

## CURRICULUM VITAE

<b>CV date</b>	July 30, 2025
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### Part A. PERSONAL INFORMATION

First name	Ana		
Family name	Djukovic (Đuković)		
Gender	Female	Birth date	December 2, 1988
Social Security, Passport, ID number			
e-mail	<a href="mailto:adjukovic@cipf.es">adjukovic@cipf.es</a>	URL Web	
Open Researcher and Contributor ID (ORCID) (*)	<a href="https://orcid.org/0000-0001-8068-7188">https://orcid.org/0000-0001-8068-7188</a>		

#### A.1. Current position

Position	Group Leader		
Initial date	June 1, 2025		
Institution	Centro de Investigación Príncipe Felipe (CIPF)		
Department/Center	Metabolic Disorders / Microbiome Mechanisms in Health & Disease Lab		
Country	Spain	Tel. number	+34 963 289 681 Ext. 2010
Key words	microbiota, colonization resistance, antibiotic resistant pathogens, microbiota-host interaction, tryptophan metabolism, metabolomics, cancer		

#### A.2. Previous positions (and research activity interruptions)

Period	Position/Institution/Country/Interruption cause
03/2018-02/2025	Senior Research Scientist / Memorial Sloan Kettering Cancer Center (MSKCC) / USA
10/2022-02/2023	Maternity leave / 5 months
09/2017-01/2018	Postdoctoral Researcher / The Foundation for the Promotion of Health and Biomedical Research of Valencia Region (FISABIO) / Spain
06/2016-09/2016	Visiting Research Fellow / Memorial Sloan Kettering Cancer Center (MSKCC) / USA
09/2012-09/2017	Ph.D. Student / The Foundation for the Promotion of Health and Biomedical Research of Valencia Region (FISABIO) / Spain
03/2012-08/2012	M.Sc. Student / The Foundation for the Promotion of Health and Biomedical Research of Valencia Region (FISABIO) / Spain
06/2011-07/2011	Exchange Student / The International Association for the Exchange of Students for Technical Experience (IAESTE) / SADA P.A. / Spain

#### A.3. Education

Ph.D., Licensed, Graduate	University/Country	Year
Ph.D. in Biotechnology	Universitat Politècnica de València (Polytechnic University of Valencia) / Spain	2017
M.Sc. in Biology	Универзитет у Београду (University of Belgrade) / Serbia	2012
B.Sc. in Biology	Универзитет у Београду (University of Belgrade) / Serbia	2010

### Part B. CV SUMMARY

I am a microbiome scientist dedicated to uncovering mechanistic principles of host–microbiota interactions with translational relevance. My research integrates experimental and computational approaches to reveal how microbial communities shape host physiology and disease.

During my Ph.D. with Dr. Carles Ubeda, I coordinated a multi-institutional European project (ERANET Infect-ERA). My work uncovered a protective mechanism driven by species-species interactions in the gut, culminating in butyrate production that restricted colonization by multidrug-resistant Enterobacteriaceae (MRE). This work resulted in a first-author publication in *Nature Communications*. I established and curated a clinical biobank of over 1,000 fecal samples and, during a research stay at Memorial Sloan Kettering Cancer Center (MSKCC), applied ecological modeling to these data with support from a Boehringer Ingelheim Fonds Travel Grant.

This experience catalyzed my transition into systems biology and brought me back to MSKCC for my postdoctoral work in the group of Dr. Joao Xavier. Here, I contributed to large-scale analyses of >10,000 fecal samples from immunocompromised patients, providing new insights into microbial dynamics, nutrient competition, and pathogen resistance (*Cell Host & Microbe*). In another study, I showed that enrichment of oral bacteria in feces of patients with intestinal disorders reflects gut microbiota depletion (*Nature Microbiology*). I also expanded the group's experimental capabilities by introducing mouse models and training staff in *in vivo* techniques.

Motivated by a growing interest in microbe–host metabolic crosstalk, I initiated a new research line investigating how gut bacteria influence host tryptophan metabolism, particularly the kynurenine pathway, implicated in cancer progression. I co-wrote a successful Basic Research Innovation Award pilot grant that funded this work, and the results now form the foundation of my independent research program.

In 2022, I took a five-month parental leave after the birth of my son. After resuming research, I successfully transitioned to independence: in 2025 I joined Centro de Investigación Príncipe Felipe (CIPF) as a Group Leader, supported by the prestigious Ramón y Cajal fellowship from the Spanish State Research Agency. Since then, I have secured national funding (Knowledge Generation Grant) to establish my laboratory's research on microbiota–host interactions in tryptophan metabolism and cancer.

My long-term vision is to leverage interdisciplinary strategies combining microbiology, systems biology, and translational models to uncover fundamental mechanisms of host–microbiota crosstalk and to develop microbiota-based strategies for disease prevention and therapy.

## Part C. RELEVANT MERITS (up to 10 for each section)

### C.1. Publications

- Liao, Chen\*; Rolling, Thierry\*; **Djukovic, Ana\***; et al; Hohl, Tobias M.; Xavier, Joao B. Oral bacteria relative abundance in faeces increases due to gut microbiota depletion and is linked with patient outcomes. *Nat. Microbiol.* (2024) doi:10.1038/s41564-024-01680-3. **\*Equal contribution [position: 1/11 – shared first authorship; journal impact factor (JIF): 19.400 / first decile (D1)]**
- Schluter, Jonas\*; **Djukovic, Ana\***; Taylor, Bradford P\*; et al; Xavier, Joao B. 2023. The TaxUMAP atlas: Efficient display of large clinical microbiome data reveals ecological competition in protection against bacteremia. *Cell Host Microbe*. Elsevier BV. 31-7, pp.1126-1139.e6. **\*Equal contribution [position: 1/18 – shared first authorship; JIF: 20.600 / D1]**
- **Djukovic, Ana**; Garzon, Maria Jose; Canlet, Cecile; et al; Ubeda, Carles. 2022. *Lactobacillus* supports Clostridiales to restrict gut colonization by multidrug-resistant Enterobacteriaceae. *Nat. Commun.* Springer Science and Business Media LLC. 13-1, pp.5617-5617. **[position: 1/22; JIF: 16.600 / D1]**
- Lin, Wendy; **Djukovic, Ana**; Mathur, Deepti; Xavier, Joao B. 2021. Listening in on the conversation between the human gut microbiome and its host. *Curr. Opin. Microbiol.* Elsevier BV. 63, pp.150-157. **[position: 2/4; JIF: 7.584 / first quartile (Q1)]**
- **Djukovic, Ana**; Gonzalez-Barbera, Eva M; Sanz, Jaime; et al; Ubeda, Carles. 2020. High heterogeneity of multidrug-resistant Enterobacteriaceae fecal levels in hospitalized patients is partially driven by intravenous beta-lactams. *Antimicrob. Agents Chemother.* American Society for Microbiology. 64-2. **[position: 1/16; JIF: 5.191 / Q2]**

- Rechenberger, Julia; Samaras, Patroklos; Jarzab, Anna; et al; Kuster, Bernhard. 2019. Challenges in clinical metaproteomics highlighted by the analysis of acute leukemia patients with gut colonization by multidrug-resistant Enterobacteriaceae. *Proteomes*. MDPI AG. 7-1, pp.2-2. [position: 6/18; JIF: 3.300 / based on 2022 data / NA]
- Djukovic, Ana; Garcia-Garcera, Marc; Martinez-Paredes, Eugenio; Isaac, Sandrine; Artacho, Alejandro; Martinez, Jorge; Ubeda, Carles. 2018. Gut colonization by a novel *Clostridium* species is associated with the onset of epizootic rabbit enteropathy. *Vet. Res.*49-1, pp.123-123. [position: 1/7; JIF: 3.117 / D1]
- Ubeda, Carles; Djukovic, Ana; Isaac, Sandrine. 2017. Roles of the intestinal microbiota in pathogen protection. *Clin. Transl. Immunology*. 6-2, pp.e128-e128. [position: 2/3; JIF: 7.271 / Q1 / based on 2018 data / Q2]
- Isaac, Sandrine; Scher, Jose U; Djukovic, Ana; Jimenez, Nuria; Littman, Dan R; Abramson, Steven B; Pamer, Eric G; Ubeda, Carles. 2017. Short- and long-term effects of oral vancomycin on the human intestinal microbiota. *J. Antimicrob. Chemother.*72-1, pp.128-136. [position: 3/8; JIF: 5.217 / D1]
- Thompson, Jessica Ann; Oliveira, Rita Almeida; Djukovic, Ana; Ubeda, Carles; Xavier, Karina Bivar. 2015. Manipulation of the quorum sensing signal AI-2 affects the antibiotic-treated gut microbiota. *Cell Rep.*Elsevier BV. 10-11, pp.1861-1871. [position: 3/5; JIF: 7.870 / Q1]

#### Complete list of my publications:

<https://www.ncbi.nlm.nih.gov/myncbi/ana.djukovic.1/bibliography/public/>

### C.2. Congresses

- **2024 – Microbiome (Cold Spring Harbor Laboratory, USA).** Participatory – poster: “Gut microbiome-mediated regulation of the kynurenine pathway”.
- **2023 – New York Bacillus/Bacteria Interest Group 2023 Conference (New York University, New York, USA).** Participatory – oral communication: “The impact of antibiotics and gut microbiome on the host’s kynurenine pathway”.
- **2022 – Microbiota Series Seminar (Memorial Sloan Kettering Cancer Center, New York, USA).** Participatory – invited talk: “The TaxUMAP atlas of clinical microbiome data for the discovery of causal microbiome health effects reveals ecological protection against infection”.
- **2020 – Miami Winter Symposium 2020: Molecular Mechanisms Linking the Microbiome and Human Health Conference (Miami, USA).** Participatory – poster: “The role of oxygen in shaping the gut microbiome”.
- **2019 – Systems Biology for Clinical Infectious Diseases Research Symposium (Galveston, USA).** Participatory – poster: “The role of oxygen in shaping the gut microbiome”.
- **2017 – FEMS, 7<sup>th</sup> Congress of European Microbiologists (Valencia, Spain).** Participatory – poster: “Identification of clinical variables and commensal bacterial species associated with intestinal colonization by multidrug-resistant Enterobacteriaceae in acute leukaemia patients”.
- **2017 – 27<sup>th</sup> European Congress of Clinical Microbiology and Infectious Diseases (Vienna, Austria).** Participatory – poster: “Identification of clinical variables and commensal bacterial species associated with intestinal colonization by multidrug-resistant Enterobacteriaceae in acute leukaemia patients”.
- **2016 – ConBioPreVal, I Congreso Nacional de Jóvenes Investigadores en Biomedicina - III Congreso de Biomedicina Predocs Valencia (Valencia, Spain).** Participatory – oral communication: “Application of Lotka-Volterra equation for identification of commensal bacterial strains that prevent colonization by multidrug resistant Enterobacteriaceae (MRE) in hospitalized patients”.
- **2015 – ConBioPreVal, II Congreso de Biomedicina Predocs Valencia (Valencia, Spain).** Participatory – poster: “The role of the microbiota in the defense against antibiotic resistant pathogens”.
- **2015 – IHMC, 5<sup>th</sup> International Human Microbiome Congress (Luxembourg).** Participatory – poster: “Microbiota dysbiosis associated with epizootic rabbit enteropathy occurs after disease onset”.

### C.3. Research projects

- **Project title:** Unraveling the role of tryptophan metabolism in host-gut microbiota crosstalk for development of microbiota-based anticancer therapies. **Funding body:** The State Research

Agency (Spain), Knowledge Generation Projects 2024. **Principal Investigator:** Dr. Ana Djukovic. **Project duration:** 01/09/2025 – 01/09/2028. **Funding:** 334,200 €.

- **Project title:** Unraveling the role of tryptophan metabolism in host-gut microbiota crosstalk for development of microbiota-based anticancer therapies. **Funding body:** Foundation Salamanca City of Culture and Knowledge, Programme for Attracting Scientific Talent to Salamanca. **Principal Investigator:** Dr. Ana Djukovic. **Funding:** 510,000 €. Declined due to incompatibility with Ramón y Cajal contract.
- **Project title:** Unraveling the role of tryptophan metabolism in host-gut microbiota crosstalk for development of microbiota-based anticancer therapies. **Funding body:** The Community of Madrid, Grants for Attraction of Research Talent “César Nombela” 2024. **Principal Investigator:** Dr. Ana Djukovic. **Funding:** 420,000 €. Declined due to incompatibility with Ramón y Cajal contract.
- **Project title:** Unraveling the role of tryptophan metabolism in host-gut microbiota crosstalk for development of microbiota-based anticancer therapies. **Funding body:** The State Research Agency (Spain), “Ramón y Cajal” 2023 grants. **Principal Investigator:** Dr. Ana Djukovic. **Project duration:** 01/06/2025 – 01/06/2030. **Funding:** 321,800 €.
- **Project title:** Intestinal microbiota damage and its impact on the kynurenine pathway. **Funding body:** Sloan Kettering Institute, USA. **Principal Investigator:** Dr. Joao Xavier. **Project duration:** 01/07/2019 – 01/07/2021. **Funding:** 25,000 \$.
- **Project title:** Mathematical ecology models of host-microbiota interaction in auto microbiota transplants (auto-FMT). **Reference:** 5 R01 AI137269-05. **Funding body:** National Institute of Allergy and Infectious Diseases, USA. **Principal Investigator:** Dr. Joao Xavier and Dr. Ying Taur. **Project duration:** 01/02/2019 – 31/01/2024. **Funding:** 3,799,105 \$.
- **Project title:** Systems Biology of Microbiome-mediated Resilience to Antibiotic-resistant Pathogens. **Reference:** 5 U01 AI124275-05. **Funding body:** National Institute of Allergy and Infectious Diseases, USA. **Principal Investigator:** Dr. Joao Xavier and Dr. Eric Pamer. **Project duration:** 01/03/2016 – 28/02/2020. **Funding:** 6,167,585 \$.
- **Project title:** The role of the microbiota in the defense against multidrug resistant Enterobacteriaceae. **Reference:** PCIN-2015-094. **Funding body:** ERA-NET Infect-ERA (Seventh Research Framework Programme). **Principal Investigator:** Dr. Carles Ubeda (responsible investigator and coordinator for 6 European groups participating in the project). **Project duration:** May 2016 – December 2020. **Funding:** 150,000 € for Dr. Ubeda’s group, 861,973 € in total.
- **Project title:** Estudio del efecto protector del microbioma frente a infecciones por Enterococo. **Reference:** SAF2014-60234R. **Funding body:** The Ministry of Economic Affairs and Digital Transformation - Retos. **Principal Investigator:** Dr. Carles Ubeda. **Project duration:** January 2015 – December 2017. **Funding:** 160,000 € + FPI scholarship.
- **Project title:** Role of the microbiota in defense against Enterococcal infections. **Reference:** SAF2011-29458. **Funding body:** The Ministry of Science and Innovation. **Principal Investigator:** Dr. Carles Ubeda. **Project duration:** January 2012 – December 2014. **Funding:** 140,000 € + FPI scholarship.