



Tryggers foundation stipend-funded 2-years position doctoral position on plant cell wall biology to study “the impact of natural variation on cell wall lignin topochemistry between cell types and environmental conditions”

**Research:** The Pesquet team located at Stockholm University is investigating the regulation of lignin topochemistry between cell types and plant species as well as how it controls plant resilience to climate change. The post-doctoral researcher on this project will investigate (i) how natural variation in *Arabidopsis thaliana* controls the topochemical difference in lignin cell wall composition and amounts, and (ii) how these lignin topochemical changes at the cell wall and cell type levels control plant resilience to environmental changes, such as drought. All the expertise and equipment are already at the Stockholm University department hosting the Pesquet team such as state-of-the art imaging system and growth chambers for plant cultivation and semi-automated phenotyping.

**Previous work published by the host team:** The host research team is highly experienced in lignin topochemistry and its importance for plant environmental resilience – below are recent publications on the latest technical and scientific breakthroughs made by the Pesquet team:

- Pesquet E., Blaschek L., Takahashi J., Yamamoto M., Champagne A., Nuoendagula, Subbotina E., Dimotakis C., Bacsik Z. and Kajita S. Bulk and *in situ* quantification of coniferaldehyde monomers in lignin. *Methods Mol. Biol.* 2024; 2722: 201-226.

- Blaschek L, Murozuka E, Serk H, Ménard D, Pesquet E. Different combinations of laccase paralogs non-redundantly control the lignin amount and composition of specific cell types and cell wall layers in *Arabidopsis*. *Plant Cell.* 2023 Feb 20;35(2):889-909.

- Ménard D, Blaschek L, Kriechbaum K, Lee CC, Serk H, Zhu C, Nuoendagula, Bacsik Z, Bergström L, Mathew A, Kajita S, Pesquet E. Specific and dynamic lignification at the cell-type level controls plant physiology and adaptability. *Plant Cell.* 2022 Sep 21;34(12):4877-96.

**Requirements:** We are looking for a postdoctoral candidate with required experience in molecular biology mainly in (i) bioinformatics (sequence analysis and management, genome management and alignment, SNP,...) and phylogeny, (ii) coding and programming for image analysis (python, R,..) and (iii) experience in population genetics (GWAS or QTL, population structure, statistical tools,...). Additional experience in imaging, *Arabidopsis* and/or cell wall analysis of lignin is highly advantageous but not required. Excellent English communication skills as well as teamwork abilities are expected. A PhD degree in molecular biology, biochemistry or corresponding is required. We offer an innovative, inclusive, international and scientifically stimulating environment supported by multiple funding from Swedish and EU funders in a research team already hosting two research engineers, one post-doctoral researcher, one technical assistant and several students at various levels.

The position is available from 06/2024 (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 15/05/2024 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: [Edouard.pesquet@su.se](mailto:Edouard.pesquet@su.se)