

CV Date	29/05/2023
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## Part A. PERSONAL INFORMATION

First Name	Hugo		
Family Name	Mélida Martínez		
Sex	Not Specified	Date of Birth	24/11/1982
ID number Social Security, Passport			
URL Web			
Email Address	h.melida@unileon.es		
Open Researcher and Contributor ID (ORCID)	0000-0003-1792-0113		

### A.1. Current position

Job Title	Profesor Contratado Doctor		
Starting date	2020		
Institution	Universidad de León		
Department / Centre	Ingeniería y Ciencias Agrarias / Facultad de Ciencias Biológicas y Ambientales		
Country		Phone Number	
Keywords			

### A.2. Previous positions (Research Career breaks included)

Period	Job Title / Name of Employer / Country
2017 - 2020	Investigador doctor senior / Universidad Politécnica de Madrid
2015 - 2017	Researcher / Marie Curie IEF / Universidad Politécnica de Madrid
2013 - 2015	Researcher / Kungliga Tekniska Högskolan (Royal Institute of Technology) / Sweden
2011 - 2013	Post-doctoral scientist / Marie Curie EU-funded Initial Training Network (ITN-SAPRO-238550) / Kungliga Tekniska Högskolan (Royal Institute of Technology) / Sweden
2010 - 2010	Post-doctoral scientist / Universidad de León
2006 - 2010	PhD student (FPU) / Universidad de León / Spain

### A.3. Education

Degree/Master/PhD	University / Country	Year
Programa Oficial de Doctorado en Biología Molecular y Biotecnología	Universidad de León / Spain	2010

## Part B. CV SUMMARY

During my PhD at the Plant Physiology and Biotechnology group at Universidad de León (Spain), I studied the stress-mediated structural plasticity of the plant cell wall. **To carry out my PhD thesis I was awarded with an FPI (Junta de Castilla y León) and an FPU fellowship, which also allowed me to perform two research secondments (5 months) at the Centre for Research in Agricultural Genomics (CRAG, Barcelona) and at the Institute of Molecular Plant Sciences (IMPS, Edinburgh, UK). Results of this period provided novel insights into the structure and plasticity of the plant cell wall, of great relevance in the physiology behind plant adaptation mechanisms to abiotic stresses.**

Thereafter, I performed a 49-months postdoctoral stage **at the Royal Institute of Technology (KTH, Stockholm, Sweden). I was initially supported by an Experienced Researcher (ER) contract in a Marie Curie EU-funded Initial Training Network and afterwards I got a Junior Researcher ("Forskare") permanent position. During this period, I performed seminal investigations about the cell wall uniqueness's of early diverging**

fungi as well as the establishment of a novel paradigm in oomycetes cell walls diversification and carbohydrate biosynthesis. At this stage I started to develop my scientific leadership, as I actively participated in several European projects, managing the activities of my research group and attending regular project meetings.

**In February 2015, I joined Centro de Biotecnología y Genómica de Plantas (CBGP, UPM-INIA) through a Marie Curie Individual Fellowship and afterwards I stayed as senior postdoctoral in the frame of the Severo Ochoa postdoctoral program at CBGP. In my latest research period, I have done contributions to the plant innate immunity field, in particular in the characterization of the mechanisms behind the recognition of carbohydrate-based compounds (from fungi or plants) by the plant immune system and the role of these compounds in modulating immune responses.** In total, I stayed 66 months at CBGP. During this stage, I also deepened my interest in disseminating my scientific activities through activities for schools and started collaborations with the private sector. Proof of this are the 4 contracts signed with companies and the supervision of an industrial doctorate.

The combined knowledge acquired during my two Postdoctoral periods, plus my PhD training, has provided me with a **unique multidisciplinary expertise** in the **plant and microbial cell wall fields**. In September 2020, I was appointed as “**Profesor Contratado Doctor**” at Universidad de León, where I have established my own research **glycan-triggered plant immunity**. This is addressing the dynamics and evolution of plant defensive responses, which is of fundamental importance as they impact agricultural yield, which is essential to sustain our society. I am currently **principal investigator** of two national projects in this line of research and director of a consolidated research unit (UIC) of the Junta de Castilla y León. **My productivity has been high and continued, as demonstrated by my track-record: I have published 33 articles in top JCR journals, three book chapters and presented over 50 communications to scientific meetings or workshops. Additionally, a European patent has been recently registered.** My aptitude in **leadership** is proven by the successful **guiding and supervision** of PhD, master and undergraduate students and by the research contracts signed with private companies and the grants supported by public institutions, that have allowed me to get experience in research **project management**.

## Part C. RELEVANT ACCOMPLISHMENTS

### C.1. Most important publications in national or international peer-reviewed journals, books and conferences

AC: corresponding author. (n° x / n° y): position / total authors. If applicable, indicate the number of citations

- 1 **Scientific paper**. 2023. Subcritical water extraction of Equisetum arvense biomass withdraws cell wall fractions that trigger plant immune responses and disease resistance. Plant Molecular Biology.
- 2 **Scientific paper**. 2021. Arabidopsis cell wall composition determines disease resistance specificity and fitness. Proceedings of the National Academy of Sciences U S A (PNAS).
- 3 **Scientific paper**. 2021. Cell wall-derived mixed-linked  $\beta$ -1,3/1,4-glucans trigger immune responses and disease resistance in plants. The Plant Journal.
- 4 **Scientific paper**. del Hierro I; Mérida H; Broyart C; Santiago J; Molina A. 2021. Computational prediction method to decipher receptor-glycoligand interactions in plant immunity. The Plant Journal. Wiley-Blackwell. <https://doi.org/10.1111/tpj.15133>
- 5 **Scientific paper**. Mérida H; Bacete L; Ruprecht C; et al; Molina A. 2020. Arabinoxylan-Oligosaccharides Act as Damage Associated Molecular Patterns in Plants Regulating Disease Resistance. Frontiers in Plant Science. 11-1210. <https://doi.org/10.3389/fpls.2020.01210>
- 6 **Scientific paper**. Mérida H; Sopena-Torres S; Bacete L; et al; Molina A. 2018. Non-branched beta-1,3-glucan oligosaccharides trigger immune responses in Arabidopsis. The Plant Journal. 93-1, pp.34-49. <https://doi.org/10.1111/tpj.13755>

- 7 **Scientific paper.** Mérida H; Sain D; Stajich JE; Bulone V. 2015. Deciphering the uniqueness of Mucoromycotina cell walls by combining biochemical and phylogenomic approaches. *Environmental Microbiology*. 17-5, pp.1649-1662. <https://doi.org/10.1111/1462-2920.12601>
- 8 **Scientific paper.** Mérida H; Álvarez JM; Acebes JL; Encina A; Fry SC. 2011. Changes in cinnamic acid derivatives associated with the habituation of maize cells to dichlobenil. *Molecular Plant*. 4-5, pp.869-878. <https://doi.org/10.1093/mp/ssr038>
- 9 **Scientific paper.** Mérida H; Álvarez JM; Acebes JL; Encina A; Caparrós-Ruiz D. 2010. Unraveling the biochemical and molecular networks involved in maize cell habituation to the cellulose biosynthesis inhibitor dichlobenil. *Molecular Plant*. 3-5, pp.842-853. <https://doi.org/10.1093/mp/ssq027>
- 10 **Review.** Bacete L\*; Mérida H\*; Mérida H\*; Miedes E; Molina A. 2018. Plant cell wall-mediated immunity: Cell wall changes trigger disease resistance responses. *The Plant Journal*. Wiley-Blackwell. 93-4, pp.614-636. <https://doi.org/10.1111/tbj.13807>

### C.3. Research projects and contracts

- 1 **Project.** Marine macroalgae glycans for crop protection. Ministerio de Ciencia e Innovación. Investigación. Hugo Mérida. (Universidad de León). 01/12/2022-30/11/2024. 168.130 €.
- 2 **Project.** Roles of the Fungal cell WALLs in plant-fungal interactions (FunWALL). Ministerio de Ciencia e Innovación. Investigación. Hugo Mérida. (Universidad de León). 01/09/2021-31/08/2024. 157.300 €.
- 3 **Project.** BIO2015-64077R, Respuestas de inmunidad reguladas por el sistema de percepción de integridad de la pared celular vegetal. RETOS. (Universidad Politécnica de Madrid). 01/01/2016-31/12/2018. 338.000 €.
- 4 **Project.** CONVOCATORIA DE AYUDAS PARA SOLICITAR PROYECTOS ERC Y MARIE CURIE INDIVIDUAL FELLOWSHIP PARA INVESTIGADORES NOVELES CON TRAYECTORIAS CIENTIFICAS PROMETEDORAS. Hugo Melida. (Universidad Politécnica de Madrid). 24/07/2017-31/12/2017. 8.000 €.
- 5 **Project.** FP7-MC-IEF-624721, SignWALLing - Plant immunity regulated by cell wall integrity. European Commission. Hugo Mérida Martínez. (Universidad Politécnica de Madrid). 01/02/2015-31/01/2017. 173.370 €. Principal investigator.
- 6 **Project.** ITN-SAPRO-238550, Sustainable Approaches to Reduce Oomycete Infections. European Commission. van West P. (Kungliga Tekniska Högskolan). 01/11/2009-01/11/2013. 2.773.475 €. Team member.
- 7 **Project.** LE 044A10-2, Phenolic metabolism modifications in type II cell walls of dichlobenil-habituated maize cells. Junta de Castilla y León. Jesús Álvarez. (Universidad de León). 01/01/2010-31/12/2011. 32.800 €.
- 8 **Project.** CGL2008-02470/BOS, Structural plasticity of Type II cell walls: architecture of cell walls from dichlobenil-habituated maize cell suspensions. Ministerio de Ciencia e Innovación. José Luis Acebes. (Universidad de León). 01/01/2009-31/12/2011. 121.387 €.
- 9 **Project.** LE 048A07, Cell wall modifications during maize cell cultures habituation to cellulose biosynthesis inhibitors. Junta de Castilla y León. Jesús Álvarez. (Universidad de León). 01/01/2007-31/12/2009. 15.900 €.
- 10 **Project.** ULE-2006-2, Hydroxycinnamic acids biosynthesis and modifications in type II cell walls with reduced cellulose content. Universidad de León. José Luis Acebes. (Universidad de León). 01/01/2007-31/12/2008. 7.000 €.
- 11 **Contract.** TECHNOLOGICAL APPLICATIONS OF PLANT INNATE IMMUNITY TO AGRICULTURE Plant Response Biotech S.L.. Antonio Molina Fernández. (Universidad Politécnica de Madrid). 01/03/2019-01/03/2022. 75.000 €.
- 12 **Contract.** Application of plant immunomodulators in food postharvesting to control pathogen infections: towards more sustainable agriculture and safer food DECCO Worldwide PostHarvest Holding BV. Antonio Molina. From 01/07/2018. 37.013 €.
- 13 **Contract.** MOLECULAR CHARACTERIZATION OF PRB6 COMPOSITION AND IDENTIFICATION OF PRB6 ACTIVE MAMPS Plant Response Biotech S.L.. Hugo Mérida Martínez. (Universidad Politécnica de Madrid). 01/02/2017-01/04/2017. 19.701,83 €.

**14 Contract.** PREPARACION DE INFORME DE ENSAYOS EN SANDIA Y CALABACIN, PARA DEMOSTRAR LA EFICACIA DEL PRODUCTO "PRB6" EN CONDICIONES DE PRODUCCION REALES Plant Response Biotech S.L.. Hugo Mélida Martínez. (Universidad Politécnica de Madrid). 23/09/2016-22/11/2016. 3.025 €.

**C.4. Activities of technology / knowledge transfer and results exploitation**

Hugo Mélida; Diego Rebaque; Lucía Jordá; Irene del Hierro; Laura Bacete; Gemma López; Rosa Pérez; Frederic Brunner; Antonio Molina. EP20382671. METHODS AND COMPOSITIONS TO IMPROVE PLANT HEALTH AND PROTECTION 27/07/2020. Universidad Politécnica de Madrid. Plant Response Biotech SL.