

Allegato B

RICCARDO LORRAI
Curriculum Vitae

Rome
Date September the 3rd 2024

Part I – General Information

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| Full Name | RICCARDO LORRAI |
| Citizenship | ITALIAN |
| Spoken Languages | ITALIAN, ENGLISH |

Part II – Education

| Type | Year | Institution | Notes (Degree, Experience,...) |
|-------------------------------|------|------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| University Bachelor degree | 2012 | Sapienza, University of Rome | 103/110 Title: “Caratterizzazione mediante analisi genotipica, di piante <i>gai-t6 rga28</i> , di <i>Arabidopsis</i> esprimenti la proteina chimerica DAG1-HA.” |
| University Master degree | 2014 | Sapienza, University of Rome | 110 e lode Title: “Studio della relazione molecolare e funzionale tra il fattore di trascrizione DOF DAG1 e la proteina DELLA GAI di <i>Arabidopsis thaliana</i> .” |
| PhD | 2018 | Sapienza, University of Rome | Lode Title: “Study of the role of the DOF transcription factor DAG1 in the control of seedling development in <i>Arabidopsis thaliana</i> ” |

Part III – Appointments

IIIA – Academic Appointments

| Start | End | Institution | Position |
|------------|------------|-------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 01/10/2018 | 28/02/2019 | Sapienza, University of Rome, dpt. of Biology and Biotechnologies “C. Darwin” | Post-doc (co.co.co) as molecular biologist with responsibilities in supporting the cloning and heterologous expression of hydrolytic enzymes from phytopathogenic fungi and bacteria. |
| 01/04/2019 | 30/06/2019 | Sapienza, University of Rome, dpt. of Biology and Biotechnologies “C. Darwin” | Post-doc (co.co.co) as molecular biologist with responsibilities in supporting the generation and characterization of transgenic |

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|------------|------------|-------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 01/07/2019 | 30/06/2020 | Sapienza, University of Rome, dpt. of Biology and Biotechnologies “C. Darwin” | Arabidopsis thaliana plants. |
| 01/07/2020 | 30/06/2021 | Sapienza, University of Rome, dpt. of Biology and Biotechnologies “C. Darwin” | Post-doc (Assegno di ricerca) focused on the identification, characterization, and heterologous expression of cell wall hydrolytic enzymes from wood-decaying fungi. |
| 01/10/2021 | 20/12/2021 | Sapienza, University of Rome, dpt. of Biology and Biotechnologies “C. Darwin” | Post-doc (Assegno di ricerca) focused on the identification, characterization, and heterologous expression of cell wall hydrolytic enzymes from wood-decaying fungi. |
| 22/12/2021 | 21/12/2024 | Sapienza, University of Rome, dpt. of Biology and Biotechnologies “C. Darwin” | Post-doc (Assegno di ricerca) for proteomic analysis of enzymes secreted by wood-decaying fungi. |
| | | | RTD-A ex DM 1062/2021 (PON “Ricerca e Innovazione” 2014-2020) for the development of bio-based solutions for the valorization of agro-food waste biomass. |

IIIB – Other Appointments

| Start | End | Institution | Position |
|------------|------------|------------------------------|------------------------|
| 01/11/2014 | 31/10/2017 | Sapienza, University of Rome | PhD student fellowship |

Part IV – Teaching experience

| Year | Institution | Lecture/Course |
|-----------|------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2021/2022 | Sapienza, University of Rome | “Biotechnological improvement of plants for renewable resources and environmental sustainability” (BIO/04, 6 cfu/48 h), LM Biotechnology and Genomic for Industry and Environment. |
| 2022/2023 | Sapienza, University of Rome | “Molecular and cellular bases of plant biotechnologies” (BIO/04, 3 cfu/24h), LM Cell biology and technology. |
| 2022/2023 | Sapienza, University of Rome | “Biotechnological improvement of plants for renewable resources and environmental sustainability” (BIO/04, 6 cfu/48 h), LM Biotechnology and Genomic for Industry and Environment. |
| 2023/2024 | Sapienza, University of Rome | “Biotechnological improvement of plants for renewable resources and environmental sustainability” (BIO/04, 6 cfu/48 h), LM Biotechnology and Genomic for Industry and Environment. |
| 2023/2024 | Sapienza, University of Rome | “Molecular and cellular bases of plant biotechnologies” (BIO/04, 3 cfu/24h), LM Cell biology and technology. |

Part V - Society memberships, Awards and Honors

| Year | Title |
|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2024 | SIBV (Italian Society of Plant Biology) membership |
| 2021 | EMBO Scientific Exchange Grant (2 months), Department of Forest Genetics and Plant Physiology, Umeå University, Sweden. Title of the research project is: "Interplay between plant cell wall and cell wall modifying enzymes during apical hook development". |

Part VI.a - Funding Information [grants as PI-principal investigator]¹

| Year | Title | Program | Grant value |
|------|--------------------------------------------------------------------------------------------------|------------------------------------------------------------------------|-------------|
| 2021 | Interplay between plant cell wall and cell wall modifying enzymes during apical hook development | Progetti per Avvio alla Ricerca - Tipo 2 (Sapienza Università di Roma) | |

¹ Please note that, as holder of a RTD-A position financed by MIU within the PON program, since December 2021 the candidate cannot participate as PI or investigator to any research project supported by fundings sources external to Sapienza University of Rome.

Part VI.b - Funding Information [grants as I-investigator]¹

| Year | Title | Program | Grant value |
|------|----------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------|-------------|
| 2023 | Role of Cell Wall in Root-Microorganism interaction for plant development and defense | Progetti di Ricerca Medi (Sapienza Università di Roma) | |
| 2022 | ELIA (ELicitors from Agri-food and algal waste biomasses): bioconversion of waste into products for sustainable crop protection. | Progetti di Ricerca Medi (Sapienza Università di Roma) | |
| 2021 | The plant cell wall: a regulatory hub in immunity and development | Progetti di Ricerca Grandi (Sapienza Università di Roma) | |
| 2020 | Improved pathogen resistance in plants through "on command" release of damage-associated molecular patterns | Progetti di Ricerca Medi (Sapienza Università di Roma) | |
| 2016 | Role of proline in the control of root meristem size: A novel non-hormonal modulator of root growth | Progetti di Ricerca Piccoli (Sapienza Università di Roma) | |

¹ Please note that, as holder of a RTD-A position financed by MIUR within the PON program, since December 2021 the candidate cannot participate as PI or investigator to any research project supported by fundings sources external to Sapienza University of Rome.

Part VII – Research Activities

| Keywords | Brief Description |
|----------|--------------------------------------------------------------------------------------|
| Plant | My research activities involve studying various aspects of plant physiology, ranging |

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| Physiology | from seed germination to plant-pathogen interactions. I am particularly fascinated by the role of the plant cell wall as an environmental sensor and how it influences the plant life cycle in response to biotic and abiotic stresses. During my PhD, my studies focused on photomorphogenesis and the interplay between light signals and hormone signalling during germination and seedling development. As a postdoc, I began working on the plant cell wall, specifically in deconstructing agricultural lignocellulosic waste to release monosaccharides (as an energy source for microalgae) or oligosaccharides (as elicitors to boost plant immunity in both Arabidopsis and Solanaceae). In parallel, I studied the interplay between the cell wall and hormones during apical hook development, as well as the effect of cell wall alterations on the activation of plant immune responses. |
| Cell Wall | |
| Plant Immunity | |
| Signal transduction | |
| Biotic stresses | |
| Abiotic stresses | |

Part VIII – Summary of Scientific Achievements

| Product type | Number | Data Base | Start | End |
|------------------------|--------|-----------|-------|------|
| Papers [international] | 11 | Scopus | 2014 | 2024 |
| Books [scientific] | 1 | Scopus | 2023 | 2024 |

| Product type | Number | Data Base | Start | End |
|------------------------|--------|----------------|-------|------|
| Papers [international] | 12 | Web of Science | 2014 | 2024 |
| Books [scientific] | 1 | Web of Science | 2023 | 2024 |

| Product type | Number | Data Base | Start | End |
|------------------------|--------|----------------|-------|------|
| Papers [international] | 12 | Google Scholar | 2014 | 2024 |
| Books [scientific] | 1 | Google Scholar | 2023 | 2024 |

| | |
|----------------------------------------|--------|
| Total Impact factor (Scopus) | 44.908 |
| Total Citations (Scopus) | 241 |
| Average Citations per Product (Scopus) | 20.083 |
| Hirsch (H) index | 9 |
| Normalized H index* | 0.9 |

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|------------------------------------------------|--------|
| Total Impact factor (Web of Science) | 51.408 |
| Total Citations (Web of Science) | 227 |
| Average Citations per Product (Web of Science) | 17.461 |
| Hirsch (H) index | 9 |
| Normalized H index* | 0.9 |

| | |
|------------------------------------------------|--------|
| Total Impact factor (Google Scholar) | 51.408 |
| Total Citations (Google Scholar) | 309 |
| Average Citations per Product (Google Scholar) | 23.769 |
| Hirsch (H) index | 9 |
| Normalized H index* | 0.9 |

*H index divided by the academic seniority.

Part IX.a– Selected Publications

List of the publications selected for the evaluation. For each publication report title, authors, reference data, journal IF (if applicable), citations, press/media release (if any).

- 1- Boccaccini A et al. **The DOF protein DAG1 and the DELLA protein GAI cooperate in negatively regulating AtGA3ox1 gene.** *Mol. Plant.* 2014 Apr 9. doi: 10.1093/mp/ssu046.
IF 6.337; Citations 33.
- 2- Boccaccini A et al. **Independent and interactive effects of DOF AFFECTING GERMINATION 1 (DAG1) and the DELLA proteins GA INSENSITIVE (GAI) and REPRESSOR OF ga1 (RGA) in embryo development and seed germination.** *BMC Plant Biology* 2014, **14**:200. doi:10.1186/s12870-014-0200-z.
IF 3.813; Citations 19.
- 3- Santopolo S et al. **Dof Affecting Germination 2 is a positive regulator of light-mediated seed germination and is repressed by Dof Affecting Germination 1.** *BMC Plant Biol.* 2015 Mar 4;15:72. doi: 10.1186/s12870-015-0453-1.
IF 3.631; Citations 37.
- 4- Boccaccini A et al. **The DAG1 transcription factor negatively regulates the seed-to-seedlings transition in Arabidopsis acting on ABA and GA levels.** *BMC Plant Biology* 2016. Sept 16:198 doi: 10.1186/s12870-016-0890-5.
IF 3.964; Citations 30.
- 5- Lorrai R et al. **Genome-wide RNA-seq analysis indicates that the DAG1 transcription factor promotes hypocotyl elongation acting on ABA, ethylene and auxin signaling.** *Sci Rep.* 2018 Oct 26;8(1):15895. doi: 10.1038/s41598-018-34256-3.
IF 4.011; Citations 19.
- 6- Lorrai R et al. **Abscisic acid inhibits hypocotyl elongation acting on gibberellins, DELLA proteins and auxin.** *AoB Plants.* 2018 Oct 5;10(5):ply061. doi: 10.1093/aobpla/ply061. eCollection 2018 Oct.
IF 2.270; Citations 35.
- 7- Ruta V et al. **Inhibition of Polycomb Repressive Complex 2 activity reduces trimethylation of H3K27 and affects development in Arabidopsis seedlings.** *BMC Plant Biol.* 2019 Oct 16;19(1):429. doi: 10.1186/s12870-019-2057-7.
IF 3.497; Citations 19.
- 8- Lorrai R and Ferrari S. **Host Cell Wall Damage during Pathogen Infection: Mechanisms of Perception and Role in Plant-Pathogen Interactions.** *Plants (Basel).* 2021 Feb 19; doi:10.3390/plants10020399.
IF 4.658; Citations 41.
- 9- Lorrai R et al. **Impaired Cuticle Functionality and Robust Resistance to Botrytis cinerea in Arabidopsis thaliana Plants With Altered Homogalacturonan Integrity Are Dependent on the Class III Peroxidase AtPRX7.** *Front. Plant Sci.*, 16 August 2021. <https://doi.org/10.3389/fpls.2021.696955>.
IF. 6.627; Citations 13.
- 10- Pontiggia, D. et al. **The ancient battle between plants and pathogens: plant cell wall resilience and damage-associated molecular patterns (DAMPs) drive plant immunity.** CRC Press, Taylor & Francis Group (2023), pp. 393-411. <https://dx.doi.org/10.1201/9781003178309>.
Citations 1.
- 11- Boccaccini, A. et al. **When Size Matters: New Insights on How Seed Size Can Contribute to the Early Stages of Plant Development.** *Plants* 13.13 (2024): 1793.
IF 4.0 (2023 waiting for 2024) ; Citations 0.
- 12- Lorrai R et al. **Cell wall integrity modulates HOOKLESS1 and PHYTOCHROME INTERACTING FACTOR4 expression controlling apical hook formation.** *Plant Physiology*, 2024; kiae370, <https://doi.org/10.1093/plphys/kiae370>.
IF 6.5 (2023 waiting for 2024); Citations 0.

Part IX.b–Publications

List of all publications. For each publication report title, authors, reference data, journal IF (if applicable), citations, press/media release (if any).

- 1- Boccaccini A et al. **The DOF protein DAG1 and the DELLA protein GAI cooperate in negatively regulating AtGA3ox1 gene.** *Mol. Plant.* 2014 Apr 9. doi: 10.1093/mp/ssu046.
IF 6.337; Citations 33.
- 2- Boccaccini A et al. **Independent and interactive effects of DOF AFFECTING GERMINATION 1 (DAG1) and the DELLA proteins GA INSENSITIVE (GAI) and REPRESSOR OF ga1 (RGA) in embryo development and seed germination.** *BMC Plant Biology* 2014, 14:200. doi:10.1186/s12870-014-0200-z.
IF 3.813; Citations 19.
- 3- Santopolo S et al. **Dof Affecting Germination 2 is a positive regulator of light-mediated seed germination and is repressed by Dof Affecting Germination 1.** *BMC Plant Biol.* 2015 Mar 4;15:72. doi: 10.1186/s12870-015-0453-1.
IF 3.631; Citations 37.
- 4- Boccaccini A et al. **The DAG1 transcription factor negatively regulates the seed-to-seedlings transition in Arabidopsis acting on ABA and GA levels.** *BMC Plant Biology* 2016. Sept 16:198 doi: 10.1186/s12870-016-0890-5.
IF 3.964; Citations 30.
- 5- Lorrain R et al. **Genome-wide RNA-seq analysis indicates that the DAG1 transcription factor promotes hypocotyl elongation acting on ABA, ethylene and auxin signaling.** *Sci Rep.* 2018 Oct 26;8(1):15895. doi: 10.1038/s41598-018-34256-3.
IF 4.011; Citations 19.
- 6- Lorrain R et al. **Abscisic acid inhibits hypocotyl elongation acting on gibberellins, DELLA proteins and auxin.** *AoB Plants.* 2018 Oct 5;10(5):ply061. doi: 10.1093/aobpla/ply061. eCollection 2018 Oct.
IF 2.270; Citations 35.
- 7- Ruta V et al. **Inhibition of Polycomb Repressive Complex 2 activity reduces trimethylation of H3K27 and affects development in Arabidopsis seedlings.** *BMC Plant Biol.* 2019 Oct 16;19(1):429. doi: 10.1186/s12870-019-2057-7.
IF 3.497; Citations 19.
- 8- Lorrain R and Ferrari S. **Host Cell Wall Damage during Pathogen Infection: Mechanisms of Perception and Role in Plant-Pathogen Interactions.** *Plants (Basel).* 2021 Feb 19; doi:10.3390/plants10020399.
IF 4.658; Citations 41.
- 9- Lorrain R et al. **Impaired Cuticle Functionality and Robust Resistance to Botrytis cinerea in Arabidopsis thaliana Plants With Altered Homogalacturonan Integrity Are Dependent on the Class III Peroxidase AtPRX7.** *Front. Plant Sci.*, 16 August 2021. <https://doi.org/10.3389/fpls.2021.696955>.
IF. 6.627; Citations 13.
- 10- Pontiggia, D. et al. **The ancient battle between plants and pathogens: plant cell wall resilience and damage-associated molecular patterns (DAMPs) drive plant immunity.** CRC Press, Taylor & Francis Group (2023), pp. 393-411. <https://dx.doi.org/10.1201/9781003178309>.
Citations 1.
- 11- Lorrain, R et al. **Eye Diseases: When the Solution Comes from Plant Alkaloids.** *Planta Medica* 2024 May; 90(6):426-439. doi: 10.1055/a-2283-2350. Epub 2024 Mar 7.
IF 2.1 (2023 waiting for 2024); Citations 0.
- 12- Boccaccini, A. et al. **When Size Matters: New Insights on How Seed Size Can Contribute to the Early Stages of Plant Development.** *Plants* 13.13 (2024): 1793.
IF 4.0 (2023 waiting for 2024); Citations 0.
- 13- Lorrain R et al. **Cell wall integrity modulates HOOKLESS1 and PHYTOCHROME INTERACTING FACTOR4 expression controlling apical hook formation.** *Plant Physiology*, 2024; kiae370, <https://doi.org/10.1093/plphys/kiae370>.
IF 6.5 (2023 waiting for 2024); Citations 0.

Part X.a– Congress attendance

2015 “DOF AFFECTING GERMINATION 2 is a positive regulator of light mediated seed germination and is repressed by DOF AFFECTING GERMINATION 1”. The 26th international conference on Arabidopsis research (ICAR 2015). **Elevator pitch.**

2016 “The Arabidopsis DAG1 transcription factor controls the dormancy/germination developmental switch acting on the balance of ABA and GA”. The 22nd international conference on plant growth substances (IPGSA 2016). **Poster presentation.**

2017 “Study of the role of the DOF transcription factor DAG1 in the control of seedling development in Arabidopsis thaliana”. Biology and Biotechnology C. Darwin meeting (Ponzano). **Oral Presentation.**

2019 “Resistance to *Botrytis cinerea* in Arabidopsis plants impaired in de-esterified homogalacturonan content correlates to increased cuticle permeability and is suppressed by abscisic acid”. XV Cell Wall meeting (Cambridge). **Poster presentation.**

2022 “Plant cell wall perturbations trigger hormonal changes impairing apical hook development“ XVI FISV Congress (Portici). **Poster presentation.**

2023 “Turgor-dependent impairment of apical hook development in Arabidopsis thaliana plants with altered cell wall integrity”. XVI Plant Cell Wall Meeting Málaga, 18-22 June 2023 **Poster presentation.**

2023 “Turgor-sensitive responses link cell wall integrity to a signalling module promoting apical hook formation in *Arabidopsis thaliana*”. XII National Conference of the Italian Society of Plant Biology Bari, 11st – 14th September 2023 **Oral presentation.**

Part X.b– Workshop attendance

2016 “Studying the role of the DAG1 transcription factor in the control of photomorphogenesis in Arabidopsis thaliana”. PhD school on “Environmental regulation of plant development (2016). **Oral presentation.**

2022 “Plant cell wall alterations and hormonal crosstalk during seedling development” "1st hormone, cell wall and morphogenesis workshop" March 9-10, 2022 (Umeå, Sweden). **Oral presentation.**

2023 "Workshop on Plant Biology 2023" SIBV workshop (Bertinoro, Italy).

Part XI – Editorial Activities

2024 Reviewer for Molecular Plant Cell Press

“I authorize the processing of the personal data contained in my curriculum vitae in accordance with Legislative Decree 196/2003, as amended by Legislative Decree 101/2018, and EU Regulation 2016/679.”

DATE

Rome, September the 3rd 2024

SIGNATURE