



**CURRICULUM VITAE (CVA) Francisco Javier Ollero Márquez**

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

(\*) Mandatory

<b>CV date</b>	01/03/2023
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**A.1. Current position**

Position	Full Professor		
Initial date	11/04/2014		
Institution	Universidad de Sevilla		
Department/Center	Microbiología	Facultad de Biología	
Country	Spain	Teleph. number	
Key words	Rhizobia-legume symbiosis, nodulation, regulation, nodulation factors, Nop proteins, type III secretion systems, plant defensive responses, microbial genomics, plant growth promoting bacteria		

**A.2. Previous positions (research activity interruptions, art. 14.2.b))**

Period	Position/Institution/Country/Interruption cause
1996-2002	Assistant Professor/Universidad Sevilla
2002-2014	Associate Professor/Universidad Sevilla

**A.3. Education**

PhD, Licensed, Graduate	University/Country	Year
PhD	Sevilla/Spain	1988
Licensed	Sevilla/Spain	1984

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

I obtained my degree in Biological Sciences at the University of Seville in 1984, with outstanding qualifications. For the completion of my Doctoral Thesis, I got a predoctoral fellowship of Research Personnel Training from the Ministry of Education and Science. My doctoral thesis "Study of the symbiotic plasmid of a strain of *Rhizobium* sp. (*Hedysarum coronarium*), directed by Dr. Ramón A. Bellogín Izquierdo was presented in June 1988 obtaining the highest-grade qualification. My postdoctoral training was carried out at the Department of Biotechnology Agrarie, University of the Studi di Padova (Italy) under the direction of Professor Marco Nuti from 1/11/1998 to 10/31/1990. I worked in two Research Projects: Study of genetic tools to detect the genetically modified rhizobia released to the environment (CEE BAP and BRIDGE programs) and study of the *Rhizobium sllae-Hedysarum coronarium* symbiosis, thanks to a Postdoctoral fellowship from the Ministry of Educación y Ciencia (Spanish Government). I returned to the Department of Microbiology of the University of Seville by the end of 1990, with a scholarship of Doctors and Technologists Abroad from the Ministerio de Investigación y Ciencia (Spanish Government). I currently hold the position of Full Professor. My research activity has focused on the study of the nitrogen-fixing symbiosis that takes place between rhizobia and leguminous plants. Thus, I have studied the interactions *Rhizobium sllae/Hedysarum coronarium* and *Sinorhizobium fredii/Glycine max*, on genetic aspects of the regulation and production of bacterial Nod factors. Likewise, I studied the type III protein secretion system (T3SS) in *S. fredii* HH103 and the cellular communication molecules (acyl-homoserine lactones) present in rhizobia. In the last years, I have focused on the study of the interaction between *R. tropici* and bean (*Phaseolus vulgaris*). Moreover, I am involved in the isolation and characterization of plant



growth promoting rhizobacteria (PGPR). In these lines of research, I have collaborated closely with the groups AGR162, directed by Dr. José Enrique Ruiz Sainz and BIO135, directed by Dr. Antonio Gil Serrano and BIO268, directed by Dr. Cristina Echevarría Ruiz de Vargas. In addition, I collaborate with Dr. Mariangela Hungary (EMBRAPA-Soja, Londrina, Brazil), hosting pre and postdoctoral students in my research group Brazilian doctorates. This research has been funded through 20 research projects (in 9 of these projects I have been Principal Investigator), and 11 research contracts 68/83. Responsible of the BIO169 Research Group: Biotechnology of the interaction of microorganisms with legumes and other plants of agricultural interest.

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

### C.1. Publications (see instructions)

Some relevant publications (from 2017 to 2021):

1. Ayala-García, P., Jiménez-Guerrero, I., Jacott, C., López-Baena, F.J., Ollero, F.J., del Cerro, P., and Pérez-Montaño, F. (2022). The *Rhizobium tropici* CIAT 899 NodD2 protein promotes symbiosis and extends rhizobial nodulation range by constitutive nodulation factor synthesis. *J. Exp. Bot.*, 28:erac325. doi: 10.1093/jxb/erac325.
2. del Cerro, P., Ayala-García, P. Buzón, P., Castells-Graells, R., López-Baena, F.J., Ollero, F.J., and Pérez-Montaño, F. (2020). OnfD, an AraC-type transcriptional regulator encoded by *Rhizobium tropici* CIAT 899 and involved in Nod factor synthesis and symbiosis. *Appl. Environ. Microbiol.*, 86: e01297-20. <https://doi.org/10.1128/AEM.01297-20>.
3. Irene Jiménez-Guerrero, I., Acosta-Jurado, S., Medina, C., Ollero, F.J., Alias-Villegas, C., Vinardell, J.M., Pérez-Montaño, F., and López-Baena, F.J. (2020). The *Sinorhizobium fredii* HH103 Type III secretion system effector NopC blocks nodulation with *Lotus japonicus* Gifu. *J. Exp. Bot.*, 71: 6043-6056. doi: 10.1093/jxb/eraa297.
4. del Cerro, P., Ayala-García, P., Jiménez-Guerrero, I., López-Baena, F.J., Vinardell, J.M., Megías, M., Hungria, M., Gil-Serrano. M., Pérez-Montaño, F., Ollero, F.J. (2019). The non-flavonoid inducible *nodA3* and the flavonoid regulated *nodA1* genes of *Rhizobium tropici* CIAT 899 guarantee Nod factor production and nodulation of different host legumes. *Plant and Soil*, 440: 185-200. <https://doi.org/10.1007/s11104-019-04073-2>.
5. del Cerro, P., Pérez-Montaño, F., Gil-Serrano, A., López Baena, F.J. Megías. M., Hungria, M., Ollero, F.J. (2017). The *Rhizobium tropici* CIAT 899 NodD2 protein regulates the production of Nod factors under salt stress in a flavonoid-independent manner. *Scientific Reports*, 7: 46712. doi: 10.1038/srep46712.
6. Guerrero-Jiménez, I., Pérez-Montaño, F., Medina, C., Ollero, F.J., López-Baena, F.J. (2017). The *Sinorhizobium (Ensifer) fredii* HH103 nodulation outer protein Nopl is a determinant for efficient nodulation of soybean and cowpea. *Applied and Environmental Microbiology*, 83: e02770-16. doi: 10.1128/AEM.02770-16.
7. Pérez-Montaño, F., Jiménez-Guerrero, I., Acosta-Jurado, S., Navarro- Gómez, P., Ollero, F.J., Ruiz-Sainz, J.E., López-Baena, F.J., Vinardell, J.M. (2016). A transcriptomic analysis of the effect of genistein on *Sinorhizobium fredii* HH103 reveals novel rhizobial genes putatively involved in symbiosis. *Scientific Reports*, 6: 31592. doi: 10.1038/srep31592.
8. Acosta-Jurado, S., Alias-Villegas, C., Navarro-Gómez, P., Zehner, S., Murdoch, P.S., Rodríguez-Carvajal, M.A., Soto, M.J. Ollero, F.J., Ruiz-Sainz, J.E., Göttfert, M., Vinardell, J.M. (2016). The *Sinorhizobium fredii* HH103 MucR1 global regulator is connected with the *nod* regulon and is required for efficient symbiosis with *Lotus burtii* and *Glycine max* cv.



Williams. *Molecular Plant-Microbe Interactions*, 29: 700-712. doi: 10.1094/Mpmi-06-16-0116-R.

9. Pérez-Montaño, F., del Cerro, P., Jiménez-Guerrero, López-Baena, F.J., Cubo, T., Hungria, M., Megías, M., Ollero, F.J. (2016). RNA-seq analysis of the *Rhizobium tropici* CIAT 899 transcriptome shows similarities in the activation patterns of symbiotic genes in the presence of apigenin and salt. *BMC Genomics*, 17: 198. doi: 10.1186/s12864-016-2543-3.

10. Jiménez-Guerrero, I., Pérez-Montaño, F., Monreal, J.A., Preston, G.M., Fones, H., Vioque, B., Ollero, F.J., López-Baena, F.J. (2015). The *Sinorhizobium (Ensifer) fredii* HH103 Type 3 secretion system suppresses early defense responses to effectively nodulate soybean. *Molecular Plant-Microbe Interactions*, 28: 790-799. doi: 10.1094/MPMI-01-15-0020-R.

11. del Cerro, P., Rolla-Santos, A.A.P., Gomes, D.F., Marks, B., Pérez-Montaño, F., Rodríguez-Carvajal, M.A., Gil-Serrano, A., Megías, M., Ollero, F.J., Hungria, M. (2015). Regulatory *nodD1* and *nodD2* genes of *Rhizobium tropici* strain CIAT899 and their role in early steps of molecular signaling and host nodulation. *BMC Genomics.*, 16: 251. doi: 10.1186/s12864-015-1458-8.

## C.2. Congress

1. XXV RELAR (Latin American Meeting of Rhizobiology). Piriapolis (Uruguay) 4-9 September 2011. Four communications presented.

2. II IBEMPA (Iberoamerican Conference on Beneficial Microorganism-Plant Interactions). Seville (Spain). 2-6 September 2013. Organizing Committee Secretary. Ten communications presented.

3. 11<sup>th</sup> European Nitrogen Fixation Conference. Tenerife (Spain). Four communications presented.

4. XV Congress of the Spanish Nitrogen Fixation Society and IV Portuguese-Spanish Nitrogen Fixation Congress. León (Spain). Seven communications presented. Two of them were oral communications.

5. XXVII RELAR (Latin American Meeting of Rhizobiology). Londrina. Parana. Brazil. 6-9 June 2016. Six communications presented. Two invited lectures.

6. 12<sup>th</sup> European Nitrogen Fixation Conference. Budapest (Hungary). 25-28 August 2016. Two communications presented.

7. 20<sup>th</sup> International Congress on Nitrogen Fixation. Granada (Spain). 3-7 September 2017. Six communications presented.

8. VIII Meeting of the Specialized Group of the Spanish Society of Microbiology. Plant Microbiology Microbiology. Osuna (Sevilla) 23-25 January 2019. Organizing Committee. Nine communications presented. Three of them were oral communications.

9. XXVIII Congreso Nacional de Microbiología. Online conference. 28 June-2 July 2021. Plenary conference.

10. I Spanish-Portuguese Congress on Beneficial Plant-Microbe Interactions (BeMiPlant) and XVIII National Meeting of the Spanish Society of Nitrogen Fixation (XVIII SEFIN). Oeiras (Portugal). 17-19 October 2022. Five communications. Two of them oral communications.

## C.3. Research projects

1. " Endophytic microorganisms as inducers of natural molecules of agronomic interest" (OPN INNFACTO. IPT-2011-0989-060000). Funded by: Ministerio de Ciencia e Innovación. Spanish Government. 231506 €. Duration: 5/05/2011-31/12/2014. Principal Investigator: Francisco Javier Ollero Márquez.



2. “Study of the regulation of the genes of the biosynthesis of nodulation factors produced by *Rhizobium tropici* in the presence of abiotic stress” (AGL2012-38831). Funded by: Ministerio de Economía y Competitividad. Spanish Government. 128700 €. Duration: 31/12/2012-31/12/2015. Principal Investigator: Francisco Javier Ollero Márquez.
3. “The type III secretion system in the symbiotic interaction rhizobia-legume” (CVI70). Funded by: Junta de Andalucía. Autonomous Government. 124500 €. Duration: 1/09/2012-1/09/2016. Principal Investigator: Francisco Javier López Baena. Participation: Investigator.
4. “Regulation of the biosynthesis of Nod factors produced by *Rhizobium tropici* CIAT899: implications of their application as molecular inoculant in legumes and cereals”. (AGL2916-77163-R). Funded by: Ministerio de Economía y Competitividad. Spanish Government. 140000 €. Duration: 01/01/2017 - 31/12/2019. Principal Investigators: Francisco Javier Ollero Márquez and Antonio M. Gil-Serrano
5. “Legumes in biodiversity-based farming systems in Mediterranean basin (LEGU-MED)”. Project PRIMA-Partnership on Research and Innovation in the Mediterranean Area. Funded by: State Research Agency (CEE). 150000 €. Duration: 01/06/2020–30/06/2023. Coordinator: Federico Martinelli (Dipartimento di Biologia. Università di Firenze). Spanish PI: Dulce Rodríguez-Navarro. Participation: Investigator.
6. “Identificación de nuevas señales moleculares y de genes Involucrados en la simbiosis rizobio-leguminosa (NEOSIGNALS)”. (PID2019-107634RB-I00). Funded by: Ministerio de Ciencia e Innovación. Spanish Government. 140000 €. Duration: 2020-2023. Principal Investigators: Francisco Javier López Baena and José María Vinardell . Participation: Investigator.

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

1. “Design of new technologies for the application of bio-agro-inputs in sustainable agricultural production in Andalusia”. Funded by: CDTI (Public Business Entity). 68/83 contracts 0754/0140, 0773/0140, 0929/0140, 01001/0140, 1110/040 and 1111/0140. 87000 €. Duration: 17/05/2010-16/05/2013. Principal Investigator: Manuel Megías Guijo. Participation: Investigator.
2. “Experimental development of processes of transformation of lignocellulosic biomass and other carbon sources in diverse bioproducts in sustainable Andalusia (Bio-Andalus).68/83 contract 1529/0140). Funded by: AZVI S.A. (Private Company). 289454 €. Duration: 01/04/2012-31/12/2014. Principal Investigator: Francisco Merchán Ignacio. Participation: Investigator.
3. “MIPLASCOE: Development of new biopolyesters from agro-industrial by-products for applications in the railway and packaging sectors”.68/83 contracts PRJ20162929 and PRJ20162932), Funded by: CDTI (Public Business Entity). 200000 €. Duration; 01/12/2016-31/05/2019. Principal Investigator: Francisco Merchán Ignacio. Participation: Investigator.
4. “Improvement of the flavor and organoleptic properties of orange juice by treatment with biocatalysts. Biocatsabor+” 68/83 contract PRJ201803353). Funded by: Cítricos del Andévalo, S.A. (private company). 102850 €. Duration: 01/11/2017 - 30/10/2020. Principal Investigator: Francisco Merchán Ignacio. Participation: Investigator.
5. “Development of molecular inoculants derived from PGPR microorganisms and bacterial communication metabolites (quorum sensing molecules): from the laboratory to industry and the field.” (68/83 Contract: PRJ201903690). Funded by: Agrogenia Biotech. (Private



company). 45000 €. Duration: 30/09/2019-31/05/2022. Investigator: Francisco Javier Ollero Márquez.