



# Postdoc position on Phenotyping of Plant - Pathogen Interaction

Department of Plant and Environmental Sciences, Faculty of Science at The University of Copenhagen is offering a 2-year Postdoc position within the topic "Multimodal phenotyping of pathogen responses in barley" commencing 1st October 2018 or as soon as possible thereafter. We are looking for a highly motivated and dynamic researcher with an interest in a holistic approach to combine noninvasive and physiological phenotyping with functional approaches.

## Description of the scientific environment

The Department of Plant and Environmental Sciences with the Copenhagen Plant Science Center strives to stimulate fundamental research and the synergy between basic and applied research in biology and environmental science. The focus is on plants, microorganisms, animals and the environment as a basis for sustainable production of food and other biological products.

Research and teaching cover natural resources, agriculture, biotechnology and synthetic biology from the molecular level to the ecosystem scale. Further information on the Department is linked at <https://www.science.ku.dk/english/about-the-faculty/organisation/>.

The Principal Investigators of this project lead two research groups at the department, Molecular Plant Physiology & Phenomics and Cell communication. To these research groups, state-of-the-art infrastructure is attached: Phenomics (<https://plen.ku.dk/english/about/pfv/the-greenhouses-in-taastrup/phenolab/>) and Center for Advanced Bioimaging (CAB Denmark ([www.cab.ku.dk](http://www.cab.ku.dk))). More information about the research groups is available at [https://plen.ku.dk/english/research/crop\\_sciences/mppppp/](https://plen.ku.dk/english/research/crop_sciences/mppppp/) and [https://plen.ku.dk/english/research/transport\\_biology/cc/](https://plen.ku.dk/english/research/transport_biology/cc/), respectively.

## Project description

The project "Multimodal phenotyping to visualize and predict physiological responses to pathogens in barley leaves" aims to integrate physiological, structural and noninvasive phenotyping to study the impact of the biotrophic fungal pathogen *Blumeria graminis*. The infection by powdery mildew will be used as a holistic phenomics case study to assess the integration of various temporal and spatial scales of phenotyping. The cell physiological and molecular analyses will be complemented by non-invasive live imaging and ultrastructural studies to answer three questions: (i) how are carbohydrates channeled to the hot spots of induced sink metabolism; (ii) what are the physiological challenges induced by the infection at the tissue and cellular-subcellular level; and (iii) how does drought affect the outcome of the infection. Temporary drought conditions coming along with climate changes are a relevant abiotic stress factor, expected to play a significant role for agriculture even in the Nordic countries. The final goal will be to relate non-invasive signatures from multireflectance, multifluorescence and thermo imaging to physiological changes. This will allow to define predictors for the underlying stress response mechanisms, alone based on non-invasive imaging. The findings will be substantiated by functional approaches with inducible promoter systems to modulate spatial and temporal dynamics of metabolic pathways. The successful postdoc will

work in close collaboration with both the Transport and Crop Science Section and use the automated, high-throughput greenhouse phenotyping facility PhenoLab as well as the infrastructures of the Center for Advanced Bioimaging (CAB).

### **Qualification requirements**

- A PhD degree in plant science, biology, agronomy, crop physiology, or equivalent
- Documented scientific research experience and knowledge of plant microbe interaction
- Experience with plant physiology, phenotyping and image analysis is an advantage
- Good organizational skills and a detail-oriented structured work approach
- Excellent interpersonal and communication skills

For further information, please contact Professor Thomas Roitsch, [roitsch@plen.ku.dk](mailto:roitsch@plen.ku.dk), phone +45 35331526 or Professor Alexander Schulz, [als@plen.ku.dk](mailto:als@plen.ku.dk), phone +45 35333350.

The position is open from 1st October 2018 or as soon as possible thereafter.

The University wishes our staff to reflect the diversity of society and thus welcomes applications from all qualified candidates regardless of personal background.

### **Terms of employment**

The position is covered by the Memorandum on Job Structure for Academic Staff.

Terms of appointment and payment accord to the agreement between the Ministry of Finance and The Danish Confederation of Professional Associations on Academics in the State.

Working hours are 37 hours/weekly.

The starting salary is currently up to DKK 424.526,37 including annual supplement (+ pension up to DKK 72.594,01). Negotiation for salary supplement is possible.

The application, in English, must be submitted electronically by clicking APPLY NOW below.

### **Please include**

- Curriculum vitae
- Diplomas (Master and PhD degree or equivalent)
- Research plan – description of current and future research plans
- Complete publication list
- Separate reprints of 3 particularly relevant papers

The deadline for applications is 19th August 2018, 23:59 GMT +2.

After the expiry of the deadline for applications, the authorized recruitment manager selects applicants for assessment on the advice of the Interview Committee.

You can read about the recruitment process at <https://employment.ku.dk/faculty/recruitment-process/>.

Interviews will be held in week 36 2018.

[APPLY NOW](#)

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## Contact

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**Alexander Schulz**

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## Contact

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**Thomas Georg Roitsch**

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## Info

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**Application deadline:** 19-08-2018

**Employment start:** 01-10-2018

**Working hours:** Full time

**Department/Location:** Department of Plant and Environmental Sciences

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