

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	Abelardo		
Family name	Margolles Barros		
Gender	Male	Birth date	07/12/1968
Social Security, Passport, ID number	52612587H		
e-mail	amargolles@ipla.csic.es	URL Web: ipla.csic.es	
Open Researcher and Contributor ID (ORCID) (*)		0000-0003-2278-1816	

A.1. Current position

Position	Profesor de Investigación del CSIC		
Initial date	20-09-2018		
Institution	Dairy Research Institute of Asturias (IPLA) Spanish National Research Council (CSIC)		
Department/Center	Microbiology and Biochemistry of Dairy Products		
Country	Spain	Teleph. number	+34 985892131
Key words	Food Microbiology, Probiotics, Prebiotics, Microbiota, Health		

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

Period	Position/Institution/Country/Interruption cause
2008-2018	Investigador Científico, IPLA-CSIC, Spain
2001-2008	Científico Titular, IPLA-CSIC, Spain
2000-2001	Postdoctoral researcher, IPLA-CSIC, Spain
1997-2000	Postdoctoral researcher, University of Groningen, The Netherlands

A.3. Education

PhD, Licensed, Graduate	University/Country	Year
Pharmacy Graduate	Santiago de Compostela	1991
Doctor of Pharmacy	Santiago de Compostela	1997

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

I received my Ph.D. in Pharmacy at the University of Santiago de Compostela, Spain, in 1997. After a postdoctoral stay in the University of Groningen, The Netherlands (1997 to 2000), in 2001 I became Staff Scientist of CSIC. Currently, I hold a *Profesor de Investigación* position. Since 2016 I am the researcher responsible for the MicroHealth group of IPLA-CSIC (www.ipla.csic.es/microhealth/).

My present research interest focuses on technological and health applications of food and intestinal microbiomes, mechanistic studies of the health-promoting effects of foods, intestinal bacteria and prebiotics, as well as the understanding of the molecular interactions between the gut microbiota and the host. My main scientific achievements comprise:

- Elucidation of the molecular response behind the adaptation phenomena of probiotic bacteria to gastrointestinal stress factors.
- Development of probiotics with robust phenotypes, adapted to survive under the technological conditions used in the food industry
- Clarification of the cross-talk mechanisms involved in the communication between intestinal bacteria and the human host.
- Determination of gut and food microbiomes (composition and functionality) under different conditions.

It should be noted that I have been a pioneer in the development of these achievements and my scientific contribution to the generation of new knowledge is supported by more than 200

publications in SCI journals, which received a significant number of citations (I was included in the 2021 Highly Cited Researchers list by Clarivate). I would also like to highlight that thanks to the advances in my research, we have implemented a series of techniques in our research group that allow us to approach studies on the intestinal microbiota from a broad and ambitious perspective. The knowledge in functional genomics and bioinformatics that we have acquired in recent years allows us to carry out sequencing projects of bacterial genomes and metagenomes of complex populations, as well as their functional characterization. In addition, we have the appropriate equipment and experience to perform proteomic, transcriptomic, and flow cytometric studies with microorganisms, as well as with human cells and tissues.

The communication of the results via scientific channels has been carried out mainly with SCI publications, but also through books and book chapters (25 book chapters and editor/coordinator of 2 books.), and congress presentations (more than 40 invited Lectures in national and international meetings). To perform my research, I have led 20 projects funded through competitive public grants (European Union, National and Regional R&D programs). I have also been quite active in establishing international collaborations, with more than one third of my publications co-authored with international authors in the last 10 years.

Regarding the social and economic impact of my research activities, some of the main contributions to society include: i) several innovations whose Intellectual Property Rights were protected through five patents (two of them are being exploited by the companies Microviable Therapeutics and Imperial Innovations Limited) and 2 trade secrets; ii) seven contracts as a PI with the industries Laboratorios Ordesa, Biosearch S.A., Roquette Frères and Diana Nova; iii) since 2016 I am Scientific Founder of the CSIC start-up MicroViable Therapeutics (www.microviable.com); iv) I have also participated in several PhD programs and masters as invited professor in *Universidad de Oviedo*, *Universidad del País Vasco* and *Universidad Europea de Madrid*; v) frequent dissemination activities through well-established science communication platforms (including the tools available in the CSIC delegation of Asturias), press and media channels release.

In relation to my contributions to the development and professional career of young researchers, I was promoter of 10 PhD thesis. Nine out of the ten PhDs currently have positions, in companies or research centers, related to R&D activities. Also, I was the mentor of three Juan de la Cierva Postdoctoral researchers and one Postdoctoral Marie Curie fellow. Other managerial responsibilities include: i) Scientific Collaborator (2012-2015) and Scientific Manager (2015-2016) of the MINECO in the management of the National Plan of R&D for the Food Science & Technology Area; ii) From January 2019, Member of the Bio2 (Functional Biology) Expert Panel at the Research Foundation Flanders (FWO); iii) From May 2023, *Coordinador Adjunto del Área Global VIDA del CSIC*; iv) Project evaluator of national and international funding agencies, including the European Commission, AEI-Spain, ANR-France, FWF-Austria, BSF-Israel, SFI-Ireland, NWO-The Netherlands, SNF-Switzerland.

Part C. RELEVANT MERITS (sorted by typology)

C.1. Selected publications (last 10 years). * Corresponding author.

Marcos-Fernández R, Riestra S, Alonso-Arias* R, Ruiz* L, Sánchez B, **Margolles A**. 2022. Immunomagnetic capture of *Faecalibacterium prausnitzii* selectively modifies the fecal microbiota and its immunomodulatory profile. ***Microbiology Spectrum*** e0181722. DOI: 10.1128/spectrum.01817-22.

Calvete-Torre I, Sabater C, Antón MJ, Moreno FJ, Riestra S, **Margolles* A**, Ruiz* L. 2022. Prebiotic potential of apple pomace and pectins from different apple varieties: Modulatory effects on key target commensal microbial populations. ***Food Hydrocolloids*** 133:107958. DOI: 10.1016/j.foodhyd.2022.107958.

Sabater* C, Calvete-Torre I, Ruiz L, **Margolles A**. 2022. Arabinoxylan and pectin metabolism in Crohn's disease microbiota: an *in silico* study. ***International Journal of Molecular Sciences*** 23:7093. DOI: 10.3390/ijms23137093.

Sabater C, Calvete-Torre I, Villamiel M, Moreno* FJ, **Margolles* A**, Ruiz L. 2021. Vegetable waste and by-products to feed a healthy gut microbiota: current evidence, machine learning and computational tools to design novel microbiome-targeted foods. ***Trends in Food Science & Technology*** 118:399. DOI: 10.1016/j.tifs.2021.10.002

Calvete-Torre I, Muñoz-Almagro N, Pacheco MT, Antón MJ, Dapena E, Ruiz L, **Margolles A**, Villamiel* M, Moreno FJ. 2021. Apple pomaces derived from mono-varietal Asturian ciders production are potential source of pectins with appealing functional properties. **Carbohydrate Polymers** 264:117980. DOI: 10.1016/j.carbpol.2021.117980.

Sabater C, Blanco-Doval A, **Margolles* A**, Corzo N, Montilla A. 2021. Artichoke pectic oligosaccharide characterisation and virtual screening of prebiotic properties using *in silico* colonic fermentation. **Carbohydrate Polymers** 255:117367. DOI: 10.1016/j.carbpol.2020.117367.

Marcos-Fernández R, Ruiz L, Blanco-Míguez A, **Margolles* A**, Sánchez* B. 2021. Precision modification of the human gut microbiota targeting surface-associated proteins. **Scientific Reports** 11:1270. DOI: 10.1038/s41598-020-80187-3.

Molinero N, Ruiz L, Milani C... Delgado* S, **Margolles* A** (17/17). 2019. The human gallbladder microbiome is related to the physiological state and the biliary metabolic profile. **Microbiome** 7:100. DOI: 10.1186/s40168-019-0712-8.

Sánchez* B, Delgado S, Blanco-Míguez A, Lourenço A, Gueimonde M, **Margolles A**. 2017. Probiotics, gut microbiota and their influence on host health and disease. **Molecular Nutrition & Food Research** 61:1600240. DOI: 10.1002/mnfr.201600240.

Hevia A, Milani C, López P... Sánchez* B, **Margolles* A** (13/13). 2014. Intestinal dysbiosis associated with Systemic Lupus Erythematosus. **mBio** 5:e01548-14. DOI: 10.1128/mBio.01548-14.

C.2. Selected invited conferences in congresses (last 10 years)

Basic and applied science in probiotics: a focus on bifidobacteria. First International Workshop Innovation in Food Science. Universidade Federal de Santa Catarina, Florianópolis, SC, Brasil. 16-17 October 2014.

Bifidobacterial adaptation to the gut environment and interaction with the host (Plenary Speaker). International Scientific Conference on Probiotics and Prebiotics. Budapest, Hungary. 20-22 June 2017.

Bifidobacterial strategies to survive and interact with the host (Keynote Address). 10th Microbiome & 7th Probiotics R&D & Business Collaboration Forum: EUROPE. The Hague, The Netherlands. 24-25 May 2022.

C.3. Selected research projects (last 10 years)

TITLE: Harnessing the microbial potential of fermented foods for healthy and sustainable food systems (**DOMINO**). TOPIC: HORIZON-CL6-2021-FARM2FORK-01-14. TYPE OF ACTION: RIA.

FUNDING AGENCY: UE, H2020 Programme. Ref: 101060218.

DURATION: March 2023 - February 2028 (Consortium Agreement signed 18th Nov 2022).

COORDINATOR: Stephane Chaillou, INRAE, France.

MAIN CONTACT PERSON CSIC: Abelardo Margolles.

PRINCIPAL INVESTIGATORS CSIC: Abelardo Margolles (IPLA) and Javier Moreno (CIAL).

NUMBER OF PARTICIPANTS: 3 (IPLA) and 3 (CIAL).

PARTNERS: 19 (from European Union and United Kingdom).

TOTAL FUNDING: 11,999,998 €. CSIC FUNDING: 931,625 €. (IPLA: 548,546.62 €; CIAL: 383,078.38 €).

TITLE: Microbiome Applications for Sustainable food systems through Technologies and Enterprize (**MASTER**). TOPIC: H2020-SFS-2018-1. ACTION: IA.

FUNDING AGENCY: UE, H2020 Programme. Ref: 818368.

DURATION: January 2019 - June 2023.

COORDINATOR: Paul Cotter, Teagasc, Ireland.

PERSON IN CHARGE AT CSIC: Abelardo Margolles.

PRINCIPAL INVESTIGATORS CSIC: Abelardo Margolles (IPLA) and David Yáñez (EEZ).

NUMBER OF PARTICIPANTS: 5 (IPLA) y 3 (EEZ).

PARTNERS: 34 (from European Union, Norway, Canada and New Zealand).

TOTAL FUNDING: 10,950,171.90 €. CSIC FUNDING: 905,353.75 € (IPLA: 442,548.47 €; EEZ: 462,805.28 €).

TITLE: Novel methods for culturing and characterizing next-generation probiotics: a focus on Inflammatory Bowel Disease (**NEXTPROBIO**).

FUNDING AGENCY: MINECO. Ref: AGL2016-78311-R.

DURATION: December 2016 - December 2020.

PRINCIPAL INVESTIGATORS: Abelardo Margolles (PI1) Borja Sánchez (PI2 until July 2019)

NUMBER OF PARTICIPANTS: 8 (awarded with a FPI contract).

INSTITUTIONS: IPLA - CSIC, CIAL - CSIC, Universidad de Vigo, Universidad Complutense de Madrid, Hospital Universitario Central de Asturias, University of Parma (Italy).

FUNDING: 278,300 €.

TITLE: The human bile microbiota: ecology, functionality and relationship to diet and biliary disorders (**MICROBILE**).

FUNDING AGENCY: MINECO. Ref: AGL2013-44761-P.

DURATION: January 2014 - December 2017.

PRINCIPAL INVESTIGATOR: Abelardo Margolles.

NUMBER OF PARTICIPANTS: 11 (awarded with a FPI contract).

INSTITUTIONS: IPLA - CSIC, Universidad de Oviedo, Hospital Universitario Central de Asturias, Hospital de Cabueñes, Hospital de la Santa Creu y Sant Pau, ProbiSearch S.L., University of Geneva (Switzerland), University of Parma (Italy).

FUNDING: 254,100 €.

C.4. Selected contracts, technological or transfer merits (last 10 years).

TITLE OF THE **CONTRACT**: Detección y caracterización de determinantes genéticos responsables de resistencias a antibióticos en *Bifidobacterium*. Fase II.

FUNDING COMPANY: BioSearch S.A. Contrato de I+D en el marco del proyecto CIEN "Investigación, desarrollo e innovación en nuevos alimentos multifuncionales para síndrome metabólico – METASIN". Ref: 110108150004.

DURATION: September 2015 - April 2016.

PRINCIPAL INVESTIGATOR: Abelardo Margolles.

NUMBER OF PARTICIPANTS: 4.

FUNDING: 54,450 €.

TITLE OF THE **CONTRACT**: Bacterial taxonomic analysis and functional metagenomics of human fecal samples.

FUNDING COMPANY: Roquette Frères. Ref: 110108200004.

DURATION: September 2020 - April 2021.

PRINCIPAL INVESTIGATOR: Abelardo Margolles.

NUMBER OF PARTICIPANTS: 5.

FUNDING: 40,000 €.

INVENTORS: S. Delgado, B. Sánchez, C. Hidalgo, A. Margolles, JI Rodríguez.

CATEGORY: International patent.

TITLE OF THE **PATENT**: Device for collecting and transferring samples in anaerobiosis.

APPLICATION NUMBER: PCT/ES2017/070087.

NUMBER OF INTERNATIONAL PATENT: WO 2017140935 A1.

OWNERS: CSIC and Universidad de Oviedo.

PATENT EXPLOITATION: Microviable Therapeutics, S.L. owns the licensing patent rights. The patent is being exploited by Microviable Therapeutics since 2017.

INVENTORS: B. Sánchez, A. Margolles, D. Bernardo, S. Knight, OH. Al-Hassi.

CATEGORY: International patent.

TITLE OF THE **PATENT**: Peptide secreted by *Lactobacillus plantarum* with immunomodulating function.

APPLICATION NUMBER: PCT/ES2012/070643.

NUMBER OF INTERNATIONAL PATENT: WO 2013034795 A1.

OWNERS: Imperial College London and CSIC.

PATENT EXPLOITATION: CSIC transferred to Imperial Innovations Limited the patent rights and the patent is being exploited by Imperial Innovations Limited since 2015.