HELMHOLTZ RESEARCH FOR GRAND CHALLENGES

Helmholtz Call for Chinese Applicants Interested in Running for CSC 2021 Fellowship

Helmholtz Centre: Forschungszentrum Jülich GmbH – www.fz-juelich.de

Department/Institute: Institute of Bio- and Geosciences, Plant Sciences (IBG-2) https://fz-juelich.de/ibg/ibg-2/EN/Home/home_node.html and Central Institute for Engineering, Electronics and Analytics, Analytics (ZEA-3) https://fz-juelich.de/zea/zea-3/EN/Home/home_node.html

Supervising scientist: Dr. Borjana Arsova and Prof. Dr. Pitter Huesgen

University for registration or for a future degree: University of Düsseldorf or Cologne (TBD)

Research Field: Plant physiology, Molecular Biology, Biochemistry

Position open for: **PhD Student** □x **Sandwich PhD Student** □

Title of the research: Elucidation of nitrogen related signalling processes and regulation of complementary metabolic functions in Arabidopsis.

More description of research topic:

Plant nutrient sensing and signaling is an important topic in the improvement of plant nutrient uptake form the soil. However, the signaling cascades that allow plants to transmit the changing nutrient stratus in the rhizosphere and accordingly modulate plant growth and nutrient uptake are still unclear. Starting from a large proteomics study (Engelsberger and Schulze, 2012), we have created mutants for a number of kinases that change phosphorylation status in minutes after nitrogen re-supply in the medium. We hypothesize they will regulate various metabolic branches in the plant organism. Per example, a kinase of interest is co-expressed with proteins involved in cell wall synthesis and thus may impact cell wall quality based on nitrogen availability. The PhD student will focus on understanding the plant phenotype and molecular mode of action in Arabidopsis mutants with perturbed kinase expression, under various nutrient levels. Methods will include: plant phenotyping, molecular biology, confocal microscopy, pull-down assays and targeted proteomics. The student will work between two institutes in the Research Center in Juelich: the Root Dynamics group in IBG-2 (Dr. Borjana Arsova) and the proteomics laboratory in ZEA3 (Prof. Dr. Pitter Huesgen).

Specific requirements:

Required:

- Previous experience in molecular biology and (basic) biochemistry
- Good understanding of plant phenotyping
- Excellent organizational and team-work skills (to allow for the work across multiple institutes)
- Excellent communication skills

Preferred:

- Previous proteomics experience, particularly targeted proteomics is preferred

Working Place: Forschungszentrum Jülich, Germany (near Cologne)

Earliest Start: September 2021

Language Requirement: Very good knowledge of English language, written and spoken. German language courses are organised in the context of our in-house training program and are free of charge.

Name and Address of the Supervisor: Forschungszentrum Jülich, 52425 Jülich, Germany
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