



## 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	Lara María		
Family name	Bossini Castillo		
Gender (*)	Female	Birth date (dd/mm/yyyy )	01/08/1986
Social Security, Passport, ID number	75719859H		
e-mail	lbossinicastillo@ugr.es	URL Web	
Open Researcher and Contributor ID (ORCID) (*)	0000-0002-5471-5824		

(\*) *Mandatory*

#### A.1. Current position

Position	Associate Professor (Profesora Contratada Doctora Indefinida)		
Initial date	24/02/2023		
Institution	University of Granada		
Department/Center	Department of Genetics		
Country	Spain	Teleph. number	+34 663148283
Key words	240900 - Genetics; 241007 - Human genetics; 320102 - Clinical genetics; 40903 - Population genetics; 240991 - Genetic Development		

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

Period	Position/Institution/Country/Interruption cause
2020 - 2023	Contratos de incorporación de doctores (Juan de la Cierva Incorporación) / University of Granada
2019 - 2019	Postdoctoral Researcher / Consejo Superior de Investigaciones
2019 - 2019	Investigador Postdoctoral - Postdoctoral Fellow / Wellcome Trust Sanger Institute / United Kingdom
2016 - 2019	MRC Skills Development Fellowship - Investigador Postdoctoral - Postdoctoral Fellow / Wellcome Trust Sanger Institute / United Kingdom
2015 - 2016	Investigador Postdoctoral - Postdoctoral Fellow / Wellcome Trust Sanger Institute
2014 - 2015	Titulado superior de actividades técnicas y profesionales (Licenciado en Biología) - Researcher / Consejo Superior de Investigaciones Científicas
2010 - 2014	Becaria FPI (Formación del personal Investigador, PhD student research fellowship) / Ministerio de Economía y Competitividad

#### A.3. Education

PhD, Licensed, Graduate	University/Country	Year
Biomedicina (Biomedicine)	Universidad de Granada	2014
Máster en Investigación y Avances en Inmunología molecular y celular (Research	Universidad de Granada	2011

& Advances in Molecular and Celular Immunology Master)		
Licenciado en Biología (Bachelor of Science Degree in Biology)	Universidad de Granada	2009

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

I am an emerging researcher with a long-standing and high impact career in science. I have contributed to 50 JCR scientific publications (42 published in Q1 journals, 26 in D1, 7 in the top journal of the field in the year of publication, 19 as first author, 6 as last author, and 13 as corresponding author), and my work has been cited more than 2,952 times (h-index = 29; i10-index = 39). In addition, I have presented my work at multiple national and international conferences (34 contributions), with selected oral communications in 17 of them and I have received several awards.

During the last 10 years, I participated actively in 9 research projects including a European collaborative project (PRECISESAD), one currently active project (PID2023-152215OB-I00, 01/09/2024 - 31/08/2027, 275,000 €) and I am PI of another (C-CTS-273-UGR23, 01/01/2024-31/12/2026, 15.000 €.). Moreover, in every phase of my academic and scientific training, I put in different applications in competitive calls and I was granted funding for the different projects in which I was involved. After finishing my degree in Biology and a MSc in Immunology, I undertook a PhD to identify genetic susceptibility factors for autoimmune diseases, especially for systemic sclerosis (SSc). Hosted by the Instituto de Parasitología y Biomedicina "López-Neyra" and Prof. Javier Martín, my research resulted in a doctoral thesis awarded with Cum Laude International Doctor honours and several publications in international high impact journals. I became proficient in managing high-throughput genotyping arrays and the state-of-the-art statistical analyses applied in Genome-Wide Association Studies (GWAS).

As a postdoctoral fellow, I moved to the Functional Genomics field when I enrolled the Wellcome Trust Sanger Institute (Cambridge, UK), one of the premier centres of genomic discovery. I was awarded a prestigious Skills Development Fellowship by the UK Medical Research Council to develop an integrative analytical approach that combined next generation sequencing (NGS) data from genomic, transcriptomic and epigenomic levels to analyse the effects of disease associated polymorphisms. My findings highlighted the role of regulatory T cells (Tregs) in autoimmune disorders and identified Treg-specific genomic features. In this stage of my scientific development, I was also trained in the analysis of single cell RNA sequencing (scRNAseq) datasets by world-leading experts at the WTSI. I also established collaborations with different groups in UK and Europe resulting in several high-impact publications, especially 2 reports published in Nature. In the first of them, Hagai et al. 2018, a scRNA-seq analysis was performed to characterize the innate immune response in humans, mice, rats and macaques. And in Nasrallah et al. 2020, I was the second author and the lead analyst of human Treg multiomic data.

In 2020, I joined the University of Granada under the highly competitive Juan de la Cierva Incorporación Fellowship programme. In 2022, I was granted an Associate Professor (Profesora Contratada Doctora Indefinida) position in the Department of Genetics (University of Granada). Moreover, I recently contributed as co-last author and co-corresponding author to a report characterizing circulating CD14+ monocytes in the peripheral blood of systemic sclerosis patients using scRNA-seq technologies. This was my first scRNA-seq study in Granada and was published in a D1 journal (Villanueva-Martín et al. 2023. Journal of Autoimmunity).

Currently, I teach several subjects in the Biology and Biotechnology Degrees and I am establishing a new multi-omics and scRNA-seq technology research line to address the genetic basis of complex human traits, which is particularly focused on the genetic control of the immune system. Furthermore, I co-supervised a recently defended PhD thesis in the "Biomedicine", which obtained a Cum laude grade by unanimity. And I am currently the PhD co-supervisor of a student enrolled the PhD program in "Fundamental and Systems Biology".

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

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

**1 Scientific paper.** Cerván-Martín M; González-Muñoz S; Guzmán-Jiménez A; et al; Carmona FD\*. Changes in environmental exposures over decades may influence the genetic architecture of severe spermatogenic failure. Position: 15/15 (**Shared last authorship**). *Human Reproduction*. 2024. In press. IF: 6.1 Category: Obstetrics & Gynecology (9/85, D1). DOI: 10.1093/humrep/deae007

**2 Scientific paper.** Villanueva-Martin G; Acosta-Herrera M; Carmona EG; et al; Martin J\*; Bossini-Castillo L\* Non-classical circulating monocytes expressing high levels of microsomal prostaglandin E2 synthase-1 tag an aberrant IFN-response in systemic sclerosis. Position: 12/12 (**Corresponding author and shared last authorship**). *Journal of Autoimmunity*. 2023. 140, pp.103097-103097. IF: 12.8 Category: Immunology (14/161, D1).

**3 Scientific paper.** Martín-Masot R; Herrador-López M; Navas-López VM; Carmona FD; Nestares T; Bossini-Castillo L. Celiac Disease Is a Risk Factor for Mature T and NK Cell Lymphoma: A Mendelian Randomization Study. Position: 6/6 (**Corresponding author and shared last authorship**). *International Journal of Molecular Sciences*. 2023. 24 - 8, pp. 7216 - 7216. /2023. IF: 5.6 Category: Biochemistry & Molecular Biology (66/285, Q1).

**4 Scientific paper.** Bossini-Castillo L; Glinos DA; Kunowska N; et al; Trynka G. Immune disease variants modulate gene expression in regulatory CD4+ T cells. Position: 1/18. (**First author**). *Cell Genomics*. 2022. 2, pp.100117-100117. IF: 11.1 Category: Genetics & Heredity (7/191, D1).

**5 Scientific paper.** López-Rodrigo O.\*; Bossini-Castillo L.\*; Carmona F.D.; Bassas L.; Larriba S. Genome-wide compound heterozygote analysis highlights DPY19L2 alleles in a non-consanguineous Spanish family with a complete form of globozoospermia. Position: 1/5 (**Shared first authorship**). *Reproductive BioMedicine Online*. 2022. 45-2, pp.332-333. IF: 4.567 Category: Obstetrics & Gynecology (14/85, D1).

**6 Scientific paper.** Soskic B; Cano-Gamez E; Smyth DJ; et al; Trynka G. Immune disease risk variants regulate gene expression dynamics during CD4+ T cell activation. Position: 7/17. *Nature Genetics*. 2022. 54-6, pp.817-826. IF: 41.376 Category: Genetics & Heredity (2/175, D1).

**7 Scientific paper.** Bossini-Castillo L.\*; Villanueva-Martin G.\*; Kerick M.; et al; Martin J. Genomic Risk Score impact on susceptibility to systemic sclerosis. Position: 1/23 (**Corresponding author and shared last authorship**). *Annals of the Rheumatic Diseases*. 2021. 80-1, pp.118-127. IF: 28.003 Category: Rheumatology (3/34, D1).

**8 Scientific paper.** Nasrallah R.\*; Imianowski C.J.\*; Bossini-Castillo L.; et al; Roychoudhuri R. A distal enhancer at the 11q13.5 risk locus promotes Treg-mediated suppression of colitis. Position: 2/26. *Nature*. 2020. 583, pp.447-452. IF: 49.962 Category: Multidisciplinary Sciences (1/72, D1).

**9 Scientific paper.** Soskic B; Cano-Gamez E; Smyth DJ; et al; Trynka G. Chromatin activity at GWAS loci identifies T cell states driving complex immune diseases. Position: 7/12. *Nature Genetics*. 2019. 51, pp.1486-1493. IF: 27.605 Category: Genetics & Heredity (2/178, D1).

**10 Scientific paper.** Hagai T; Chen X; Miragaia RJ; et al; Teichmann SA. Gene expression variability across cells and species shapes innate immunity. Position: 11/23. *Nature*. 2018. 563-7730, pp.197-202. IF: 43.070 Category: Multidisciplinary Sciences (1/69, D1).

**11 Scientific paper.** Bossini-Castillo L; de Kovel C; Kallberg H; et al; Koeleman BP. A genome-wide association study of rheumatoid arthritis without antibodies against citrullinated peptides. Position: 1/37 (**First author**). *Annals of the Rheumatic Diseases*. 2015. 74, pp.e15. IF: 12.384 Category: Rheumatology (1/32, D1).

### C.2. Congress, indicating the modality of their participation (invited conference, oral presentation, poster)

**1 Oral communication.** Rafael Martín Masot, Nerea Correa-López, Marta Herrador López, Víctor Manuel Navas López, Francisco David Carmona López, Teresa Nestares Pleguezuelo, Lara Bossini-Castillo. LA DIETA SIN GLUTEN MODULA LA RESPUESTA INMUNOLÓGICA A NIVEL SISTÉMICO EN NIÑOS CON CELIAQUÍA. XXX Congreso Nacional de la Sociedad Española de Gastroenterología, Hepatología y Nutrición Pediátrica. 2024. Bilbao, Spain.

**2 Oral communication.** Martín Masot R, Nestares Pleguezuelo T, Herrador López M, Navas López VM, Carmona López FD, Bossini Castillo L. Importancia de la dieta sin gluten en el

perfil inflamatorio de pacientes celíacos: estudio mediante técnica de SCRNA-SEQ.. XXX Congreso Nacional de la Sociedad Española de Gastroenterología, Hepatología y Nutrición Pediátrica. 2023. Córdoba, Spain.

**3 Oral communication.** Martín Masot R; Herrador López M; Navas Lopez VM; Carmona López FD; Bossini-Castillo L. Study using scRNA-seq of the effect of a gluten-free diet on the immune profile in pediatric patients with celiac disease. VIII Congreso de la Sociedad Española de Enfermedad Celíaca. Sociedad Española de Enfermedad Celíaca (SEEC). 2022. Madrid, Spain.

**4 Oral communication.** Martín Masot R; Herrador López M; Navas López VM; et al. Bossini-Castillo L. Analysis of the causal effect of celiac disease on the development of T-cell lymphoma beyond HLA genetic factors: a Mendelian randomization study. XXVIII Congreso Nacional de la Sociedad Española de Gastroenterología, Hepatología y Nutrición Pediátrica. 2022. Spain.

**5 Oral communication.** Bossini-Castillo L; López-Rodrigo O; Carmona FD; Bassas L; Larriba S. Genome-wide compound heterozygote analysis highlights DPY19L2 alleles in a non-consanguineous Spanish family with a complete form of globozoospermia. 27th Meeting of the EAU Section of Urological Research. European Association of Urology. 2021. Virtual

**6 Oral communication.** Cerván Martín M; Tüttelmann F; Lopes AM; et al; Carmona FD. New insight into the genetic contribution of common variants to the development of extreme phenotypes of unexplained male infertility: a multicenter genome-wide association study. ESHRE Annual Meeting 2021. European Society of Human Reproduction. 2021.

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

**1 Project.** PID2020-120157RB-I00, Deciphering the immunological component of extreme patterns of male infertility: a multiomic approach (IMMFERT). Proyectos de Generación de Conocimiento (Plan Nacional 2023). PI: F. David Carmona. (University of Granada). 01/09/2024- 31/08/2027. 275.000 €.

**2 Project.** C-CTS-273-UGR23 - Atlas transcripcional de la infertilidad masculina debida a alteraciones de la espermatogénesis. Junta de Andalucía. **PI: Bossini-Castillo.** (University of Granada). 01/01/2024-31/12/2026. 15.000 €.

**3 Project.** TED2021-131285B-I00, Evaluación de la diversidad genómica del topillo nival, *Chionomys nivalis*, y su capacidad de adaptación al cambio climático. PROYECTOS DE TRANSICIÓN ECOLÓGICA Y TRANSICIÓN DIGITAL 2021. PI: Rafael Jiménez Medina. (University of Granada). 01/06/2023-01/06/2025. 126.950 €.

**4 Project.** PID2020-120157RB-I00, Caracterización molecular de entidades subclínicas de la infertilidad masculina (AZOONÓMICA2). PROYECTOS I+D+I – PROGRAMA ESTATAL DE INVESTIGACIÓN, DESARROLLO E INNOVACIÓN ORIENTADA A LOS RETOS DE LA SOCIEDAD. PI: F. David Carmona. (University of Granada). 01/09/2021- 31/08/2024. 217.800 €.

**5 Project.** PY20\_00212 Estudio de las causas genéticas de la infertilidad masculina debida a fallo espermatogénico. Proyectos de I+D+i destinados a las universidades y entidades públicas de investigación calificadas como agentes del Sistema Andaluz del Conocimiento, en el ámbito del Plan Andaluz de Investigación, Desarrollo e Innovación (PAIDI 2020). PI: F. David Carmona. (University of Granada). 01/01/2021-31/12/2022. 75.000 €.

**6 Project.** CV20-77708 - Análisis Multi-Omico en pacientes con Covid-19 como predictor de la evolución de la enfermedad y su respuesta al tratamiento. Junta de Andalucía. (FIBAO, University of Granada). PI: Julio Gálvez. 09/09/2020-08/09/2021. 75.000 €.

**7 Project.** SAF2016-78722-R Identification and characterization of the molecular mechanisms underlying non-obstructive azoospermia by integrating genomic and transcriptomic data. Ministerio de Ciencia e Innovación. PI: Francisco David Carmona López. (Universidad de Granada). 01/01/2017-2021. 145.000 €.

**8 Project.** Molecular reclassification to find clinically useful biomarkers for systemic autoimmune diseases (PRECISESAD). INTERNACIONAL. European Federation of Pharmaceutical Industries and Associations (EFPIA) (ref: 115565); Comisión Europea. Marta Alarcón Riquelme. (Instituto de Parasitología y Biomedicina López-Neyra). 2014- 2019. 22.700.000 €.