Leonard Blaschek

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Svante Arrhenius väg 20A
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Education

PhD, Plant Physiology — 2017–May 2022 (expected)

Stockholms Universitet, Sweden
Project: Functional and Genetic Analysis of Laccase Isoforms during Lignification
Supervisor: Dr. Edouard Pesquet
Co-Supervisors: Prof. Vincent Bulone, Prof. Jonas Gunnarsson

Licentiate, Plant Physiology — 2017–2020

Stockholms Universitet, Sweden
Project: Cellular Lignin Distribution Patterns and their Physiological Relevance
Supervisor: Dr. Edouard Pesquet
Co-Supervisors: Prof. Vincent Bulone, Prof. Jonas Gunnarsson
Examination Committee: Dr. András Gorzsás, Dr. Annelie Carlsbecker, Prof. Ulla Westermark

Master of Science, Genetic and Molecular Plant Biology — 2015–2017

Uppsala Universitet, Sweden
Thesis: Distinct Roles of Laccase Isoforms During Lignification in *A. thaliana*
Supervisor: Dr. Edouard Pesquet

Bachelor of Science, Biology — 2013–2015

Ernst-Moritz-Arndt-Universität Greifswald, Germany
Thesis: Plasma Membrane–Bound Proteases in the Roots of *H. vulgare*
Supervisor: Prof. Christine Stöhr

Publications

2021

Blaschek L, Pesquet E (2021). Phenoloxidases in Plants—How Structural Diversity Enables Functional Specificity. *Front. Plant Sci.* 12, 2183. 10.3389/fpls.2021.754601

2020

Yamamoto M, **Blaschek L**, Subbotina E, Kajita S, Pesquet E (2020). Importance of Lignin Coniferaldehyde Residues for Plant Properties and Sustainable Uses. *ChemSusChem* 13, 4400–4408. 10.1002/cssc.202001242

Blaschek L†, Nuoendagula†, Bacsik Z, Kajita S, Pesquet E (2020). Determining the Genetic Regulation and Coordination of Lignification in Stem Tissues of *Arabidopsis* Using Semiquantitative Raman Microspectroscopy. *ACS Sustain. Chem. Eng.* 8, 4900–4909. 10.1021/acssuschemeng.0c00194

Blaschek L, Champagne A, Dimotakis C, Nuoendagula, Decou R, Hishiyama S, Kratzer S, Kajita S, Pesquet E (2020). Cellular and Genetic Regulation of Coniferaldehyde Incorporation in Lignin of Herbaceous and Woody Plants Using Quantitative Wiesner Staining. *Front. Plant Sci.* 11, 109. 10.3389/fpls.2020.00109

NOT YET PEER-REVIEWED

Blaschek L, Murozuka E, Ménard D, Pesquet E (2022). Different combinations of laccase paralogs non-redundantly control the lignin amount and composition of specific cell types and cell wall layers in *Arabidopsis*. *bioRxiv.* 10.1101/2022.05.04.490011

Ménard D†, **Blaschek L**†, Kriechbaum K, Lee CC, Serk H, Zhu C, Lyubartsev A, Nuoendagula, Bacsik Z, Bergström L, Mathew A, Kajita S, Pesquet E (2022). Plant biomechanics and resilience to environmental changes are controlled by specific lignin chemistries in each vascular cell type and morphotype. *bioRxiv.* 10.1101/2021.06.12.447240

†: contributed equally

Presentations

Blaschek L (2021, selected talk). Laccase paralogs non-redundantly direct lignification. *ASPB Plant Biology 2021,* online.

Blaschek L (2021, selected talk). Specific and dynamic lignification at the cell-type level controls plant physiology and adaptability. *SEB 2021 Annual Conference,* online. — link to recording

Blaschek L (2021, selected talk). Laccase paralogs non-redundantly direct lignification. *SEB 2021 Annual Conference,* online.

Blaschek L (2021, selected talk). Laccase paralogs non-redundantly direct lignification. *7th International Conference on Plant Cell Wall Biology,* online. — link to recording

Blaschek L (2019, selected talk). The structural importance of lignin in xylem vessels. *3rd Stockholm Cell Wall Meeting*, Stockholm University, Stockholm.

Blaschek L (2019, selected talk). Spatial distribution of coniferaldehyde lignin. *28th Congress of the Scandinavian Plant Physiology Society*, Umeå.

Blaschek L (2018, selected talk). Determining the spatial distribution of aldehyde units in lignin. *2nd Stockholm Cell Wall Meeting*, KTH Royal Institute of Technology, Stockholm.

Grants, scholarships & awards

Blaschek L (2021). Best student presentation award at the 7th International Conference on Plant Cell Wall Biology.

Blaschek L (2019). Travel grant of the Department of Ecology, Environment and Plant Sciences, Stockholm University to attend the 28th Congress of the Scandinavian Plant Physiology Society.

Blaschek L, Pesquet E (2018). Kungliga Vetenskapsakademien Scholarship BS2018–0061 for the sequencing of the *Zinnia violacea* genome.

Expertise

Wet lab

- cloning (TA and Gateway)
- histology and histochemistry
- *in vitro* plant systems (cell suspension cultures, seedlings, saplings)
- plant phenotyping, transformation & crossing (*Arabidopsis, Populus, Zinnia*)
- protein biochemistry (extraction, activity assays, SDS-PAGE)
- RT-qPCR
- quantitative bright field, fluorescence and vibrational microscopy

Dry lab

- automated image analysis (Python, ImageJ)
- data analysis and visualisation (R, Python, bash)
- molecular phylogenetics
- protein homology modelling
- reproducible reporting (markdown, git)
- text processing (Office, LaTeX)

Courses & Workshops

Piecewise Structural Equation Modelling (2019). *Stockholm University*

Advanced Imaging of Cells *in vitro* and *in vivo* (2018). *Stockholm University*

Optical Clearing and Expansion Microscopy (2018). *SciLifeLab, Stockholm*

Advances in Enzyme Regulation (2018). *Swedish University of Agricultural Sciences, Uppsala*

Teaching

Molecular plant–microbe interactions (MSc level). 2017–2020. Project design and supervision. *Stockholm University*

Green biotechnology (MSc level). 2018–2021. Project design and supervision. *Stockholm University*

Service

Member of the departmental equality group, *Stockholm University* 2019–2021

Course representative in the department for evolutionary biology, *Uppsala University* 2015

Student representative in the board of the botanical institute, *Universität Greifswald* 2014–2015