



**CURRICULUM VITAE ABREVIADO (CVA)**

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

**Part A. PERSONAL INFORMATION**

First name	Juan Carlos		
Family name	Del Pozo Benito		
Gender (*)	Male	Birth date (dd/mm/yyyy)	06/09/1968
Social Security, Passport, ID number	03451382w		
e-mail	pozo@inia.csic.es	URL Web	URL Web <a href="http://www.cbgp.upm.es/index.php/es/informacion-cientifica/desarrollo-de-plantas/lateral-root">http://www.cbgp.upm.es/index.php/es/informacion-cientifica/desarrollo-de-plantas/lateral-root</a>
Open Researcher and Contributor ID (ORCID) (*)	<a href="https://orcid.org/0000-0002-4113-457X">0000-0002-4113-457X</a>		

(\*) *Mandatory*

**A.1. Current position**

Position	Research Profesor		
Initial date	15/08/2018		
Institution	Instituto Nacional de Investigación y Tecnología Agraria y Alimentaria (INIA) - CSIC		
Department/Center	Centro de Biotecnología y Genómica de Plantas (CBGP, UPM-INIA/CSIC)		
Country	Spain	Teleph. number	(34) 910679176
Key words	Root development, plant nutrition, root microbiome, beneficial fungi		

**A.2. Previous positions (research activity interruptions, indicate total months)**

Period	Position/Institution/Country/Interruption cause
01/04/2004-15/08/2018	Research Assitant (Científico titular) (INIA)
01/03/2002-01/04/2004	Ramon y Cajal Fellow (CMB-CSIC)
01/01/2002-01/03/2002	Postdoctoral researcher at CBM-SO, CSIC
01/11/1996-31/12/1999	Postdoctoral researcher at Indiana University, USA
01/03/1992-21/10/1996	Predocctoral student at Complutense University-CNB, CSIC

**A.3. Education**

PhD, Licensed, Graduate	University/Country	Year
PhD in Biology	Universidad Complutense de Madrid	1996
Graduate in Biology	Universidad Complutense de Madrid	1991

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

I got my **PhD in Biology** from the Universidad Complutense de Madrid (1996), working on phosphate deficiency (supervised by Dr. Paz-Ares). In my Thesis, we were pioneers in identifying **new genes and regulators of Pi starvation** response, especially the novel mechanism that worked as an anti-microRNA. From 1996 to 2000, I carried out a postdoctoral stay at the Indiana and Texas Universities (USA) as part of the group of Dr. Mark Estelle, working on **auxin signaling**. This period was crucial for my formation as a researcher since I got great experience in molecular biology and genetics and I published 8 articles in Q1 journals, including Science, PNAS and Plant Cell. We described for the **first time the role of F-box proteins and ubiquitination in hormonal signaling**.

Upon completion, I was awarded with a **Ramon y Cajal** contract to work in Dr. Crisanto Gutierrez's lab in cell division (2000-2003). This stage was also very productive (6 articles) and I gain excellent knowledge in the cell division and development field. We demonstrated the role of E2F transcription factors and Ubiquitin-pathway in control of cell cycle and endoreplication. In 2004, I joined the Inst. Nacional de Investigaciones Agrarias (**INIA**) as a



senior scientist. Since then, my group has contributed to understanding how lateral root founder cells are specified and formed under normal development or in response to changes in the environment. We have published more than 10 articles in this area that are relevant and highly cited by several. In 2010 we moved to the Centre of Plant Biotechnology and Genomics (**CBGP**) where his group has been studied the root system development in response to nutritional deficiencies and other abiotic stresses such as salinity or drought. Recently we engineered a novel device (**D-Root**) to grow plants in vitro with the **root system in darkness and the shoot in light**. Using the D-Root, we have discovered new insights on Pi deficiency responses and cell division and differentiation in roots. Recently, del Pozo's group has obtained a new cell type specific expression atlas in response to Pi starvation that will be useful for root biologist and researches working on stress. The use of the D-Root has been extended worldwide as offers a simple, low-cost device to cultivate plants in a more natural conditions. Now we are engineering a new device to generate soil temperature gradients to study root-plant responses to heat (TGRooZ, patent U20223040). The use of this device is allowing us to identify novel genes and microorganisms that enhance plant growth and nutrition in adverse-warm environments.

In 2017, I was appointed as **Research Professor (INIA)** and awarded with a **FullBright fellowship** as researcher visitor at the California University to investigate new molecules with hormone-like activity. From 2016 to the present, I am the **deputy director of the CBGP**, in charge of scientific programs and plant growth facilities. I am also the **deputy director** involved in the implementation of the Severo Ochoa strategic plan at the CBGP.

I have been PI of numerous research projects funded by different national and international agencies. **I supervised 5 PhD** (4 more under way) and 12 master students, mentored **2 Ramon and Cajal and 3 Juan de la Cierva researchers**. I have participated in masters, doctorate courses at different Spanish universities and in the Interconecta courses between Spain and Latino America Countries.

I also participated in scientific national committees and evaluation panels of the Spanish Agency of Evaluation and Prospective (ANEP), and the Executive Committee of INVEGEN (INIA representative). I have been invited to give numerous lectures at national and international conferences, and has published **58 scientific articles in SCI journals, 55 in Q1** (Science, PNAS, EMBO J, Plant Cell, New Phytologist, etc). I act as frequent reviewer for several prestigious international scientific journals, as well as a scientific evaluator for ANEP, USDA, and other international funding agencies.

I have written 4 **divulgate articles** to approach plant science to the society and give several talks in **agricultural forums** to non-scientist attenders.

I have been in charge of setting up at the CBGP the **automatic platform to phenotype** plants. I will be the scientific responsible for this platform to offer the service to researchers and agro-companies. Currently, we are **actively working to translate our research** in plant-microbe interaction to improve stress tolerance and plant production. I have registered 5 patents (1 licensed) and led 3 contracts with Companies (Reymapa, Plant Bioproducts and Roullier). Currently, we are filling two patents in this area, which will be licensed to Tradecorp

With the recent incorporation of Dra. Elena Caro as a CoPI, we have added a great value to study the role of epigenetic and smallRNA function in plant responses to stress. My group **has tackled different biological problems** such as response to abiotic stresses, hormone signaling, cell division control, alternative polyadenylation, gene expression control, or engineering new devices to resolve technical problems. Without a doubt, this expertise in different areas has contributed to building a **solid laboratory able to explore and answer new biological questions**, aimed to develop a more sustainable and efficient agriculture. This has driven my group to establish strong collaborations with two companies: Tradecorp, a company that has a Joined Innovation Unit at the CBGP, and Nawter tech) in the plant nutrition area (natural growth regulators and microorganisms analyzing the potential of beneficial entophytic fungi to enhance plant growth and Pi uptake and usage).

### **Part C. RELEVANT MERITS** (sorted by typology)

#### **C.1. Publications** ( I have included the recent and most relevant)

- Yu G, Zhang L, Xue H, Chen Y, Liu X, **Del Pozo JC**, Zhao C, Lozano-Duran R, Macho AP. Cell wall-mediated root development is targeted by a soil-borne bacterial pathogen to promote infection. Cell Rep. 2024 May 28;43(5):114179. doi: 10.1016/j.celrep.2024.114179.

- Mary Paz González-García, Angela Sáez, Mónica Lanza, Pilar Hoyos, Estefano Bustillo-Avendaño, Luis F. Pacios, Ana Gradillas, Miguel A. Moreno-Risueño, María José Hernaiz, **Juan C. del Pozo**. BiAux modulates auxin co-receptor activity to stimulate lateral root formation. *Plant Physiology*, 195(2):1694-1711, 2024 DOI: 10.1093/plphys/kiae090
- Perez-Garcia, P., Pucciariello, O., Sanchez-Corrienero, A., Cabrera, J., del Barrio, C., Del **Pozo, J.C.**, Perales, M., Wabnik, K., Moreno-Risueno, M.A. 2023. The cold-induced factor CBF3 mediates root stem cell activity, regeneration and developmental responses to cold. *Plant Communications* 100737. DOI: 10.1016/j.xplc.2023.100737
- González-García, M.P., Conesa, C.M., Lozano-Enguita, A., Baca-González, V., Simancas, B., Navarro-Neila, S., Sánchez-Bermúdez, M., Salas-González, I., Caro, E., Castrillo, G., and **del Pozo J.C.**. (2022). Temperature changes in the root ecosystem affect plant functionality. *Plant Communications*:100514. <https://doi.org/10.1016/j.xplc.2022.100514>.
- Muñoz, A., Mangano, S., Toribio, R., Fernández-Calvino, L., **del Pozo, J.C.\***, and Castellano, M.M\*. (2022). The co-chaperone HOP participates in TIR1 stabilisation and in auxin response in plants. *Plant, Cell & Environment* 45:2508-2519. <https://doi.org/10.1111/pce.14366>.
- Cabrera, J., Conesa, C. **del Pozo, J.C.** (2022) "May the dark be with roots: a perspective on how root illumination may bias in vitro research on plant–environment interactions." *New Phytologist*. [doi.org/10.1111/nph.17936](https://doi.org/10.1111/nph.17936).
- M Sánchez-Bermúdez, JC Del Pozo\*, M Pernas\* (2022). Effects of combined abiotic stresses related to climate change on root growth in crops. *Frontiers in plant science* 13, 918537
- Silva-Navas J, Salvador N, **Del Pozo JC\***, Benito C, Gallego FJ\*. The rye transcription factor ScSTOP1 regulates the tolerance to aluminum by activating the ALMT1 transporter. (2021) *Plant Sci.* vol 310: 110951. doi: 10.1016/j.plantsci.2021.110951. \*. Corresponding Author. Epub
- Perianez-Rodriguez, J., Rodriguez, M., Marconi, M, Bustillo-Avendaño, E., Wachsman, G., Sanchez-Corrienero, A., De Gernier, H., Cabrera, J., Perez-Garcia, P., Gude, I., Saez, A., Serrano-Ron, L., Beeckman, T., Benfey, P., Rodríguez-Patón, A., **Del Pozo, J.C.**, Wabnik, K., Moreno-Risueno, M.A.\* (2020) An auxin-regulable oscillatory circuit drives the root clock in *Arabidopsis*. *Science Advances*, 1;7(1):eabd4722 DOI: 10.1126/sciadv.abd4722.
- Conesa, C. M., Saez, A., Navarro-Neila, S., de Lorenzo, L., Hunt, A. G., Sepulveda, E. B., Baigorri, R., Garcia-Mina, J. M., Zamarreno, A. M., Sacristan, S., **del Pozo, J.C.** (2020). "Alternative Polyadenylation and Salicylic Acid Modulate Root Responses to Low Nitrogen Availability." *Plants*, 9(2).
- González-García, M. P., Bustillo-Avendaño, E., Sanchez-Corrienero, A. Moreno-Risueño and **del Pozo JC** (2020). "Fluorescence-Activated Cell Sorting Using the D-Root Device and Optimization for Scarce and/or Non-Accessible Root Cell Populations." *Plants*, 9(4).
- Silva-Navas, J. Conesa CM, Saez A, Navarro-Neila S, Garcia-Mina JM, Zamarreño AM, Baigorri R, Swarup R, **del Pozo JC**. Role of cis-zeatin in root responses to phosphate starvation. *New Phytologist* 24, 1: 242-257, doi:10.1111/nph.16020.
- B. Telléz-Robledo, C. Manzano, A. Saez, S. Navarro-Neila, J. Silva-Navas, L. de Lorenzo, M.P. González-García, R. Toribio, A. G. Hunt, R. Baigorri, I. Casimiro, S. M. Brady, M. M. Castellano, **J. C. del Pozo** (2019) The polyadenylation factor FIP1 is important for plant development and root responses to abiotic stresses. *Plant J.* 99: 1203-1219 DOI: 10.1111/tpj.14416.
- Manzano, C., Pallero-Baena, M., Silva-Navas, J., Navarro Neila, S., Casimiro, I., Casero, P., Garcia-Mina, J. M., Baigorri, R., Rubio, L., Fernandez, J. A. Norris, M., Ding, Y., Moreno-Risueno, M. A., **Del Pozo, J. C.** (2017). A light-sensitive mutation in *Arabidopsis* LEW3 reveals the important role of N-glycosylation in root growth and development. *J. Exp. Bot* 68, 5103-5116.
- Ramirez-Parra E, Perianez-Rodriguez J, Navarro-Neila S, Gude I, Moreno-Risueno M, and **del Pozo, J.C.** (2017) The Transcription Factor OBP4 Controls Root Growth and Promotes Callus Formation. *New Phytologist* 214: 1787-1801 DOI: 10.1111/nph.14315.
- J. Silva-Navas, M. A. Moreno-Risueno, C. Manzano; B. Téllez-Robledo, S. Navarro-Neila, V. Carrasco, S. Pollmann, F. J. Gallego and **Juan C. del Pozo** (2016). Flavonols mediate root phototropism and growth through regulation of Proliferation to-Differentiation Transition. *Plant Cell*, 28: 1372–1387.
- **del Pozo, J.C.**, Allona I., Rubio, V., Leyva, A., Aragoncillo, C., de la Peña, A. and Paz-Ares, J. (1999) A type 5 acid phosphatase gene from *Arabidopsis thaliana* is induced by phosphate starvation and by some other types of phosphate mobilising/oxidative stress conditions *Plant J.* 19:579-590

### **C.2. Congress**, indicating the modality of their participation.

**2023:** Rooting 2023 meeting, Gent (Belgium) Invited talk; Congreso de Fitohormonas, Segovia (Spain). Invited talk; IAS meeting, Salamanca (Spain), presenting 4 posters.

**2022:** Reunión de Biología Molecular de Plantas (Spain). Invited talk in CIALE (Salamanca). Invited talk at Spain-UK\_Plant\_Biotechnology\_Forum (UK, online).

**2021:** All congresses were virtual. Invited talks in SEFV (Spain), Rooting (world wide), 3<sup>rd</sup> D-Rooting (Viena) and SAIB-SAMIGE\_BIOCELL(Argentina).

**2020:** All congresses were virtual. Invited talks in 2nd D-Rooting (Viena).

**2019:** Invited talks in SEFV (Pamplona), AECID, Montevideo

**2018:** Invited talks in PBSC (Chile), RBMP (Salamanca), MPIPZ (Germany), Fitohormonas (Valencia)

### **C.3. Research projects**, indicating your personal contribution. In the case of young researchers, indicate lines of research for which they have been responsible.

- **TED2021-130317B-I00**. Transición hacia una agricultura sostenible basada en la economía circular y en nuevas soluciones de base biológica. (TRANSACEBS). AEI. Pi: A. Molina. CoPi Juan Carlos del Pozo. € 230000. 01/12/2023-31/11/2024.

- **PID2020-113479RB-I00**. Effect of global warming on plant nutrition, root growth and microbiome association (WAROOT- $\mu$ ). 01/09/2021 – 31/08/2024. AEI Ministerio de Ciencia e Innovación. IP: Juan Carlos del Pozo Benito. 205.000 €.

- **BIO2017-82209-R** Root Responses to Phosphate Starvation: New Approaches to improve Plant Growth with reduced Fertilization. IP y coordinador: Juan Carlos del Pozo. INIA-CBGP. 150.000 €. 2018- 2020.

- **BIO2014-52091-R** Identificación de nuevos genes y productos bio-activos para la Optimización de los recursos naturales dentro una agricultura sostenible. IP y coordinador: Juan Carlos del Pozo. INIA-CBGP. 140.000 €. 2014- 2017.

- **655406-ROOT-BARRIERS**. H2020-Molecular mechanisms controlling endodermis and exodermis differentiation in tomato roots. Marie Curie Fellowship (Awarded to Concepcion Manzano, U of Davis USA). Coordinator at the INIA: Juan C. del Pozo. € 263,000. January 2016-December 2017-at U. California, Davis, USA. 02/2018-12/2018 – at INIA, Spain.

### **C.4. Contracts, technological or transfer merits**

Spin-off 4.1 Generation of the Spin-off **Nawter Discovery**. 08/03/2024

#### Contrast with companies:

4.2- Expression of celluloses in chloroplast to potentiate the degradation of the cell wall to generate biofuel. CENIT. Contrato con la compañía **Plant Bioproducts**. IP: Juan Carlos del Pozo. INIA-Dpto. de Biotecnología. 160.000 €. 2007- 2010

4.3- Desarrollo nuevas moléculas vegetales que promuevan y potencien el desarrollo de las plantas. Convenio con la empresa **TimacAgro-Roullier group**. IP: Juan Carlos del Pozo. INIA-CBGP. 60000 €. 2017-2020.

4.4- Identificación de nuevos hongos endófitos promotores del crecimiento en condiciones de bajo fosfato. **Joint Innovation Unit CBGP-Tradecorp**. 25000€. 2022-2024.

#### Patents

4.5 **Juan C. del Pozo Benito**, Mary Paz Gonzalez García and Carlos M. Conesa. Title: TGRooZ: Dispositivo para optimizar un sistema de cultivo de plantas. U202230407. 11 marzo 2022. País de prioridad: España. Entidad titular: CSIC-UPM. *Licensed to Ibercex*.

4.6 **Juan Carlos del Pozo Benito**, Javier Gallego Rodríguez, Javier Silva Navas. New device to cultivate roots in in vitro. Número de aplicación: U201300727. Priority Date: 19-08-2013) País de prioridad: España. Entidad titular: INIA-UCM.

4.7- **Juan Carlos del Pozo Benito**, Concepcion Manzano Fernandez, Pilar Hoyos Vidal, Maria Josefa Hernaiz, Stephan Pollmann Title: Use of natural compounds to regulate vegetal growth. Application Number: P201630412 Priority country: Spain Priority Date: 05-04-16 España Entidad titular: INIA-UCM-UPM.