

# Leonard Blaschek

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

Thorvaldsensvej 40  
1871 Frederiksberg C, Denmark

## Employment

EMBO fellow | postdoctoral researcher 2022–present  
*Københavns Universitet, 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*  
*Thesis:* [Cellular Control and Physiological Importance of Vascular 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*  
*Thesis:* [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  
*Universität Greifswald, Germany*  
*Thesis:* Plasma Membrane-Bound Proteases in the Roots of *H. vulgare*  
*Supervisor:* Prof. Christine Stöhr

## Publications

### ————— Upcoming —————

Zheng S<sup>†</sup>, **Blaschek L<sup>†</sup>**, Pottier D<sup>†</sup>, Hoegen Dijkhof LR, Özmen B, Lim PK, Tan QW, Mutwil M, Hauser AS, Persson S\*. Pupylation-based proximity labeling unravels a comprehensive protein and phosphoprotein interactome of the Arabidopsis TOR complex. *Adv. Sci.* (provisionally accepted).

### ————— 2025 —————

Low PM<sup>†</sup>, Kong Q<sup>†</sup>, **Blaschek L<sup>†</sup>**, Ma Z, Lim PK, Yang Y, Quek T, Lim CJR, Singh SK, Crocoll C, Engquist E, Thorsen JS, Pattanaik S, Tee WT, Mutwil M, Miao Y, Yuan L, Xu D, Persson S\*, Ma W\*. ZINC FINGER PROTEIN2 suppresses funiculus lignification to assure seed loading efficiency. *Dev. Cell* 60, 1–60. [10.1016/j.devcel.2025.01.021](https://doi.org/10.1016/j.devcel.2025.01.021) — [free PDF](#)

### ————— 2024 —————

**Blaschek L\***, Serk H, Pesquet E. Functional complexity on a cellular scale: why *In situ* analyses are indispensable for our understanding of lignified tissues. *J. Agric. Food. Chem.* 72, 13552–13560. [10.1021/acs.jafc.4c01999](https://doi.org/10.1021/acs.jafc.4c01999) — [free PDF](#)

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. In *Xylem: Methods and Protocols*. Springer US, New York, NY, 201–226. [10.1007/978-1-0716-3477-6\\_14](https://doi.org/10.1007/978-1-0716-3477-6_14) — [free PDF](#)

### ————— 2023 —————

**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](https://doi.org/10.1093/plcell/koac344) — [previously on bioRxiv](#)

Blichfeldt Pedersen G<sup>†</sup>, **Blaschek L<sup>†</sup>**, Frandsen KEH, Noack LC, Persson S\*. Cellulose synthesis in land plants. *Mol. Plant* 16, 206–231. [10.1016/j.molp.2022.12.015](https://doi.org/10.1016/j.molp.2022.12.015)

### ————— 2022 —————

Ménard D<sup>†</sup>, **Blaschek L<sup>†</sup>**, 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](https://doi.org/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](https://doi.org/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](https://doi.org/10.1002/cssc.202001242)

**Blaschek L**<sup>†</sup>, Nuoendagula<sup>†</sup>, 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](https://doi.org/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](https://doi.org/10.3389/fpls.2020.00109)

#### ———— Editorials —————

**Blaschek L**\*. Setting the record straight: Loss of Wall-Associated Kinases does not affect plant perception of pectin fragments. *Plant Cell* 37. [10.1093/plcell/koae318](https://doi.org/10.1093/plcell/koae318)

**Blaschek L**\*. A dominant suppressor mutation sheds light on TGN sorting for exocytosis. *Plant Cell* 37. [10.1093/plcell/koae285](https://doi.org/10.1093/plcell/koae285)

**Blaschek L**\*. Well prepared: How trichome polymorphism creates an early-warning system against herbivory. *Plant Cell* 36, 4815–4816. [10.1093/plcell/koae253](https://doi.org/10.1093/plcell/koae253)

**Blaschek L**\*. Playing the field: The molecular basis of fruit morphology-based bet-hedging. *Plant Cell* 36, 2451–2452. [10.1093/plcell/koae119](https://doi.org/10.1093/plcell/koae119)

<sup>†</sup> contributed equally; \* corresponding author

## Presentations

**Blaschek L** (2025), invited talk. Random? How laccases control lignification to support plant growth. *Groupe Polyphénols Webinar in Polyphenols Research*, online. — [link to recording](#)

**Blaschek L** (2024), invited talk. Different places – different lignins: How and why plants so precisely adjust their lignification. *30th Congress of the Scandinavian Plant Physiology Society*, Copenhagen (DK).

**Blaschek L** (2024), invited talk. Skipping Biotin: Exploiting Prokaryotic Pupylation for Protein Proximity Labelling. *Institute of Biology, Freiburg University*, Freiburg (DE).

**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 (SE).

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

**Blaschek L** (2018), selected talk. Determining the spatial distribution of aldehyde units in lignin. *2<sup>nd</sup> Stockholm Cell Wall Meeting*, Stockholm (SE).

## Funding

**Blaschek L** (2024). Freiburg Rising Stars Academy; two-month research visit In Prof. Kleine-Vehn's lab at the University of Freiburg.

**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.

**Blaschek L** (2019). Travel grant of the Department of Ecology, Environment and Plant Sciences, Stockholm University.

**Blaschek L**, Pesquet E (2018). Kungliga Vetenskapsakademien Scholarship BS2018-0061.

## Prizes & awards

**Blaschek L** (2024). Best PhD thesis at the *30<sup>th</sup> Congress of the Scandinavian Plant Physiology Society*, Copenhagen (DK).

**Blaschek L** (2023). Groupe Polyphénols Ragai Ibrahim prize at the *31<sup>st</sup> International Conference on Polyphenols*, Nantes (FR).

**Blaschek L** (2021). Best early career presentation award at the *7<sup>th</sup> International Conference on Plant Cell Wall Biology*, online.

## 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 expression & purification, Western blotting, enzyme 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
- proteomics & network analysis
- protein homology modelling
- reproducible reporting (markdown, git)

## Courses & Workshops

Laboratory Leadership (2024). *EMBO solutions, online.*  
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

Project in Experimental Molecular Biology. BSc level (2025). Project design and supervision. *Copenhagen University.*  
Independent workshops in R for biologists (2023–present). *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

Assistant Features Editor, <i>The Plant Cell</i> , <i>American Society of Plant Biologists</i>	2024–
Departmental data science task force, <i>PLEN</i> , <i>University of Copenhagen</i>	2023–
Reviewer for <i>The Plant Journal</i> , <i>Physiologia Plantarum</i> , <i>Planta</i> , etc.	2022–
Departmental equality group, <i>DEEP</i> , <i>Stockholm University</i>	2019–2021
Course representative, <i>ECB</i> , <i>Uppsala University</i>	2015
Student representative on the board, <i>BOT</i> , <i>Greifswald University</i>	2014–2015