MINISTERIO DE CIENCIA, INNOVACIÓN Y UNIVERSIDADES

CURRICULUM VITAE (maximum 4 pages)

CV date	12/03/2021

Part A. PERSONAL INFORMATION

First and Family name	Carlos García Estrada		
Social Security, Passport, ID number	09801425K	Age	46
Researcher numbers	Researcher ID	F-7932-2014	
	Orcid code	0000-0001-5617-9669	

A.1. Current position

Name of University/Institution	University of León			
Department	Biomedical Sciences			
Address and Country	Campus de Vegazana S/N, 24071, León (Spain)			
Phone number	987291590	E-mail	c.gestrada@unileon.es	
Current position	Assistant Professor		From	01/03/2021
Espec. cód. UNESCO	230212, 230220, 230221, 240902, 241401, 241406, 241407, 241408, 241409, 241501, 330201, 330202, 330203, 330290			
Palabras clave	Biotecnología, microbiología, metabolismo secundario, ingeniería genética, ingeniería metabólica, microbiología industrial, biología molecular, descubrimiento de fármacos, leishmaniosis Biotechnology, microbiology, secondary metabolism, genetic engineering, metabolic engineering, industrial microbiology, molecular biology, drug discovery, leishmaniosis			

A.2. Education

PhD	University	Year
Doctor of Veterinary Medicine	León	2003

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

-Number of thesis supervised in the last 10 years: 2.
-JCR articles: 59.
-Sum of Times Cited: 1885.
-Average Citations per Year: 99.16.
-Number of publications in Q1: 33.
-*h*-Index: 25.

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

After graduating in Veterinary Medicine from the University of León (1998) I was granted a felowship to carry out the Doctoral Thesis in the Department of Toxicology of the University or León, where I carried out research tasks related to the molecular biology of the trypanosomatid *Leishmania infantum*. In 2002, I made a brief stay at the University of Mississippi (USA) and in 2003, I received the PhD degree in Veterinary Medicine from the University of León with the qualification of summa cum laude, which allowed me to be awarded with the Extraordinary Doctorate Award.

Then, I was granted a postdoctoral fellowship between May and December 2003 to work at the Institute of Biotechnology of León (INBIOTEC). During those months I became familiar with molecular biology techniques applied to microorganisms and the study of secondary metabolism, mainly focused on the production of beta-lactam antibiotics. This allowed me to continue with the research in this field at the Microbiology Department of the University of León, where I was hired from January 2004 to June 2006. In July of that year, I was granted a contract under the Torres Quevedo program to join INBIOTEC to carry out the project entitled "Regulatory genes for cephalosporin biosynthesis and secretion genes of cephalosporins in *Acremonium chrysogenum*: effect on the production of beta-lactams". This project confirmed the scientific-technical objectives of the research line related to microbial biotechnology, secondary metabolism and production of penicillin and cephalosporin. An important milestone in my scientific career was the participation in the genome and proteome

projects of *Penicillium chrysogenum*, the industrial producer of penicillin, which resulted in the publication of articles in top-ranking journals such as Nature Biotechnology or Molecular and Cellular Proteomics. In 2008 I became part of the staff of INBIOTEC, where I held the position of Head of the Biopharma and Biomedicine Area and led the group of fungal biotechnology and secondary metabolism.
During my scientific career I have been the author or co-author of sixty scientific articles. In addition, I have published fifteen book chapters and I have edited three volumes of a Springer editorial book related to secondary fungal metabolism. Throughout these years I have presented more than seventy communications to congresses and I have participated in thirty research projects financed by companies (national and international) and by public entities (autonomous, national and European), having been the Principal investigator in 17 of these projects.
Since 2011, I combined scientific activity in the INBIOTEC with a position as Adjunct Professor at the Department of Biomedical Sciences of the University of León and since March 2011, I became Assistant Professor at the same Department. In addition, I have participated as tutor of several students through agreements and cooperation practices with the University of León and Oviedo. During these years I have had the opportunity to co-direct four Doctoral Theses and several undergraduate and master's projects.

Part C. RELEVANT MERITS

C.1. Publications (including books)

-García-Estrada C, Martín JF, Cueto L, Barreiro C. (2020). Omics Approaches Applied to *Penicillium chrysogenum* and Penicillin Production: Revealing the Secrets of Improved Productivity. Genes (Basel). 11: 712.

-Álvarez-Bardón M, Pérez-Pertejo Y, Ordóñez C, Sepúlveda-Crespo D, Carballeira NM, Tekwani BL, Murugesan S, Martinez-Valladares M, García-Estrada C, Reguera RM, Balaña-Fouce R. (2020). Screening Marine Natural Products for New Drug Leads against Trypanosomatids and Malaria. Mar Drugs. 18: 187.

-Gutiérrez-Corbo C, Álvarez-Velilla R, Reguera RM, García-Estrada C, Cushman M, Balaña-Fouce R, Pérez-Pertejo Y. (2019). Topoisomerase IB poisons induce histone H2A phosphorylation as a response to DNA damage in *Leishmania infantum*. Int J Parasitol Drugs Drug Resist. 11: 39-48.

-Barreiro C, García-Estrada C. (2019). Proteomics and *Penicillium chrysogenum*: Unveiling the secrets behind penicillin production. J Proteomics. 198: 119-131.

-Jami MS, Martín JF, Barreiro C, Domínguez-Santos R, Vasco-Cárdenas MF, Pascual M, García-Estrada C. (2018). Catabolism of phenylacetic acid in *Penicillium rubens*. Proteome-wide analysis in response to the benzylpenicillin side chain precursor. J Proteomics. 187: 243-259.

-García-Estrada C, Martín JF. (2016). Biosynthetic gene clusters for relevant secondary metabolites produced by *Penicillium roqueforti* in blue cheeses. Appl Microbiol Biotechnol.100: 8303-13.

-García-Estrada C, Barreiro C, Jami MS, Martín-González J, Martín JF. (2013). The inducers 1,3-diaminopropane and spermidine cause the reprogramming of metabolism in *Penicillium chrysogenum,* leading to multiple vesicles and penicillin overproduction. Journal of Proteomics. 24: 129-159.

-Martín JF, Ullán RV, García-Estrada C. (2012). Role of peroxisomes in the biosynthesis and secretion of β-lactams and other secondary metabolites. Journal of Industrial Microbiology and Biotechnology. 39:367-82.

-Domínguez-Santos R, Martín JF, Kosalková K, Prieto C, Ullán RV, García-Estrada C. (2012). The regulatory factor PcRFX1 controls the expression of the three genes of β-lactam biosynthesis in *Penicillium chrysogenum*. Fungal Genetics and Biology. 49: 866-881.

-García-Estrada C, Ullán RV, Albillos SM, Fernández-Bodega MÁ, Durek P, von Döhren H, Martín JF. (2011). A single cluster of coregulated genes encodes the biosynthesis of the mycotoxins roquefortine C and meleagrin in *Penicillium chrysogenum*. Chemistry and Biology. 18: 1499-1512.

C.2. Research projects and grants

1. Reference: RTC-2017-6173-1 (Retos Colaboración 2017).
Title: Producción de Cannabinoides con aplicación farmacológica mediante el desarrollo de una innovadora tecnología de fermentación basada en plataformas biotecnológicas Fúngicas
Funding agency: Ministerio de Ciencia, Innovación y Universidades
Principal Investigator: Carlos García Estrada
Institution. INBIOTEC and Antibioticos de León SLU
Duration: (01/07/2018-31/12/2020). Budget (in euros): 279.115,00
Type of participation: Principal Investigator. Current status: granted

2. Reference: Red de Centros Tecnológicos de Castilla y León.
Title: Biotecnología aplicada a microorganismos para la obtención de APIs para el sector biofarmacéutico
Funding agency: Junta de Castilla y León
Principal Investigator: Carlos García Estrada
Institution. INBIOTEC
Duration: (01/11/2016-31/12/2017). Budget (in euros): 100.000
Type of participation: Principal Investigator. Current status: finished

3. Reference: 282881 (VII FP)
Título: New biocoating for inhibition of corrosion in metal surfaces “BIOCORIN”Funding agency: EUROPEAN UNION. Call: VII Frame Program
Principal Investigator: Edith Guedella Bustamante
Institution. Acciona Infraestructuras + 8 additional partners (including INBIOTEC)
Duration: (01/03/2012-31/08/2015). Budget (in euros): 489.402
Type of participation: Researcher. Current status: finished

4. Reference: CCTT/10/LE/001
Título: Valorización de residuos agroindustriales mediante la producción de nuevas feruloyl esterasas
Funding agency: Agencia de Inversiones y Servicios. Junta de Castilla y León. Convocatoria: Programa de I+D en colaboración
Principal Investigator: Ricardo Vicente Ullán
Institution: INBIOTEC
Duration: (01/01/2010-31/12/2011). Budget (in euros): 145.248,89
Type of participation: Investigador. Current status: finished

5. Reference: IAP-600100-2008-23
Título: Desarrollo de nanoencapsulados para uso alimentario
Funding agency: Ministerio de Ciencia e Innovación. Convocatoria: Subprograma Investigación Aplicada. Centros Tecnológicos
Principal Investigator: Carlos García Estrada (INBIOTEC). Gregorio Antolín Giraldo (CARTIF)
Institution: CARTIF, INBIOTEC, CNTA, AZTI, AINIA
Duration: (12/05/2008-31/03/2011). Budget (in euros): 147.443
Type of participation: Principal Investigator. Current status: finished

C.3. Contracts

1. Title: Caracterización de cultivos bacterianos iniciadores con capacidad conservante de alta especificidad especialmente adaptados a productos cárnicos curados
   Funding agency: Campofrío Food Group SA
   Principal investigator and institution: Carlos García Estrada and Irene Santamarta, INBIOTEC

Duration: (31/12/2017-30/06/2019)
Budget (in euros): 125.000

2. Title: Investigación, Diseño y Desarrollo de un producto cárnico enriquecido, con propiedades saludables (INPROCEPS)
Funding agency: Campofrío Food Group SA
Principal investigator and institution: Rafael Balaña and Carlos García Estrada, INBIOTEC
Duration: (01/01/2014-31/05/2017)
Budget (in euros): 347.300

3. Title: Subjected to confidential agreement until 16/11/2021
Funding agency: International Pharmaceutical Company (Subjected to confidential agreement until 16/11/2021)
Principal investigator and institution: Carlos García Estrada, INBIOTEC
Duration: (01/09/2012-28/02/2014)
Budget (in euros): 185.894

4. Title: Funcionalidad de probióticos inactivados
Funding agency: Grupo Leche Pascual SAU
Principal investigator and institution: Carlos García Estrada, INBIOTEC
Duration: (01/12/2010-30/11/2013)
Budget (in euros): 425.000

5. Title: Subjected to confidential agreement
Funding agency: National Pharmaceutical Company (Subjected to confidential agreement)
Principal investigator and institution: Carlos García Estrada and Alberto Sola, INBIOTEC
Duration: (01/09/2012-30/06/2013)
Budget (in euros): 44.175

C.4. Patents

1. Irene Santamarta Hernández, Silvia M. Albillos, Ricardo V. Ullán, Rafael Balaña-Fouce, Carlos García Estrada. *Lactobacillus casei* PI-gal CECT 8271. Tratado de Budapest sobre el reconocimiento internacional del depósito de microorganismos para fines de patentes. Empresa de explotación: Grupo Leche Pascual SAU.

2. Carlos García Estrada, Silvia M. Albillos, Ricardo V. Ullán, Rafael Balaña-Fouce, Irene Santamarta Hernández. *Lactobacillus fermentum* PI-gal CECT 8272. Tratado de Budapest sobre el reconocimiento internacional del depósito de microorganismos para fines de patentes.. Empresa de explotación: Grupo Leche Pascual SAU.

C.5. Membership of editorial boards
-Member of the editorial board of Fungal Biology and Biotechnology since 2014.

C.6. Awards
- Extraordinary Doctorate Award (2004).

C.7. Teaching activities
-Adjunct Professor at the Department of Biomedical Sciences (University of León) since September 2011-February 2021.
-Assistant Professor at the Department of Biomedical Sciences (University of León) since March 2021.

C.8. Institutional responsabilities