such as the role of alternative splicing in light-dependent seedling development (Hartmann et al, 2016 & 2018). The upstream signalling of this process involves the activity of energy sensor kinases (Saile et al., 2023) and localization of SR splicing regulators into nuclear speckles. We use a combination of *in silico*, *in vitro*, and *in vivo* approaches to understand how condensate formation of these proteins may be utilized to control a switch in the alternative splicing program, as a paradigm for examining the role of dynamic splicing speckles in eukaryotic development. This PhD project will involve establishing reporter lines to monitor speckle dynamics at high resolution in the course of early seedling growth. Moreover, you will functionally characterize this process, addressing in particular the impact of SR phosphorylation on speckle formation and the interactions with proteins and RNAs in the different phases. You will use state of the art techniques such as proximity labelling and TRIBE to identify novel interactors of these splicing regulators. Moreover, the project will benefit from the findings of our *in vitro* studies of RS condensation that are performed in the context of the SFB 1551 on “Polymer Concepts in Cellular Function”.

**JGU MAINZ** | The Johannes Gutenberg University Mainz is one of the largest universities in Germany at the heart of the attractive and lively Rhine-Main science region. State of the art equipment, a completely new research infrastructure, and extensive expertise as well as various core facilities make this an excellent location to work on this exciting project and to continue your scientific career. The institutes are located on a single campus close to the city centre, creating a vibrant academic culture.

**YOUR TASKS** | As part of a multi-disciplinary project team, you will determine the molecular features that are responsible for condensation of RS splicing regulators *in vivo*. You will examine the functional consequences of this dynamic localization, focusing in particular on identifying condition-specific interacting proteins and RNAs. Moreover, physiological functions in the light-dependent regulation of alternative splicing and seedling development will be determined. You will also be involved in the supervision of students.

**YOUR PROFILE** | You have successfully completed your MSc studies in biology or a related field. A background in plant biology is a plus, but not mandatory. You are fascinated about science, have very good communication skills and enjoy working in a team.

Funding will start in August 2024 or at the earliest possible date for initially 3 years (65% EG 13, TV-L). JGU aims to increase the number of women in research and teaching and therefore encourages female researchers to apply. Candidates with severe disabilities and appropriate qualifications will be given priority.

Please send your application documents, including a motivation letter, CV, certificates, and references as a single PDF via email to [jobs-aw@uni-mainz.de](mailto:jobs-aw@uni-mainz.de). Submission deadline is June 24<sup>th</sup>, 2024. In case you have any question, please contact Andreas Wachter.