Leonard Blaschek

lb@plen.ku.dk
leonardblaschek.github.io

Thorvaldsensvej 40
1871 Frederiksberg C, Denmark

Employment

EMBO fellow|postdoctoral researcher 2022–present
University of Copenhagen, Denmark
Project: Cell Wall Integrity Sensing and its Feedback on Cell Wall Composition in Plants
Advisors: Prof. Staffan Persson, Prof. Jürgen Kleine-Vehn

Education

PhD, Plant Physiology 2017–2022
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
Examination committee: Dr. Richard Sibout (opponent), Prof. Martin Lawoko, Dr. Anna Kärkönen, Prof. Igor Cesarino, Prof. Geoffrey Daniel, Dr. Mika Sipponen

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 (opponent), 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 2012–2015
Ernst-Moritz-Arndt-Universität Greifswald, Germany
Thesis: Plasma Membrane–Bound Proteases in the Roots of *H. vulgare*
Supervisor: Prof. Christine Stöhr

Publications

2023

Pesquet E, **Blaschek L**, Takahashi J, Yamamoto M, Champagne A, Nuoendagula, Subbotina E, Dimotakis C, Bacsik Z, Kajita S. Bulk and In Situ Quantification of Coniferaldehyde Residues in Lignin: Analysis of Coniferaldehyde Units in Plant Lignin Polymers. In: Agusti J (eds), *Methods in Molecular Biology. In press.*

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* 35, 889–909. 10.1093/plcell/koac344 — *previously on bioRxiv*

Blichfeldt Pedersen G[†], **Blaschek L**[†], Frandsen KEH, Noack LC, Persson S. Cellulose synthesis in land plants. *Mol. Plant.* 16, 206–231. 10.1016/j.molp.2022.12.015

2022

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. Plant biomechanics and resilience to environmental changes are controlled by specific lignin chemistries in each vascular cell type and morphotype. *Plant Cell* 34, 4877–4896. 10.1093/plcell/koac284 — *previously on bioRxiv*

2021

Blaschek L, Pesquet E. 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. 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. 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. 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

[†]: 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 (2023). Freiburg Rising Stars Academy, cohort 2023/24.

Blaschek L (2023). Groupe Polyphénols Ragaï Ibrahim prize at the *31st International Conference on Polyphenols.*

Blaschek L (2022). EMBO Postdoc fellowship ALTF 37-2022. *Cell wall integrity sensing and its feedback on cell wall composition in plants.* Hosted by Staffan Persson in Copenhagen and Jürgen Kleine-Vehn in Freiburg.

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.

Expertise

Wet lab

- cloning (Gibson, GoldenGate, Gateway, TA)
- plant histology and histochemistry
- *in vitro* plant systems (cell suspension cultures, seedlings, saplings)
- plant phenotyping, transformation & crossing (*Arabidopsis, Populus, Zinnia*)
- protein biochemistry (expression, purification, Western blotting, activity assays)
- RT-qPCR
- targeted mutagenesis and gene editing
- quantitative bright field, fluorescence and vibrational micro(spectro)scopy

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)

Teaching

Getting started with ggplot2. 2023. Independent workshop. *Copenhagen University.*

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

Departmental data science task force, *PLEN, University of Copenhagen*	2023–
Departmental equality group, *DEEP, Stockholm University*	2019–2021
Course representative, *ECB, Uppsala University*	2015
Student representative on the board, *BOT, Greifswald University*	2014–2015