

CURRICULUM VITAE (CVA)

IMPORTANT – The Curriculum Vitae cannot exceed 4 pages. Instructions to fill this document are available in the website.

Part A. PERSONAL INFORMATION		CV date	12 th September 2022
First name	M. Carmen		
Family name	Ruiz Roldán		
Gender (*)		Birth date (dd/mm/yyyy)	
Social Security, Passport, ID number			
e-mail		URL Web https://www.uco.es/FusariumLab/	
Open Research and Contributor ID (ORCID)(*)		orcid.org/0000-0003-3427-2998	

(*) Mandatory

A.1. Current position

Position	Associate Professor (Titular)		
Initial date	01/02/2019		
Institution	University of Córdoba		
Department/Center	Genetics / Faculty of Sciences		
Country	Spain	Teleph. number	
Key words	Fusarium, virulence, filamentous fungi, pathogenesis, plant-fungus interaction		

A.2. Previous positions (research activity interruptions, art. 45.2.c))

Period	Position/Institution/Country/Interruption cause
2016-2019	Assistant Professor (Contratado Doctor)/Dpt. Genetics, Univ. Córdoba/Spain
2010-2016	Senior Researcher (Ramón y Cajal) / Dpt. Genetics, Univ. Córdoba / Spain
2006-2010	Postdoctoral Researcher / Dpt. Genetics, Univ. Córdoba / Spain
2001-2006	Hired Professor / Univ. SEK, Segovia / Spain
1998-2001	Postdoc (Marie Curie HCM)/Inst. General Botany, Univ. Hamburg / Germany
1994-1998	PhD student / Dpt. Genetics, Univ. Córdoba / Spain

A.3. Education

PhD, Licensed, Graduate	University/Country	Year
PhD in Biology	Córdoba / Spain	1998
Bachelor's degree in Biology	Córdoba / Spain	1993

Part B. CV SUMMARY (max. 5000 characters, including spaces)

Master's degree in Biological Sciences (1993). Pre-doctoral fellowship FPI from MEC and PhD in Biological Sciences from the University of Córdoba (1998). PhD project focused on the biochemical and molecular characterization of enzymes and genes encoding xylanases in the phytopathogenic fungus *Fusarium oxysporum*, and their role in pathogenicity. This project opened a new research line in the group that gave rise to the development of two additional PhD theses and the publication of several papers of high impact in the field. Pre-doctoral stay during 5 weeks at the Institute of Genetics and Microbiology of the Univ. Paris-Sud, France, with the aim of establishing a genetic transformation system in *F. oxysporum*, which remains

the main genetic tool used in our group for the generation of fungal mutant strains. Postdoctoral Researcher at the Institute of Molecular Biology and Botany at the University of Hamburg, Germany (1998- 2001), hired by an EU Marie Curie HCM program focused on the molecular basis of pathogenicity in the interaction barley-*Pyrenophora teres* (the causal agent of net blotch disease) demonstrating, for the first time in this fungus, the essential role of a MAP kinase during the infection process. Assistant Professor at the Univ. SEK (Segovia, Spain) (2001-2006), teaching different topics related to Genetics (General Genetics, Molecular Genetics, Evolutionary Biology, Experimental Methods in Genetics), as well as supervising several Graduate Theses and participating actively in a research project funded by MEC (BIO2004-00276) in collaboration with Drs. González Roncero and Di Pietro, Dpt. Genetics, Univ. Córdoba. Postdoctoral Researcher at the University of Córdoba from 2006 to 2010 funded by different grants from Junta de Andalucía, MICINN and EU. Senior Researcher (Ramón y Cajal Program) from 2010 to 2016. Assistant Professor from 2016 to 2019 at the Department of Genetics, University of Córdoba. Since 2019, Associate Professor of Genetics and Vice Dean of Planning and Academic Coordination of the Faculty of Sciences, University of Córdoba. Since my return to the University of Córdoba, I have developed several independent research lines on virulence mechanisms in *F. oxysporum* and established strategic collaborations with leading national and international groups in some of these areas: cell-wall biogenesis in *F. oxysporum* and its role in pathogenicity; genes involved in the detoxification of antifungal compounds secreted by tomato plants; transcription factors controlling fungal virulence; ultrastructural studies of the early stages of infection; analysis of cell cycle and vegetative hyphal fusion in *F. oxysporum*. During my scientific carrier I have collaborated in 21 research projects funded by public organisms (Plan Nacional-MEC/MICINN, European Union, ERA-NET/MICINN, Euroinvestigation/MICINN, Proyectos de Excelencia/Junta de Andalucía, Acción Integrada Hispano-Italiana, Acción Integrada Hispano-Alemana). Author of 31 high-impact scientific articles in international journals in the areas of Genetics, Microbiology and Molecular and Cellular Pathology, one of them in *Nature*; 10 papers as first author, 5 as senior author, 16 as co-author; 3 book chapters. Numerous presentations in national and international scientific congresses. Total number of cites: 2665; *h*-Index: 22; *i*10-Index: 24; RG Score: 29.67, Percentage of international collaboration works in the last 5 years: 40%, Percentage of works cited in the last 5 years: 80%, Percentage of works published in open access since 2019: 100%, Normalized impact according to the methodology for 2020 call for grants to "Severo Ochoa Centers of Excellence" and "María de Maeztu Units of Excellence" and citations of researcher's articles (at 17/01/2022): 1.2. Currently in possession of four six-year periods of research (sexenios) and two teaching sections (quinquenios). Member of the organizing and scientific committees in 2 national congresses. Lecturer at several conferences for the Dissemination of Research (2007, 2009, 2013) and the Presence of Women and Girls in Science (2020) organized by the University of Córdoba and aimed at secondary school students (2019). Supervisor of 4 PhD theses, as well as numerous final degree and Master's degree projects at the University of Córdoba. Founding partner in 2000 of the company CANVAX Biotech co-participated by the University of Córdoba. Member of several scientific societies (Spanish Society of Microbiology, International Society of Plant-Microbe Molecular Interactions, and American Society of Microbiology). Referee for several international scientific journals such as Current Genetics, Journal of Plant Pathology, The Open Mycology Journal, FEBS Letters and Eukaryotic Cell, among others. Collaborator in the evaluation commission of the Juan de la Cierva program in 2011 as well as in the project evaluation process of the Ministry of Science and Innovation in 2011 and 2020.

Part C. RELEVANT MERITS (sorted by typology)

C.1. Publications (10 more relevant in the last 10 years)

- 1.- Geiser DM, Al-Hatmi AMS, Aoki T, [...], Zhang X. (116/168) (2020) Phylogenomic Analysis of a 55.1-kb 19-Gene Dataset Resolves a Monophyletic *Fusarium* that Includes the *Fusarium solani* Species Complex. *Phytopathology*. 2021 Jul;111(7):1064-1079. doi: 10.1094/PHYTO-08-20-0330-LE. Epub 2021 Sep 9. PMID: 33200960
- 2.- O'Donnell K, Al-Hatmi AMS, Aoki T, [...], Zhang SX. (23/37) (2020) No to *Neocosmospora*: phylogenomic and practical reasons for continued inclusion of the *Fusarium solani* species complex in the genus *Fusarium*. *mSphere* 5:e00810-20
- 3.- Nunez-Rodriguez JC, **Ruiz-Roldán C**, Lemos P, Membrives S, Hera C. (2020) The phosphatase Ptc6 is involved in virulence and MAPK signalling in *Fusarium oxysporum*. *Molecular Plant Pathology*, 21: 206–217
- 4.- Lemos P, **Ruiz-Roldán C**, Hera C. (2018) Role of the phosphatase Ptc1 in stress responses mediated by CWI and HOG pathways in *Fusarium oxysporum*. *Fungal Genetics and Biology*, 118: 10-20
- 5.- Herrera R, Salazar A, Ramos-Moreno L, **Ruiz-Roldán C**, Ramos J. (2017) Vacuolar control of subcellular cation distribution is a key parameter in the adaptation of *Debaryomyces hansenii* to high salt concentrations. *Fungal Genetics and Biology*, 100: 52-60
- 6.- López-Fernández L, Roncero MIG, Prieto A, **Ruiz-Roldán C**. (2015) Comparative proteomic analyses reveal that Gnt2-mediated N-glycosylation affects cell wall glycans and protein content in *Fusarium oxysporum f.sp. lycopersici*. *Journal of Proteomics*, 128:189-202
- 7.- **Ruiz-Roldán C**, Pareja-Jaime Y, González-Reyes JA, Roncero MIG. (2015) The transcription factor Con7-1 is a master regulator of morphogenesis and virulence in *Fusarium oxysporum*. *Molecular Plant-Microbe Interactions*, 28:55-68
- 8.- Corral-Ramos C, Roca MG, Di Pietro A, Roncero MIG, **Ruiz-Roldán C**. (2015) Autophagy contributes to regulation of nuclear dynamics during vegetative growth and hyphal fusion in *Fusarium oxysporum*. *Autophagy*, 11:1-14
- 9.- López-Fernández L, **Ruiz-Roldán C**, Pareja-Jaime Y, Prieto A, Khraiweh H, Roncero, MIG. (2013) The *Fusarium oxysporum gnt2*, encoding a putative N-acetylglucosamine transferase, is involved in cell wall architecture and virulence. *PLoS ONE* 8:e84690. doi:10.1371/journal.pone.0084690
- 10.- Bravo-Ruiz G, **Ruiz-Roldán MC**, Roncero MIG. (2013) Lipolytic system of the tomato pathogen *Fusarium oxysporum f.sp. lycopersici*. *Molecular Plant-Microbe Interactions* 26:1054-1067

C.2. Congresses

1. Authors: Bravo-Ruiz G, **Ruiz-Roldán MC**, Roncero MIG. Title: Polygalacturonase profile of the tomato wilt pathogen *Fusarium oxysporum f.sp. lycopersici*. Type of participation: Poster. Congress: 12th European Conference on Fungal Genetics. Venue: Sevilla. Date: 2014
2. Authors: Corral-Ramos C, Roca MG, Di Pietro A, Roncero MIG, **Ruiz-Roldán MC**. Title: Autophagy controls nuclear dynamics during vegetative hyphal growth and fusion of *Fusarium oxysporum*. Type of participation: Conference. Congress: 12th European Conference on Fungal Genetics. Venue: Sevilla. Date: 2014
3. Authors: **Ruiz-Roldán MC**, Pareja-Jaime Y, Roncero MIG. Título: The Con7 transcription factor, essential for pathogenicity, regulates the expression of genes involved in metabolism and virulence in *Fusarium oxysporum*. Type of participation: Poster. Congress: 26th Fungal Genetics Conference. Venue: Asilomar Conference Center, Pacific Grove, CA, U.S.A. Date: 2013
4. Authors: Corral-Ramos C, **Ruiz-Roldán MC**, Roncero MIG. Title: Role of glycogen metabolism in the pathotypic behavior of *Fusarium oxysporum f.sp. lycopersici* on tomato plants. Type of participation: Poster. Congress: 26th Fungal Genetics Conference. Venue: Asilomar Conference Center, Pacific Grove, CA, U.S.A. Date: 2013
5. Authors: Bravo-Ruiz G, **Ruiz-Roldán MC**, Roncero MIG. Title: Lipolytic system of the tomato pathogen *Fusarium oxysporum f.sp. lycopersici*. Type of participation: Poster. Congress: 26th

Fungal Genetics Conference. Venue: Asilomar Conference Center, Pacific Grove, CA, U.S.A.
Date: 2013

6 Authors: Lopez-Fernandez L, Pareja-Jaime Y, **Ruiz-Roldán C**, Roncero MIG. Title: Role of N-acetylglucosamine transferases in the fungal plant pathogen *Fusarium oxysporum*. Type of participation: Conference. Congress: V International Conference on Molecular Mechanisms of Fungal Cell Wall Biogenesis. Venue: Primosten, Croacia. Date: 6-9/6/2012

C.3. Research projects

1. Reference: (P20_00179). Title: Mecanismos de adaptación celular y genética en el hongo patógeno *Fusarium oxysporum*: nuevas estrategias de control (FUSICONTROL). IP: Antonio Di Pietro. Funding entity: Junta de Andalucía Excelencia. Duration: October 2021 - December 2022. Amount: 100.000 €. Type of participation: Researcher.

2. Reference: (PID2019-108045RB-I00). Title: Plasticidad celular y genética en la adaptación al huésped de los patógenos fúngicos. IP: Antonio Di Pietro. Funding entity: Ministerio de Ciencia, Innovación y Universidades. Duration: June 2020 - May 2023. Amount: 314.600 €. Type of participation: Researcher

2. Reference: (27374-R). Title: El pH intracelular como mecanismo de señalización y diana antifúngica. IP: Antonio Di Pietro. Funding entity: Junta de Andalucía, UCO-FEDER. Duration: January 2020 – December 2021. Amount: 48.189 €. Type of participation: Researcher

3. Reference: (BIO2016-78923-R). Title: Mecanismos genéticos de la infección fúngica inducidos por el hospedador. IP: Antonio Di Pietro and M. Isabel González Roncero. Funding entity: Ministerio de Economía y Competitividad. Duration: September 2017 - August 2019. Amount: 423.500,00 € Type of participation: Researcher

4. Reference: (BIO2013-47870). Title: Adaptación genómica y molecular al estilo de vida patógeno en *Fusarium oxysporum*. IP: Antonio Di Pietro and M. Isabel González Roncero. Funding entity: Ministerio de Economía y Competitividad. Duration: September 2014 - August 2017. Amount: 447.700,00 € Type of participation: Researcher

5. Reference: (P11-CVI-7319). Title: Procesos celulares relacionados con la patogénesis en *Fusarium oxysporum*. IP: M. Isabel González Roncero. Funding entity: Junta de Andalucía, Consejería de Innovación Ciencia y Empresa. Duration: March 2013 - March 2016. Amount: 168.682,00 € Type of participation: Researcher

6. Reference: (AP/040009/11). Title: Descripción del mecanismo de acción y análisis de las propiedades antifúngicas del péptido AcAGP secretado por *Aspergillus clavatus* contra el hongo fitopatógeno *Fusarium oxysporum*. IP: M. Isabel González Roncero. Funding entity: Agencia Española de Cooperación Internacional para el Desarrollo, Ministerio de Asuntos Exteriores y Cooperación. Duration: January 2012 - December 2012. Type of participation: Researcher

7. Reference: (BIO 2010-015505). Title: Receptores, Reguladores y Efectores de la Morfogénesis y Patogénesis Fúngica. IP: Antonio Di Pietro. Funding entity: Ministerio de Ciencia e Innovación. Duration: December 2010 - November 2013. Amount: 399.300,00 € Type of participation: Researcher

8. Reference: (BIO2008-04479-E). Title: Signaling circuitry controlling fungal virulence: identification and characterization of conserved and specific fungal virulence genes as common antifungal targets. IP: Antonio Di Pietro. Funding entity: Unión Europea VII Programa Marco. Duration: January 2010 - December 2013. Amount: 236.000,00 € Type of participation: Researcher

9. Reference: (EUI2009-03942). Title: Host-induced gene silencing by RNAi in fungal and oomycete pathogens for healthier and safer food. IP: Antonio Di Pietro. Funding entity: Ministerio de Ciencia e Innovación (EUROINVESTIGACIÓN). Duration: March 2010 - February 2013. Amount: 270.000,00 €. Type of participation: Researcher

10. Reference: (P08-CVI-3847). Title: Caracterización funcional de factores de transcripción que controlan la infección en *Fusarium*. IP: M. Isabel González Roncero. Funding entity: Junta de Andalucía, Consejería de Innovación Ciencia y Empresa. Duration: January 2009 – December. Amount: 2013 291.923,68 €. Type of participation: Researcher