

Part A. PERSONAL INFORMATION

CV date

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|--------------------------------------|---------------------------|---|----|
| First and Family name | María Dolores Rey Santomé | | |
| Social Security, Passport, ID number | 76084037z | Age | 31 |
| Researcher numbers | Researcher ID | I-3931-2018 | |
| | Orcid code | https://orcid.org/0000-0002-6967-8536 | |

A.1. Current position

| | | | |
|--------------------------------|---|--------|--|
| Name of University/Institution | University of Cordoba | | |
| Department | Biochemistry and Molecular biology | | |
| Address and Country | Campus de Rabanales. Edif. Severo Ochoa, planta baja E-14071 Córdoba. Spain | | |
| Phone number | (+34) 630 811 467 | E-mail | B52resam@uco.es |
| Current position | Postdoc researcher (Juan de la Cierva-Formación) | From | 01/04/2018 |
| Espec. cód. UNESCO | 2403, 240702, 240992, 2409931, 241502 241714 | | |
| Palabras clave | Genetic breeding, molecular markers, cytogenetics, omics approaches, plant species, biotic and abiotic stresses | | |

A.2. Education

| PhD | University | Year |
|---|-----------------------|-----------|
| Bachelor's Degree in Biology | University of Cordoba | 2005-2010 |
| Master in Production, Protection and Plant Breeding | University of Cordoba | 2010-2011 |
| Bioscience and Agrifood Sciences | University of Cordoba | 2011-2015 |

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

- 1 Master's thesis (under review).
- 13 research papers indexed in JCR (11 included in the first quartil in Agronomy, Plant Science, and Genetics and Heredity).
- Citations: 53 by Web of Science y 94 cites by Google citation.
- A mean of X cites per year (by Google Citation) from 2014-2017.
- H- index: 6.
- 10 contributions in national and international conferences (including oral presentations and posters) (5 oral communications).

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

María Dolores Rey Santomé did her **PhD** in the framework of an ERC-Starting Grant Project (**European Research Council, January 2011- March 2015**) at the Institute for Sustainable Agriculture (Spanish National Research Council (CSIC), Spain). The topic of her PhD was **the development of super-wheat crops by introgressing agronomic traits from related wild species**. M Dolores studied and characterized the Ph1 locus as a tool to promote interspecific chromosomal associations between wheat and wild relatives of barley from an applied perspective and her **thesis** was awarded the maximum qualification (**Sobresaliente Cum Laude and International Mention**). During her thesis, she did a short stay (three months) at **John Innes Centre (JIC, UK)** where she was involved in deploying **KASP markers** to characterise the gametocidal loci which cause abortion in the male and female gametes of wheat when they are included in its genome. After her PhD defense, María Dolores worked for **six months** as a **PostDoctoral Researcher** in the group of Prof. Graham Moore from the Crop Genetics Department, JIC, UK. There she held a contract funded by **BBSRC** (Biotechnology and Biological Sciences Research

Council (UK)). During her postdoctoral stay she studied the effect of the addition of nutrients on crossover frequency in wheat and wheat hybrids. In 2016, she achieved a **Marie Curie Fellowship Grant (H2020-MSCA-IF-2015-703117, 180.000 Euros)** to continue research on the effect of several environmental conditions on crossover frequency in wheat and wheat hybrids, to investigate what gene(s) controls the crossover formation in wheat, and to identify and quantify proteins involved in CO resolution in wheat and wheat-rye hybrids both in the presence and in the absence of the Ph1 locus for 2 years. Recently, she has achieved an "Ayuda para contratos Juan de la Cierva-Formacion" in the group of Prof. Jesús Jorrián Novo from the Department of Biochemistry and Molecular Biology of the University of Cordoba (from April, 2018 to March, 2020).

To date, she has participated in **four Research Grants**: one by the BBSRC (John Innes Centre (JIC), UK), one by the Ministry of Science and Innovation (CSIC, Spain) and two by the European Research Council (CSIC, Spain and JIC, UK). Dr María Dolores Rey has extensive training in the area of Plant Molecular Biology and Cytogenetics in plant breeding. She has written **13 scientific papers, being the first author in 8 of them**. All these manuscripts were published in **journals of the SCI Journal Citation Report, 10 of them are included in the first quartile (Q1)** in the Plant Science, Agronomy and Multidisciplinary areas. Her papers have received **99 citations** from peers. M Dolores Rey Santomé has made numerous contributions in **national and international conferences** (including oral presentations and posters) once obtaining the best oral presentation award. She also participates as a **reviewer in prestigious international scientific journals** such as Journal of Experimental Botany, Hereditas, Chromosoma, BMC Plant Biology and Journal of Proteomics (peer review).

Part C. RELEVANT MERITS

C.1. Publications (including books)

- 1) **Rey MD**, Martín AC, Smedley M, Hayta S, Harwood W, Shaw P, Moore G (2018) Magnesium increases homoeologous crossover frequency during meiosis in *ZIP4* (*Ph1* gene) mutant wheat-wild relative hybrids. *Frontiers in Plant Science*, 9:509.
- 2) **Rey MD***, Martín AC*, Higgins J, Swarbreck D, Uauy C, Shaw P, Moore G (2017). Exploiting the *ZIP4* homologue within the wheat Ph1 locus has identified two lines exhibiting homoeologous crossover in wheat-wild relative hybrids. *Molecular breeding*, 37:95. *Ambos autores han contribuido de la misma manera.
- 3) Watson A et al. Speed breeding is a powerful tool to accelerate crop research and breeding. *Nature Plants*, 1, (35/6).
- 4) Martín AC*, **Rey MD***, Shaw P, Moore G (2017) Dual effect of the wheat *Ph1* locus on chromosome synapsis and crossover. *Chromosoma*, 126, 669–680. *Ambos autores han contribuido de la misma manera.
- 5) Mercado-Blanco J, Alós E, **Rey MD**, Prieto P (2016). *Pseudomonas fluorescens* PICF7 displays an endophytic lifestyle in cultivated cereals and enhances yield in barley. *FEMS microbiology ecology*, 92(8).
- 6) **Rey M-D**, Calderón M-C, Rodrigo MJ, Zacarías L, Alós E, Prieto P (2015) Novel bread wheat lines enriched in carotenoids carrying *Hordeum chilense* chromosome arms in the *ph1b* background. *PLoS ONE* 10(8): e0134598.
- 7) Knight E, Binnie A, Draeger T, Moscou M, **Rey MD**, Sucher J, Mehra S, King I, Moore G (2015) Mapping the 'breaker' element of the gametocidal locus proximal to a block of sub-telomeric heterochromatin on the long arm of chromosome 4Ssh of *Aegilops sharonensis*. *Theoretical and Applied Genetics*, 128, Issue 6, pp 1049–1059.
- 8) **Rey MD**, Calderón MC, Prieto P (2015) The use of the *ph1b* mutant to induce recombination between the chromosomes of wheat and barley. *Frontiers in Plant Science*, 6:160
- 9) **Rey MD**, Prieto P (2014) Dynamics of DNA Replication during Premeiosis and Early Meiosis in Wheat. *PloS One*, 9(10): e107714.
- 10) Calderón MC, **Rey MD**, Cabrera A, Prieto P (2014) The subtelomeric region is important for chromosome recognition and pairing during meiosis. *Scientific reports*, 4: 6488

C.2. Research projects and grants

1) Reference:

Title: La secuenciación del genoma de la encina (*Quercus ilex*) y la búsqueda de genes de respuesta a estreses asociados al síndrome de la seca: caracterización estructural y funcional. **Funding:** Convocatoria de ayudas a proyectos de I+D+i en el marco del programa operativo del FEDER Andalucía 2014-2020

Project leader(s): María-Dolores Rey / Jesús V. Jorrín Novo

Affiliation: University of Cordoba

Participation: Investigador principal

Resolution: Under review

2) Reference: 703117

Title: New insights into wheat meiosis: Crossover resolution in the absence of the *Ph1* locus

Funding: H2020-MSCA-IF-2015

Project leader(s): María-Dolores Rey

Affiliation: Instituto John Innes Centre

From 01.02.2016 **to** 28.03.2018

Amount: 180.000€

Participation: Investigador principal

Resolution: Concedido

3)Reference: CA417F02B

Title: Developing tools for introgression into wheat where recombination is not possible.

Funding: BBSRC (Reino Unido)

Project leader(s): Graham Moore

Affiliation: John Innes Centre

From 05.08.2010 **to** 04.02.2016

Amount:

Participation: Investigador

Resolution: Concedido

4) Reference:

Title: Manipulación cromosómica de especies silvestres afines de trigo para estudios de meiosis y mejora genética.

Funding: Ministerio de Ciencia e Innovación.

Project leader(s): María-Pilar Prieto

Affiliation: Instituto de Agricultura Sostenible- CSIC

From 01.01.2013 **to** 31.12.2015

Amount:

Participation: Investigador

Resolution: Concedido

5) Reference: 243118

Title: Development of super-wheat crops by introgressing agronomic traits from related wild species.

Funding: European Research Council. ERC-Starting grants

Project leader(s): María-Pilar Prieto

Affiliation: Instituto de Agricultura Sostenible- CSIC

From 01.01.2010 **to** 31.12.2015

Amount: 600.000€

Participation: Investigador

Resolution: Concedido

C.3. Contracts

1) Title: Posdoctoral Researcher (Juan de la Cierva-Formación)

Company: University of Cordoba

Project leader: Jesús Valentín Jorrín Novo

Affiliation: University of Cordoba

Period: 01.04.2018/31.03.2020

Amount: 21.500€ per year

2) Title: Posdoctoral Researcher (Marie Curie fellowship)

Company: John Innes Centre UK

Project leader: Graham Moore

Affiliation: John Innes Centre UK

Period: 01.03.2016/30.04.2018

Amount: 67.000€ per year

3) Title: Posdoctoral Researcher

Company: John Innes Centre UK

Project leader: Graham Moore

Affiliation: John Innes Centre UK

Period: 01.04.2015/31.09.2015

Amount: 30.000€ per year

4) Título: Titulada superior de actividades técnicas y profesionales

Company: Instituto de Agricultura Sostenible-CSIC

Project leader: Pilar Prieto Aranda

Affiliation: Instituto de Agricultura Sostenible-CSIC

Period: 01.01.2011/31.03.2015

Amount: 15.000€ per year

C.3. Teaching

1) Master in Forestry Engineering. Subject: Biotecnología y Mejora Genética Vegetal. 2017/2018; 2018/2019

2) Degree in Biochemistry. Subject: Enzymology. 2018/2019

3) Degree in Forestry Engineering. Subject: Enlargement of Chemistry and Biochemistry. 2018/2019

C.4. Supervision

Currently, I am supervising a degree thesis and a master's thesis in the research group of Prof. Jorrín-Novo.

C.5. Reviewer in prestigious international scientific journals such as Journal of Experimental Botany, Hereditas, Chromosoma, Journal of Proteomics, Frontiers in Plant Science (peer review).

C.6. Awards

Best oral presentation award in "I Congreso Científico de Investigadores en Formación en Agroalimentación 'Creando Redes'". University of Cordoba/Ceia3.
<http://www.ias.csic.es/etiqueta/maria-dolores-rey-santome/>.