

**Part A. PERSONAL INFORMATION**

<b>CV date</b>	October, 7 <sup>th</sup> 2019
----------------	-------------------------------

First and Family name	Mónica Pradillo Orellana		
Social Security, Passport, ID number	██████████	Age	39
Researcher codes	WoS Researcher ID (*)	G-2432-2017	
	SCOPUS Author ID(*)	16302024000	
	Open Researcher and Contributor ID (ORCID) **	0000-0001-6625-6015	

(\*) At least one of these is mandatory

(\*\*) Mandatory

**A.1. Current position**

Name of University/Institution	Universidad Complutense de Madrid		
Department	Department of Physiology, Genetics and Microbiology		
Address and Country	José Antonio Nováis, 12; 28040 Madrid (Spain)		
Phone number	0034913944764	E-mail	pradillo@bio.ucm.es
Current position	Associate Professor ("Contratado Dr.")	From	19 <sup>th</sup> Feb 2019
Key words	Meiosis, <i>Arabidopsis thaliana</i> , Homologous Recombination, DNA Repair, chromosomes		

**A.2. Education**

PhD	University	Year
PhD at Genetics Department	Universidad Complutense	2009

**A.3. JCR articles, h Index, thesis supervised...**

Periods of research activity ("sexenios"): 2 (end of the last six-year period: December 2018).

Thesis supervised:

- "Control genético de la recombinación homóloga en la meiosis de *Arabidopsis thaliana*". Javier Varas García (16/06/2014). PhD thesis with summa cum laude (co-supervision).

- "RNA de pequeño tamaño en la meiosis de *Arabidopsis thaliana*". Cecilia Oliver Velasco (11/07/2013). PhD thesis with summa cum laude (co-supervision).

Total number of citations: 451 (415 without self-citations).

Average of citations per year (last 5 years, 2014-2018): 59.4

Total publications 1<sup>st</sup> quartile (Q1): 20 (12 in D1).

h index: 12. I am first author in 7 articles, last author in 5, and corresponding author in 10.

**Part B. CV SUMMARY (max. 3500 characters, including spaces)**

I graduated in Biology with a major in Genetics at the Universidad Complutense (June 2003). In 2004, I received the Extraordinary Bachelor's Award. After receiving a scholarship from the FPU program for doing the PhD (2004), I had a contract as Assistant Professor, also in Universidad Complutense (October 2007). In February 2009, I defended my doctoral thesis, supervised by Prof. Juan Luis Santos. Currently, I am an Associate Professor (February 2019). This position allows me to combine teaching and research tasks.

I have taught more than 1,600 h, more than 100 h correspond to postgraduate teaching. During these years, I have also supervised 6 Master degree final Projects. I have been involved in two courses at the Complutense Summer School, received positive evaluations of my teaching activity, and participated in 9 teaching innovation projects.

My research career has been mainly focused on the study of homologous recombination in meiosis and DNA repair using the model species *Arabidopsis thaliana*. During my PhD, I analyzed chromosome behavior in mutants defective for the recombinase RAD51. During my postdoc I have co-supervised two PhD students: Cecilia Oliver's thesis was devoted to determine the meiotic function of small RNAs, whereas Javier Varas' thesis included interesting results on the existence of a homeostatic control of crossovers and the function of nuclear envelope-associated proteins in chromosomal dynamics. Currently my research focuses on determining the relation between the dynamic chromosome structure and nuclear organization in the context of meiotic recombination. I am supervising three PhD students (one of them is already working in UK). I am the author of 28 articles, 20 of them in Q1 journals, and three book chapters. I am the first author in 7 publications, last author in 5,



and corresponding author in 10. My activity in scientific meetings has been very high in recent years, with more than 50% of communications in international meetings (oral presentations and posters). I have been invited speaker in two of the most prestigious conferences for plant meiosis research (one European, EMBO; and another American, Gordon), and in seminars in European and American Universities and research institutes. I have participated in four national and in two European research projects. I am currently participating in a national and in an European project, as well as in an European network.

I have combined my teaching activities with two three-month stays, one of them in the Imperial College (London) to learn how to study meiosis in *C. elegans*, for which I obtained an EMBO grant (2012). On the other hand, the results obtained in the *Science* article (see below) have led to the development of a patent.

My participation in European projects and networks has allowed me to establish collaborations, as you can see in my publications. My career in the field of plant meiosis is internationally valued; proof of this is my role as an occasional reviewer of articles published in prestigious journals. In addition, I am a member of the Editorial Committee of *Front Plant Sci* (Q1, D1), since January 2016, and last year I have participated in a research topic (*Advances in Plant Meiosis: From Model Species to Crops*) for this journal (21 publications). This year I have had the experience to participate in the edition of a protocol book (27 chapters; *Methods Mol Biol*, published by Springer).

## **Part C. RELEVANT MERITS**

### **C.1. Publications (including books)**

Ten most relevant publications in the last ten years:

1. Wijnker E, Harashima H, Müller K, Parra-Núñez P, de Snoo CB, van de Belt J, Dissmeyer N, Bayer M, Pradillo M, Schnittger A (2019) The Cdk1/Cdk2 homolog CDKA;1 controls the recombination landscape in Arabidopsis. *Proc Natl Acad Sci USA* 116: 12534-12539.
2. Kurzbauer MT, Pradillo M, Kerzendorfer C, Sims J, Ladurner R, Oliver C, Janisiw MP, Mosiolek M, Schweizer D, Copenhaver GP, Schlogelhofer P (2018) *Arabidopsis thaliana* FANCD2 Promotes Meiotic Crossover Formation. *Plant Cell* 30: 415-428.
3. Oliver C, Pradillo M, Jover-Gil S, Cuñado N, Ponce MR, Santos JL (2017) Loss of function of Arabidopsis microRNA-machinery genes impairs fertility, and has effects on homologous recombination and meiotic chromatin dynamics. *Sci Rep* 7: 9280.
4. Varas J, Santos JL, Pradillo M (2017) The absence of the Arabidopsis chaperone complex CAF-1 produces mitotic chromosome abnormalities and changes in the expression profiles of genes involved in DNA repair. *Front Plant Sci* 8: 525.
5. Oliver C, Santos JL, Pradillo M (2016) Accurate chromosome segregation at first meiotic division requires AGO4, a protein involved in RNA-dependent DNA methylation in *Arabidopsis thaliana*. *Genetics* 204: 543-553.
6. Pradillo M, Knoll A, Oliver C, Varas J, Corredor E, Puchta H, Santos JL (2015) Involvement of the cohesin cofactor PDS5 (SPO76) during meiosis and DNA repair in *Arabidopsis thaliana*. *Front Plant Sci* 6: 1034.
7. Varas J, Sánchez-Morán E, Copenhaver GP, Santos JL, Pradillo M (2015) Analysis of the relationships between double-strand breaks, synaptonemal complex and crossovers using the *Atfas1-4* mutant. *PLoS Genet* 11: e1005301. Cover of the journal in the month of July.
8. Varas J, Graumann K, Osman K, Pradillo M, Evans DE, Santos JL, Armstrong SJ (2015) Absence of SUN1 and SUN2 proteins in *Arabidopsis thaliana* leads to a delay in meiotic progression and defects in synapsis and recombination. *Plant J* 81: 329-346.
9. Crismani W, Girard C, Froger N, Pradillo M, Santos JL, Chelysheva L, Copenhaver GP, Horlow C, Mercier R (2012) FANCM limits meiotic crossover. *Science* 336: 1588-1590.
10. Pradillo M, López E, Linacero R, Romero C, Cuñado N, Sánchez-Morán E, Santos JL (2012) Together yes, but not coupled: new insights into the roles of RAD51 and DMC1 in plant meiotic recombination. *Plant J* 69: 921-933. Featured article mentioned on the cover.

### **C.2. Research projects and grants**

### **National research projects (member of the research team)**

1. Meiosis in polyploid plants: Analysis of recombination in allopoliploids (wheat) and autopolyploids (*Arabidopsis*) (AGL2015-67349-P). PI: Juan Luis Santos and Tomás Naranjo (UCM). Funding source: Ministry of Economy and Competitiveness. Amount: 80,000 €. Period: January 2016-December 2019.
2. Study of epigenetic changes occurring during spermatogenesis in *Caenorhabditis elegans* (2015/EEUU/13). PI: Jesús Page (UAM). University cooperation projects with the United States (collaboration with Dr. Monica Colaiácovo laboratory in Harvard Medical School, USA). Funding source: Universidad Autónoma de Madrid-Santander. Amount: 11.500,00 €. Period: July 2015-December 2016.
3. Analysis of meiosis in plants using gene and chromosomal mutations (AGL2012-38852). PI: Juan Luis Santos. Funding source: Ministry of Economy and Competitiveness. Amount: 80,000 €. Period: January 2013-December 2015.
4. *Arabidopsis thaliana*, a model organism for the study of recombination in plants (BFU2008-00459/BMC). PI: Juan Luis Santos. Funding source: Ministry of Science and Innovation. Amount: 120,000 €. Period: January 2009-December 2011.

### **International research projects**

1. Meiotic Control of Recombination in Crops [MEICOM, Marie Curie Initial Training Networks (ITN), Multi-Partner ITN; Call: H2020-MSCA-ITN-2017; Grant agreement number: 765212]. Coordinator: Eugenio Sánchez-Morán (University of Birmingham, UK). Funding source: European Union (H2020). Amount: 247,872.96 € (UCM). Period: January 2018-December 2021. I am the PI of this Project and leader of dissemination and outreach activities. I also belong to the Recruitment and Equal Opportunities Committee.
2. Impact of nuclear domains on gene expression and plant traits (COST Action CA16212). Coordinator: Christophe Tatout (University of Clermont-Ferrand, France). Funding source: European Union (H2020). Period: November 2017-November 2021. My position: Management Committee Member – Spain; Lead group of WG3.
3. Control of Meiotic Recombination: *Arabidopsis* to Crops [COMREC, Marie Curie Initial Training Networks (ITN), Multi-Partner ITN; Call: FP7-PEOPLE-2013-ITN; Grant agreement number: 606956]. Coordinator: Prof. Chris Franklin (University of Birmingham, UK). Funding source: European Union (FP7). Amount: 228,881.62 € (UCM). Period: November 2013-November 2017. I was Scientist in Charge together with Juan Luis Santos Coloma.
4. Systematic analysis of factors controlling meiotic recombination in higher plants (MEIOSys) (Ref. KBBE-2009-222883). Coordinator: Prof. Chris Franklin (University of Birmingham, UK). Spanish PI: Juan Luis Santos (UCM). Funding source: European Union (FP7). Amount: 325,890 € (UCM). Period: September 2009-August 2014. I was a member of the research team.

### **C.3. Contracts**

### **C.4. Patents**

The results corresponding to the Science paper: "FANCM limits meiotic crossovers" (2012), are protected by the application FR1158262 of the INRA (Institut National de la Recherche Agronomique) and have led to the development of the patent WIPO (World Intellectual Property Organization) WO2013038376 ("Increase in meiotic recombination in plants by inhibiting the FANCM protein"), published in Australia (03/20/2014) and in the United States (04/23/2014). They are also pending publication in the European Patent Office and in Israel.

### **C.5 Reviewer contribution**

Q1: *Nature Communications, The Plant Cell, The Plant Journal, PLoS Genetics, Cellular and Molecular Life Sciences, Journal of Experimental Botany, Frontiers in Plant Science, Journal of Integrative Plant Biology, PLoS One, New Phytologist.*

Q2: *Biologia Plantarum.*

Q3: *Gene, Cytogenetics and Genome Research.*

Q4: *Nucleus.*

Others: *Frontiers in Cell and Developmental Biology, Communications Biology, F1000Research.*



External reviewer to evaluate research project proposals funded by University of Leuven (Belgium), Research Foundation Flanders, and Netherlands Organisation for Scientific Research, *Deutsche Forschungsgemeinschaft* (Germany).

### **C.6 Editor**

Associate editor in *Frontiers in Plant Science*, since January 2016 (Section: Plant Genetics and Genomics).

Editor of the book *Plant Meiosis* (together with Stefan Heckmann). 27 chapters. ISBN 978-1-4939-9818-0.

### **C.7 External thesis Committee**

Universidad Complutense de Madrid; Universidad Miguel Hernández de Elche; Severo Ochoa Molecular Biology Center; Institute of Functional Biology and Genomics (Salamanca); University of Vienna (Austria), University of Halle-Wittenberg (Germany), National Biotechnology Center (CNB, Madrid).

### **C.8 Organization of scientific meetings**

1. Local organizer of the SEB-COST\_INDEPTH Symposium: Impact of Chromatin Domains on Plant Phenotypes. This meeting will be held in El Escorial (December 2019).
2. Main organizer of the 2<sup>nd</sup> MeioNet meeting. Spanish meiosis meeting (June 2017). This meeting bring together scientists to discuss the latest findings in the meiotic field and the implications for human fertility with a multidisciplinary scope. <https://meionet.org/>
3. MEIOsys Technical Workshop. Activity related to the project MEIOsys (KBBE-2009-222883) (February 2012).

### **C.9 Invited speaker in seminars and international conferences**

#### **International conferences**

1. SEB-COST\_INDEPTH Symposium: Impact of Chromatin Domains on Plant Phenotypes (El Escorial, Madrid; December 2019) (scheduled).
2. Gordon Conference on Meiosis (New London NH; USA; June 2018).
3. EMBO Workshop on plant genome stability & change (IPK, Gatersleben, Germany; June 2018).
4. Workshop on Recombination and Plant Breeding (University of Birmingham, UK; July 2014).
5. EMBO Workshop on genetic stability & change: Genome maintenance mechanisms in plants (Roscoff, France; May 2012).

#### **Seminars**

1. Instituto de Biología (Cuernavaca, Mexico; October 2020) (scheduled).
2. University of Hamburg (Germany; May 2019).
3. University of Clermont Ferrand (France; October 2019).
4. Gregor Mendel Institute (University of Vienna; February 2018).
5. Molecular Biology Center Severo Ochoa (Madrid; September 2017).
6. Estación Experimental Agrícola Fabio Baudrit (Universidad de Costa Rica; March 2017).
7. Hospital Universitario La Paz (Madrid; January 2013).

### **C.9 Research stays (of at least three months)**

1. MRC Clinical Sciences Centre (Imperial College, London, UK). Dr. Enrique Martínez-Pérez lab. May-August 2012. EMBO grant (ASTF 294 – 2012).
2. Universidad Autónoma de Madrid. Prof. Julio Sánchez-Rufas lab. June-September 2008.

### **C.10 Awards**

1. Distinguished young investigator, awarded by the Spanish Society of Genetics, in its first edition, for the relevance of the scientific contributions during 2014-2015 (Córdoba, September 2015) (open competition).
2. Extraordinary Bachelor's Award (2004). Highest-ranking student in Biology UCM-June 2003.

### **C.11 Institutional responsibilities**

Coordinator of the Master Genetics and Cell Biology (60 ECTS) since September 2019. Three Universities participate in this Master (Universidad Autónoma de Madrid, Universidad de Alcalá de Henares and Universidad Complutense).