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Research interest

My research has focused on elucidating the mechanisms regulating root development and phytohormone homeostasis in plants through an integrated approach that combines genetic, cyto-histological, biochemical, chemical-analytical, molecular, and cellular methodologies. I have contributed to advancing the understanding of cellular competence for adventitious root formation in woody species, as well as the metabolic pathways controlling auxin inactivation and their evolutionary conservation across plant lineages. More recently, I have expanded my research interests to the metabolism of stress-related phytohormones, with particular emphasis on the conjugation and regulation of jasmonates and salicylic acid.

Education

31/03/2014 **Ph.D.-Doctor europaeus in Plant Biology**, Dipartimento di Biologia evolutiva e funzionale, University of Parma, Italy
25/11/2009 **Master of Science in Molecular Biology** (*magna cum laude*), Facoltà di Scienze Matematiche Fisiche Naturali, University of Parma, Italy
25/09/2007 **Bachelor of Science in Biology**, Facoltà di Scienze Matematiche Fisiche Naturali, University of Parma, Italy

Current position

01/03/2026-present **Assistant professor** (Researcher in Tenure-Track) in Plant Physiology, Dept. of Biotechnology, University of Verona, Italy

Previous positions

01/01/2025-28/02/2026 **Junior group leader**, Faculty of Science, Laboratory of Growth Regulators (LGR), Palacký University Olomouc (UP), Olomouc, Czech Republic
01/03-31/05/2024 **EMBO fellow**, Dept. of Plant Molecular Genetics, National Centre for Biotechnology-Spanish National Research Council (CNB-CSIC), Madrid, Spain

01/01-31/12/2024	Lab directors: Prof. Roberto Solano, Dr. Andrea Chini Senior researcher , Faculty of Science, LGR, UP, Olomouc, Czech Republic
01/08/2019-31/12/2023	Lab director: Prof. Ondřej Novák Junior researcher , Faculty of Science, LGR, UP, Olomouc, Czech Republic
01/11/2016-30/04/2019	Lab director: Prof. Ondřej Novák Postdoctoral researcher , Dept. of Plant Physiology, Umeå Plant Science Centre (UPSC), Umeå University (Umu), Umeå, Sweden
13/10/2014-13/10/2016	Lab director: Prof. Catherine Bellini Postdoctoral researcher , Dept. of Forest Genetics and Plant Physiology, UPSC, Swedish University of Agricultural Sciences (SLU), Umeå, Sweden
01/01-30/06/2011	Lab director: Prof. Karin Ljung Visiting PhD student , Dept. of Plant Biology, University of Alcalá (UAH), Madrid, Spain
01/01/2010-31/12/2012	Lab director: Prof. Carmen Díaz-Sala Ph.D. student , Dipartimento di Biologia evolutiva e funzionale, University of Parma, Italy
01/01-30/09/2009	PhD supervisor: Prof. Ada Ricci LLP Erasmus student , Dept. of Plant Biology, UAH, Madrid, Spain Lab director: Prof. Carmen Díaz-Sala

Peer recognition

- *Fellowships and awards:*

2025/2024	Dean's Award, Faculty of Science, Palacký University (Olomouc, CZ); Category "Scientific Papers".
2024	Scientific Exchange Grant (SEG) financed by EMBO (CNB-CSIC, Madrid, ES).
2016-2019	Postdoctoral fellowship financed by the Swedish Research Council – FORMAS (UPSC-Umu, Umeå, SE).
2014-2016	Postdoctoral fellowship financed by Kempe Foundation (UPSC-SLU, Umeå, SE).
2010-2012	Doctoral scholarship financed by Italian Ministry of Education, Universities, and Research (University of Parma, IT).

- *Grants:*

2024	Principal Investigator – “ <i>Functional analysis of the cis-OPDA conjugative pathway in the liverwort Marchantia polymorpha</i> ” (SEG 10697). Funding agency: European Molecular Biology Organization (EMBO). Budget: 7200 €.
2022-2024	Team member – “ <i>Mass spectrometry approaches for plant immunity studies</i> ” (22-17435S). Funding agency: Czech Science Foundation (GAČR). Budget: 8.592.000 CZK (~342.000 €).

- 2019-2021 Team member – “Isolation of new low abundant cis-(+)-OPDA/dinor-OPDA/JA conjugates and determination of their biological activities” (19-10464Y). Funding agency: Czech Science Foundation (GAČR). Budget: 6.385.000 CZK (~254.000 €).
- 2016-2019 Team member – “Improving Norway spruce root system architecture for sustainable forestry” (2015-00923). Funding agency: Swedish Research Council (FORMAS). Budget: 3.180.000 SEK (~277.000 €).
- 2014-2016 Team member – “Root system architecture development in Norway spruce seedlings” (SMK-1340.1). Funding agency: Kempestiftelserna. Budget: 480.000 SEK (~42.000 €).

• *Commissions of trust:*

- 2026 Project reviewer for the *ISF - Israel Science Foundation*.
- 2023-present Associate editor, ‘Plant Membrane Traffic and Transport’, *Frontiers in Plant Science*, Frontiers Media.
- 2023-present Associate editor, *Journal of Plant Growth Regulation*, Springer Nature.
- 2020-present Subject editor, *iForest*, SISEF.
- 2022-2023 Guest editor, Special issue ‘Hormone Metabolism and Function in Plant Developmental Plasticity’, *Frontiers in Plant Science*, Frontiers Media.
- 2022-present Review board member of *Tree Physiology*, Oxford University Press.
- 2021-2022 Guest editor, Special issue ‘Plant Growth Regulators in Tree Rooting’, *Plants*, MDPI.
- 2019-present Reviewer for 16 peer-reviewed journals (including *Mol. Plant*, *Plant Commun.*, *New Phytol.*).

• *Memberships of scientific societies:*

- 2024-present Member of the Czech Society for Biochemistry and Molecular Biology (CSBMB).
- 2023-present Member of the American Society of Plant Biologists (ASPB).
- 2023-present Member of the Czech Society of Experimental Plant Biology (CSEPB).

• *Conferences (selection):*

- 2026 *Workshop on Plant Biology 2026, SIBV, Bertinoro (FC, Italy)*. Invited speaker.
- 2025 *IPGSA - 25th International Conference on Plant Growth Substances 2025, Fort Collins, CO (USA)*. Invited speaker.
- 2023 *The 2023 Jasmonate meeting, Halle (Saale, Germany)*. Selected speaker.
- 2023 *IPGSA - 24th International Conference on Plant Growth Substances 2023, Gyeongju (South Korea)*. Selected speaker.
- 2023 *Auxins and Cytokinins in Plant Development (ACPD), Prague (Czech Republic)*. Selected speaker.
- 2022 *AUXIN2022: 6th international conference on auxin research, Cavtat (Croatia)*. Selected speaker.
- 2018 *Auxins and Cytokinins in Plant Development (ACPD), Prague (Czech Republic)*. Selected speaker.
- 2017 *Annual meeting of the Society for Experimental Biology - SEB Gothenburg 2017, Gothenburg (Sweden)*. Selected speaker.

Main collaborators

Prof. Ondřej Novák (LGR, Olomouc, Czech Republic)
 Prof. Karin Ljung (UPSC-SLU, Umeå, Sweden)
 Prof. Jan Petrášek (IEB, Prague, Czech Republic)
 Prof. Minoru Ueda (Tohoku University, Sendai, Japan)

Other contributions to the research community

- *Supervision:*

Faculty of Science, Palacký University, Olomouc, Czech Republic

2025-2026 1 post-doctoral fellow (supervision).
 2025-2026 2 Predoctoral Erasmus+ internships (supervision).
 2021-2025 1 PhD student, thesis defended (*A. Ament in 2025*; co-supervision).
 2021-2025 3 MSc students: 1 thesis defended (co-supervision), 2 theses defended (supervision).
 2022 1 Doctoral student grant competition (supervision).

- *Teaching activities:*

- University of Verona, Italy:

2026-present Lecturer - Cell Biology, Bachelor's degree in Biotechnology

- Faculty of Science, Palacký University, Olomouc, Czech Republic:

2023-2026 Lecturer - Plant Physiology, Master's degree in Plant Biology
 2021-2025 Tutorial lecturer - Plant Physiology, Bachelor's degree in Biology

Research achievements

<i>Scopus</i>	Total number of publications:	26 publications
	Number of citations:	422
	h-index:	13
<i>Google Scholar</i>	Citations:	594
	h-index:	15
	i10-index:	18

- *10 most representative publications*

*authors contributed equally to the work; #corresponding author

1. Šíroká J*, Ament A*, Mik V, Pospíšil T, Kralová M, Zhang C, Pernisová M, Karady M, Nožková V, Nishizato Y, Kaji T, Saito R, Htítich M, Floková K, Wasternack C, Strnad M, Ueda M, Novák O# & **Brunoni F#** (2025) Amide conjugates of the jasmonate precursor *cis*-(+)-12-oxo-phytodienoic acid regulate its homeostasis during plant stress responses. *Plant Physiology* (IF: 8.005) 197.1, kiae636.
<https://doi.org/10.1093/plphys/kiae636>

2. **Brunoni F#**, Pěňčík A, Žukauskaitė A, Ament A, Kopečná M, Collani S, Kopečný D & Novák O# (2023) Amino acid conjugation of oxIAA is a secondary metabolic regulation involved in auxin homeostasis. *New Phytologist* (IF 8.3) 238.6: 2264-2270.
<https://doi.org/10.1111/nph.18887>
3. **Brunoni F**, Collani S, Casanova-Sáez R, Šimura J, Karady M, Schmid M, Ljung K# & Bellini C# (2020) Conifers exhibit a characteristic inactivation of auxin to maintain tissue homeostasis. *New Phytologist* (IF 8.3) 226.6: 1753-1765.
<https://doi.org/10.1111/nph.16463>
4. Blume-Werry G#, Semenchuk P, Ljung K, Milbau A, Novák O, Olofsson J & **Brunoni F** (2024) *In situ* seasonal patterns of root auxin concentrations and meristem length in an arctic sedge. *New Phytologist* (IF 8.3) 242.3: 988-999.
<https://doi.org/10.1111/nph.19616>
5. Yang BJ#, Minne M, **Brunoni F**, Plačková L, Petřík I, Sun Y, Nolf J, Smet W, Verstaen K, Wendrich JR, Eekhout T, Hoyerová K, Van Isterdael G, Haustraete J, Bishopp A, Farcot E, Novák O, Saeys Y & De Rybel B# (2021) Non-cell autonomous and spatiotemporal signalling from a tissue organizer orchestrates root vascular development. *Nature Plants* (IF 15.8) 7.11: 1485-1494.
<https://doi.org/10.1038/s41477-021-01017-6>
6. Ranjan A*, Perrone I*, Alallaq S*, Singh R, Rigal A, **Brunoni F**, Chitarra W, Guinet F, Kohler A, Martin F, Street NR, Bhalerao R, Legué V & Bellini C# (2022) Molecular basis of differential adventitious rooting competence in poplar genotypes. *Journal of Experimental Botany* (IF 5.8) 73.12: 4046-4064.
<https://doi.org/10.1093/jxb/erac126>
7. Müller K*#, Dobrev PI*, Pěňčík A, Hošek P, Vondráková Z, Filepová R, Malínská K, **Brunoni F**, Helusová L, Moravec T, Retzer K, Harant K, Novák O, Hoyerová K & Petrášek J (2021) DIOXYGENASE FOR AUXIN OXIDATION 1 catalyzes the oxidation of IAA amino acid conjugates. *Plant Physiology* (IF: 8.005) 187.1: 103-115.
<https://doi.org/10.1093/plphys/kiab242>
8. **Brunoni F***, Collani S*, Šimura J, Schmid M, Bellini C# & Ljung K# (2019) A bacterial assay for rapid screening of IAA catabolic enzymes. *Plant methods* (IF 4.7) 15.1: 1-10.
<https://doi.org/10.1186/s13007-019-0509-6>
9. **Brunoni F***, Rolli E*, Polverini E, Spíchal L & Ricci A# (2021) The adjuvant activity of two urea derivatives on cytokinins: an example of serendipitous dual effect. *Plant Growth Regulation* (IF 3.9) 95, 169-190.
<https://doi.org/10.1007/s10725-021-00735-3>
10. **Brunoni F#**, Ljung K & Bellini C (2019) Control of root meristem establishment in conifers. *Physiologia plantarum* (IF 6.4) 165.1: 81-89.
<https://doi.org/10.1111/pppl.12783>

Third mission activities

- 2026 Poster presentation at the event "Interno Verde – Giardini Aperti Verona 2026".
- 2026 Organization committee for the event "La speranza verde. Tecniche di Evoluzione Assistita: Nutrire il pianeta nelle sfide di un mondo che cambia".

Verona, 23.06.2026