



## AYUDAS RAMÓN Y CAJAL CONVOCATORIA 2017

### Turno de acceso general

**Nombre:** PONS PEREZ, CARLES  
**Referencia:** RYC-2017-22959  
**Área Científica:** Biología Fundamental y de Sistemas  
**Correo Electrónico:** carles.pons@irbbarcelona.org

#### Título:

Evolution and mechanisms of interaction in biological networks

#### Resumen de la Memoria:

During my PhD I developed new protein-protein docking methodology under the supervision of Juan Fernandez-Recio at the Barcelona Supercomputing Center. My objective was to increase the performance, in both quality and speed, of a state-of-the-art docking method to enable the reliable large-scale application of protein-protein docking. To that end, I integrated different sources of structural information into an optimized pre-existing biophysical model, such as statistical potentials, conformational ensembles, or SAXS data. Work during my thesis resulted in 7 publications as first author. I also gained expertise in high-performance computing and the use of structural modeling, sequence alignment and other bioinformatics tools.

Under the supervision of Chad Myers, I spent almost 4 years as postdoctoral associate in the Computational Biology and Functional Genomics Lab at the University of Minnesota. The focus of my research was the study and characterization of biological networks by statistical analysis and integration of large-scale functional genomics datasets in order to generate and test hypotheses of biological relevance. In collaboration with Marian Walhout at the University of Massachusetts Medical School, we characterized divergence within transcription factor families in *C. elegans* by using four newly defined molecular networks. Together with the Boone-Andrews' lab at the University of Toronto, we studied the global genetic network in *S. cerevisiae*, including for the first time functional signatures of most essential genes, and also pioneered the study of genetic suppression at a global scale. I am co-first author of these studies, two of them published in *Science* and one in *Molecular Cell*, which reflects the significance of my contributions and my leading role in the computational analyses of these biological networks.

Since 2015 I am a research associate in Patrick Aloy's lab at the Institute for Research in Biomedicine in Barcelona where I continue to study biological networks in order to determine their functional relevance, define molecular mechanisms behind the interactions, study the evolution of paralogs, and define sub-gene (domain- or residue-level) interactions. In 2016 I was awarded a two-year Juan de la Cierva fellowship.

#### Resumen del Currículum Vitae:

2005-2011: PhD student at the Life Sciences department of the Barcelona Supercomputing Center, under the supervision of Juan Fernandez-Recio. I developed new protein-protein docking methodology.

2011-2015: Postdoctoral associate in Chad Myers' lab at the University of Minnesota. I studied biological networks by statistical analysis and integration of large-scale functional genomics datasets.

Since 2015: Research associate in Patrick Aloy's lab at the Institute for Research in Biomedicine (IRB Barcelona)

I accumulate 34 publications in peer-reviewed journals, 22 of which are in journals within the first quartile. I am first or co-first author in 10 publications, notably 2 published in *Science*, and 1 in *Molecular Cell*. In 2016 I was awarded a Juan de la Cierva fellowship

List of my most relevant publications

- 1) van Leeuwen\*, Pons\*, et al, *Science* 2016
- 2) Costanzo\*, VanderSluis\*, Koch\*, Baryshnikova\*, Pons\* et al, *Science* 2016
- 3) Reece-Hoyes\*, Pons\* et al, *Molecular Cell* 2013
- 4) Fuxman-Bass, Pons et al, *Molecular Systems Biology* 2016
- 5) MacNeil, Pons et al, *Cell Systems* 2015



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**Nombre:** FERNANDEZ LEIRO, RAFAEL  
**Referencia:** RYC-2017-23128  
**Área Científica:** Biología Fundamental y de Sistemas  
**Correo Electrónico:** rfleiro@cniio.es

#### Título:

Genome Integrity and Structural Biology

#### Resumen de la Memoria:

I studied Biology at the University of A Coruña from 2000 to 2005. During the last year of my degree, I was awarded a research fellowship to join the biochemistry lab of the University. My work in the lab contributed towards the PhD project of one student in the lab and was later published in a journal article. After obtaining my degree, I joined the Master's program in Genetics, Biochemistry and Biotechnology and continued to work in the biochemistry laboratory of the University of A Coruña with fellowships from the University first, and later from the Galician Government (Xunta de Galicia) to carry out my Master's Thesis. During this time, I continued to collaborate with other members of the lab and contributed to work that was published in 2008.

In 2006, I was awarded an FPU fellowship from the Spanish Government, a highly competitive PhD fellowship, and started my studies in 2006 under the supervision of Esperanza Cerdán Villanueva and Manuel Becerra Fernandez. During my PhD, I moved to the Rocasolano institute in Madrid, where I learned protein crystallography with Julia Sanz Aparicio and completed my PhD work. In October 2011, I obtained my PhD with Cum Laude. My thesis was later awarded the Best doctoral thesis award from the University of A Coruña. My studies yielded 4 publications as the first author and 2 patents.

Before graduating, I secured a postdoctoral fellowship from the Medical Research Council to join the Meindert Lamers lab at the Laboratory of Molecular Biology in Cambridge, where I broadened my structural biology expertise and became an experienced electron microscopist. Working in close collaboration with Sjors Scheres, I strengthened my knowledge of cryo-Electron Microscopy (cryo-EM) and got involved in some aspects of methods development. For the next 6 years, I used cryo-EM and other techniques to study the bacterial replication machinery. This work culminated in the elucidation of the structures of the core bacterial replisome in multiple functional states, revealing novel mechanistic insights. In collaboration with Titia Sixma at the Netherlands Cancer Research Institute, I studied the DNA mismatch repair machinery, providing new structural clues to understand this important pathway for genome integrity. My expertise is supported by my recent published work and has been recognised by invitations to conferences as a speaker, and workshops to discuss the cryo-EM technique and data processing procedures.

In 2017, and after an open selection process, I signed a contract with the CNIO research centre in Madrid to join the institute as a Junior Group Leader. My group started in September 2017. Importantly, I have been awarded a grant from the Spanish Government to fund the main project of the lab, including an FPI fellowship for a PhD student. The broad scientific interest and background of the group is the study of the molecular mechanisms that govern genome maintenance. The recently funded project aims to answer key questions regarding mitochondrial DNA replication and maintenance with a clear focus on exploring the basic science behind these processes. This will allow us to study the implications of these processes in disease, explore new ways of treatment, and identify new targets for drug development.

#### Resumen del Currículum Vitae:

I hold a degree in Biology and a Master's in Genetics, Biochemistry and Biotechnology from the University of A Coruña. I obtained my PhD in October 2011 with Cum Laude and my thesis was awarded Best doctoral thesis by the university. After obtaining my PhD in 2011 I moved to the UK to join the Laboratory of Molecular Biology, where I worked as a post-doctoral scientist until August 2017. In September 2017 joined the CNIO in Madrid as a Young Group Leader.

During my career, I have published 13 journal articles, 8 as first author and 5 as co-author, and a book chapter. In the last 2 years, I have published my work in high impact journals, including Science, Nature, eLife, and Nature Structural and Molecular Biology. I am also author of 3 patents: two filed during my PhD, directly related to the work I was developing, and one during my Post-Doc, involving the description of a new approach for sample preparation for cryo-Electron Microscopy. I have also multiple contributions to conferences and scientific courses as speaker, both based on my expertise in the DNA replication and repair field, and based on my expertise in cryo-EM.

I have participated in several national and international projects during my PhD and post-doctoral stages. I have strong support to start my group from CNIO, and I have secured funding for the group in the 2017 call from the Spanish Government, including a fellowship for a PhD student.



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**Nombre:** MERCHANTE BERG, MARIA CATHARINA  
**Referencia:** RYC-2017-22323  
**Área Científica:** Biología Fundamental y de Sistemas  
**Correo Electrónico:** merchante@uma.es

#### Título:

From Hormone Signaling to Translation Regulation

#### Resumen de la Memoria:

The understanding of how plants finely coordinate their growth and development to cope with an ever-changing environment has been my main scientific interest. Phytohormones play a crucial role in signal integration and response, which is why I focused my early career on their study, especially on ethylene. I approached this from two different perspectives. On the one hand, I investigated the importance of ethylene in strawberry, a crop with a high economical importance in Spain but for which we still lack a solid basic scientific foundation. On the other hand, I also worked with Arabidopsis, a well-established model species, to gain a deeper understanding on how this signal transduction works.

As a PhD student (UMA) I explored the controversial role played by ethylene in the ripening of strawberry, classified as non-climacteric. By making stable transgenic strawberry lines that overexpress a constitutively active mutant form of an ethylene receptor, we were able to show that this hormone is needed for the proper ripening of the berry, and specially the achenes, the true strawberry fruits. The results of this work were published in Merchante et al. (2013) and Bombarely et al. (2010).

During my postdoc (NCSU) I utilized the power of the Arabidopsis genetics to uncover new aspects of the ethylene signal-transduction pathway and the role that gene-specific translation regulation plays in it. The implementation of the groundbreaking ribosome-footprinting technology in Arabidopsis (Merchante et al., 2016), allowed me to unveil a new regulatory module in the ethylene signaling pathway that connected hormone-perception to translation-regulation of specific genes via the nonsense-mediated mRNA decay machinery. The main results of this novel work were published in Cell (Merchante et al., 2015), and highlighted in Cell (Salehin & Estelle, 2015) and Nature Plants (Zhang & Wen, 2015).

Now back in the UMA, my main interest lies in understanding how translation in plants is specifically regulated in response to internal and external cues to allow for rapid responses to the environment. It is on this field where I have focused the beginning of my independent scientific career and I have very recently been awarded a grant from the "Plan Estatal" to study this.

During both my graduate and postdoctoral experiences, I have actively participated in the laboratory training of numerous undergraduate students, written reviews in journals and books, and, in the last years, served as a reviewer for several scientific journals.

#### Resumen del Currículum Vitae:

I completed my PhD thesis in the department of Molecular Biology and Biochemistry (BMBQ) of the University of Málaga (UMA), under the supervision of Drs. Valpuesta, Botella and Medina-Escobar and funded by a "Formación de Doctores en Centros de Investigación y Universidades Andaluzas" 4-year fellowship of the Junta de Andalucía. My research addressed different aspects of the strawberry fruit development and ripening, focusing in the role of ethylene in these processes and the characterization of transcription factors that play a putative important role at the beginning of the berry ripening. Regarding the role of ethylene, although strawberry has typically been classified as non-climacteric, we were able to show that this phytohormone is needed for a proper ripening of the berry, and especially of the achenes, the true strawberry fruit. The results from this research were published in BMC Genomics (Bombarely et al., 2010) and Journal of Experimental Botany (Merchante et al., 2013). In addition, during my PhD, and to deepen in the characterization of the transcription factors involved in ripening, I had the opportunity to join for 3 months Dr. J Botella's lab at the University of Queensland (UQ), in Australia, in a stay that was funded by my PhD fellowship. After completing my PhD I joined Drs. José Alonso and Anna Stepanova's lab in the Genetics department of the North Carolina State University (NCSU). There I changed my research system to the plant model species Arabidopsis. My main project was the characterization of a subset of weak ethylene insensitive mutants that also display translation defects, which suggested a yet-unknown link between the ethylene-signaling pathway and translation regulation. The postdoctoral project that I wrote regarding this research was awarded a Marie Curie-UMobility postdoctoral fellowship, which consisted in 2 more years of postdoctoral stay at NCSU and 1,5 years back at the UMA. The main outputs of my research were the implementation for Arabidopsis of the ribosome footprinting technology, which allows the study of translation at single-codon resolution (Merchante et al. 2016), and the discovery of a new translation regulation module mediated by the key ethylene signaling protein EIN2. The results of this research were published in Cell (Merchante et al., 2015) and highlighted in Cell (Salehin & Estelle, 2015) and Nature Plants (Zhang & Wen, 2015).

I am currently at the UMA, where I was awarded a 4-year competitive fellowship from the program "Contratos para la captación del talento para la investigación" that started in January 2016 and that allows me to teach and do independent research. Regarding the later, I have just been granted a 3-year research project from the "Programa Estatal de fomento de la investigación científica y técnica de excelencia" (Convocatoria 2017) to study translational regulation in Arabidopsis. In addition I have completed a Master thesis co-



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supervision and am currently co-supervising a PhD student, I have written several reviews, attended a number of national and international conferences, supervised under/graduate students and postdocs, and participated as a reviewer for several scientific journals.



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**Nombre:** PEREZ PALACIOS, MARIA TRINIDAD  
**Referencia:** RYC-2017-21842  
**Área Científica:** Ciencia y Tecnología de los Alimentos  
**Correo Electrónico:** triny@unex.es

#### Título:

COMPOSITION OF MEAT AND MEAT PRODUCTS: ANALYSIS BY MAGNETIC RESONANCE IMAGING AND ITS IMPLICATIONS ON HEALTH

#### Resumen de la Memoria:

I have developed most of my research career in the Food Technology and Quality research group (TECAL) at the University of Extremadura (UEX). I started with a collaboration grant during my degree in Veterinary Science. I got a PhD grant, and I defended my PhD thesis with the honours of European Doctorate and the "Extraordinary Doctorate Award" of the UEX. My PhD focused on Iberian hams, and was part of two research project in which I collaborated. After that, I got a grant for doing a post-doctoral stay at the University of Porto, participating in an EU project about the formation of contaminants in food. I have also collaborated in other research projects and contracts with companies. I am currently working as a researcher in the TECAL research group, within the recently started "Research Institute of Meat and Meat Products" at the UEX. The results from these studies have been published in 57 papers in peer reviewed journals, 6 in technological journals, 44 international and national congress proceedings and 4 chapters in internationally edited books. As principal investigator I have a project funded by the Spanish government and 2 contracts. I have also collaborated in 8 projects/contracts, 2 of them funded by EU. Besides, I have a Spanish patent. In relation to my teaching activities, I have had two temporary contracts as official teaching for giving lectures in the Veterinary and Agricultural Engineering degrees and in different masters. Now, I am teaching in the Veterinary degree and "Máster en Ciencia y Tecnología de la Carne". I have also supervised 10 MSc theses and 2 PhD theses. Currently, I am supervising a PhD thesis that will be defended in April 2018.

My main research line is focused on studying the quality characteristic of meat products, with two different parts. One of them is centred on the use of MRI as an alternative to physico-chemical and sensory analysis. Usual methods for evaluation of the quality characteristics of meat and meat products are tedious and time-consuming and most of them involve the destruction of the product, whereas MRI is a non-destructive, non-invasive, non-intrusive, non-ionizing radiation and innocuous technique. The other main part of my research deals with the composition of meat products and its potential implications on health, mainly focused on improving the fatty acid profile (throughout the addition of omega-3 microcapsules) and on contaminants (furanic compounds). Most relevant results for these studies have been published in: Journal of Food Engineering (2018) 189, 258-266. Journal of Food Engineering (2016) 189, 115-122. Food Chemistry (2011) 126, 1366-1372. Food Chemistry (2016) 194, 476-486. Food Chemistry (2012) 135, 1337-1343.

#### Resumen del Currículum Vitae:

I got the degree in Veterinary Science at the University of Extremadura (UEX) in July 2004. During the last year of my degree I got a "collaboration grant" in the Food Technology and Quality research group (TECAL) at the UEX. I did the doctorate program with quality stamp "Estrategias para la mejora y control de calidad de alimentos de origen animal" and I got the maximum grade for my thesis degree and the DEA (Advance Studies Diploma). I got a PhD grant in a competitive call from the Extremadura government for carrying out my PhD thesis at the TECAL research group, under the supervision of Dr. Teresa Antequera Rojas and Dr. Jorge Ruiz Carrascal. I also got a grant for doing a three months research stay in Gent (Belgium) during my PhD. In 2009 I defended my PhD thesis and obtained the maximum grade, the European Doctorate and also the Extraordinary PhD Award of the UEX. Thereafter, I got a grant in a competitive call of the Extremadura government for doing a post-doctoral stay during 24 months (2011-2012) in the Faculty of Pharmacy at the University of Porto (Portugal), under the supervision of Dr. Isabel Ferreira, participating in the CQUP group (Centro de Química da Universidade do Porto integrado no Laboratório associado REQUIMTE). After that, I have had several contracts as researcher at the TECAL research group.

As principal investigator I have a project funded by the Spanish government and 2 contracts. I have also collaborated in 8 projects/contracts, 2 of them funded by EU. Besides, I have a Spanish patent. I have published 57 papers in peer reviewed journals, 6 in technological journals, 44 international and national congress proceedings and 4 chapters in internationally edited books.

As consequence of all these scientific and technological activities, I was awarded with the excellence young researcher award "PREMIO A LA EXCELENCIA A LA TRAYECTORIA INVESTIGADORA. Jóvenes Investigadores" of the UEX on January 2016.

In relation to my teaching activities, I have had two temporary contracts as official teaching for giving lectures in the Veterinary and Agricultural Engineering degrees and in different masters: "Máster Universitario en Investigación en Ingeniería y Arquitectura", "Máster en Gestión de la Calidad y Trazabilidad de Alimentos de Origen Vegetal" and "Máster en Ciencia y Tecnología de la Carne". Now, I am teaching in the Veterinary degree and "Máster en Ciencia y Tecnología de la Carne".

I have also supervised 10 MSc theses and 2 PhD theses. Currently, I am supervising a PhD thesis that will be defended in April 2018.

On top of the PhD thesis and the degree, I have carried out other academic training: the CAP (Certificado Actitud Pedagógica, equivalent to the current Máster en profesorado de educación secundaria obligatoria, bachillerato, formación profesional y enseñanza de idiomas), English language (Advance level, B2), Portuguese language (C2 level). I have also carried out several specialized and professional courses,



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such as "Métodos y Análisis de datos en la investigación científica", "Recursos y estrategias en la búsqueda de información para la docencia e investigación en el ámbito científico-tecnológico", "Formación de profesores noveles para la docencia universitaria", "1er Encuentro de Utilizadores de HPLC e HPLC-MS".



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### Turno de acceso general

**Nombre:** MONRAS , JOAN  
**Referencia:** RYC-2017-23682  
**Área Científica:** Economía  
**Correo Electrónico:** jm3364@gmail.com

#### Título:

Moility in Labor and Housing markets

#### Resumen de la Memoria:

For the moment I have completed the following papers:

Minimum Wages and Spatial Equilibrium: Theory and Evidence  
Latest draft, May 2016.

Accepted at the Journal of Labor Economics  
IZA Discussion Paper No. 9460, October 2015

Media coverage: GO, Le Journal de Montreal, The Contrarian, Forbes, Econ Talk , FEE , Le Journal de Quebec

The Labor Market Consequences of Refugee Supply Shocks  
with George J. Borjas.

Published at Economic Policy, Volume 32, Issue 91, 1 July 2017, Pages 361-413:

NBER Working Paper No. 22656, September 2016

IZA Discussion Paper No. 10212, September 2016

Media Coverage: The Wall Street Journal, Bloomberg, Les Affaires, the Cato Institute, GlobalEDGE, LaborEcon (George J. Borjas' Blog)

Immigration and Wage Dynamics: Evidence from the Mexican Peso Crisis

Revise and Resubmit at the Journal of Political Economy

IZA Discussion Paper No. 8924, March 2015

Older online Appendix can be found here.

Economic Shocks and Internal Migration

IZA Discussion Paper No. 8840, February 2015

Winner of the Young Labour Economist Prize of the EALE:

How Segregated is Urban Consumption?

with Donald R. Davis, Jonathan I. Dingel, and Eduardo Morales

Revise and Resubmit at the Journal of Political Economy

NBER Working Paper No. 23822

Media Coverage: Frontiers of Economic Research Podcast, VoxEU

Understanding the Effects of Legalizing Undocumented Immigrants

with Javier Vázquez-Grenno and Ferran Elias

CREAM Discussion Paper 08/17. October 2017

IZA Discussion Paper No. 10687, April 2017

Media coverage: Nada es Gratis (invited contribution)

Immigrants' Residential Choices and their Consequences

with Christoph Albert

CREAM Discussion Paper 07/17. October 2017

IZA Discussion Paper No. 11075. October 2017

All these papers are focused on understanding how labor and housing markets interact across and within cities. In the future I will develop a number of related projects. Among which I am currently working on the following projects:

Skill-biased Agricultural Technical Change and Industrial Specialization

with Paula Bustos, Juan Manuel Castro Vicenzi, and Jacopo Ponticelli

Did Citi Bike Change the Economic Geography of NYC? Evidence from Foursquare

with Donald R. Davis and Jonathan I. Dingel



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Spillovers from the Public to the Private Sector  
with Emeric Henry and Grigorios Spanos

#### Resumen del Currículum Vitae:

##### Current and Past Employment

2016 - present Assistant Professor of Economics at CEMFI  
2014 - 2016 Assistant Professor of Economics at Sciences Po, Department of Economics and LIEPP

##### Other Affiliations

2017 - present CEPR Research Affiliate  
2016 - present CReAM External Research Fellow  
2014 - present IZA Research Affiliate

##### Academic Visits

April-June 2016 Visiting Assistant Professor at Universitat Pompeu Fabra and CREi  
March 2016 Visiting Researcher at CReAM, University College London  
May 2015 Visiting Assistant Professor at University of Toronto

##### Education

2014, Ph.D. Economics at Columbia University  
2009, M.A. Economics at Universitat Pompeu Fabra  
2006, M.Sc. International Relations at London School of Economics  
2005, B.A. Mathematics at Universitat de Barcelona

##### Presentations at seminars:

2017-18 (including scheduled): EUI; Stockholm University; University of Nottingham; IESE; UPF; University of British Columbia; Sauder; Berkeley; Haas.

2016-17: UPenn; Wharton; Universitat de Barcelona; Queens College; CUNY; CaixaBank Research Department; CEMFI.

2015-16: University of Zurich; Bocconi; LSE; Bank of Italy; CEMFI (2x); Universidad Carlos III; Bank of Spain; Sciences Po; Cities are Back in Town; Université Paris 1; Queen Mary University; Brown University; Copenhagen Business School; CReAM/UCL; Sciences Po; FacSem.

2014-15: IIES; Stockholm University; Sciences Po; IEB; Universitat de Barcelona; Colegio de Mexico; ITAM.

2013-14: NCID; U Navarra; Sciences Po; INSEAD; Collegio Carlo Alberto; USI; Lugano; EIEF; Surrey; Cleveland Fed; U of Toronto; MSU; UIUC; Columbia.

##### Conferences and Workshops

2016-17: Conference in Honor of Donald Davis, Columbia University; CEPR; CURE (participant), CEPR; Economic Policy Panel Meeting; CEPR; ECB Labour Market Workshop; Urban Economic Association, Minneapolis; Spanish Simposio; 2nd Research Workshop Banco de España; CEMFI; First Catalan Economic Society Conference (CESC); 8th Trade, Integration, and Growth Network Conference; Montevideo; 10th International Conference on Migration and Development, Clermont-Ferrand; Barcelona GSE Summer Forum; Migration; Barcelona GSE Summer Forum; Advances in Empirical Labor Economics; Barcelona GSE Summer Forum; Geography, Trade, and Growth; NBER Summer Institute; Real Estate.

2015-16: IV Workshop on Urban Economics, UB; IEB; CEPR/IZA; ESSLE; CEPR; CURE (discussant); EIIT; Purdue University; ETSG; Université Paris 1; Banque de France; Labor market: Institutions and Reforms; Spanish Simposio.

2014-15: Urban Economic Association, Washington DC; 6th Trade, Integration, and Growth Network Conference; UCLA; RMET; FREIT; Ryerson University; Canadian Economic Association; National AREUEA, Washington DC; Barcelona GSE Summer Forum; Migration; Global Challenges, Bocconi; Cattolica; U. Milan; U. Milan-Bicocca; Politecnico; EALE/SoLE, Montreal.

##### Selected Referee Activity

Quarterly Journal of Economics, Review of Economic Studies, Journal of the European Economic Association, Review of



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Economics and Statistics, American Economic Journal: Applied Economics, Economic Journal, Journal of Labor Economics, Journal of Public Economics, Journal of Urban Economics, Management Science, Journal of Development Economics, Science, Economic Policy, European Economic Review.



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**Nombre:** LEON CILIOTTA, GIANMARCO  
**Referencia:** RYC-2017-23172  
**Área Científica:** Economía  
**Correo Electrónico:** gianmarco.leon@upf.edu

#### Título:

Development and Political Economics

#### Resumen de la Memoria:

I am an applied microeconomist working in questions in development and political economics. I obtained my PhD at the University of California, Berkeley in 2012, and since then have been an assistant professor at the Universitat Pompeu Fabra and an affiliated professor at the Barcelona Graduate School of Economics. Since 2017 I am also a research affiliate at the Institute for Political Economy and Governance (IPEG) and Center for Economic Policy and Research (CEPR - Development Economics.) My research in political economics is mainly focused in three areas (i) the causes and consequences of voter participation, (ii) the selection and incentives of politicians and bureaucrats, and (iii) the causes and consequences of civil conflict; I also carry out research in development economics, where my work addresses questions related to (i) the accumulation of human capital, and (ii) firm organizational decisions and the consequences of regulation. My research has been published in top international journals as the Journal of the European Economic Association, American Economic Journal: Applied Economics, Journal of Public Economics, Journal of Development Economics, and the Journal of Human Resources, and has been featured in prestigious media outlets such as The Economist, Foreign Affairs, VoxEu, The Washington Post, among others. I have presented my work extensively in over fifty academic seminars at top academic institutions (economics, public policy and political science departments), and international conferences in Europe, North America, Latin America and Africa. I serve as a reviewer for top academic journals in Economics and Political Science, and in 2017 I was awarded the Excellence in Refereeing Award by the Journal of the European Economic Association. My work has been generously funded by different organizations such as the Spanish Government, the Abdul Latif Jameel Poverty Action Lab, the International Growth Center, the Exxon Mobile Foundation, the Rockefeller Foundation, among others. Within my department, I teach both undergraduate and graduate courses, organize the internal and external seminars, and serve as a referee for doctoral and master's dissertations.

#### Resumen del Currículum Vitae:

After finishing my BSc in Economics at Pontificia Universidad Católica del Perú in 2003, I moved to Washington DC to start working as a research assistant at the research department in the Inter-American Development Bank (IDB). My work at the IDB allowed me to get to know how research in economics is done, and how can it affect policymaking in the developing world. After two years in Washington, I decided to pursue my graduate studies, and got admitted to the PhD program at the University of California, Berkeley, where I was advised by Prof. Elisabeth Sadoulet, Prof. Alain Dejanvry and Prof. Edward Miguel. In my dissertation, I used empirical methods to explore questions related to the economics of voting, the consequences of civil conflict and health economics.

Since graduating from Berkeley, I have been an assistant professor at Universitat Pompeu Fabra. Additionally and an Affiliate Professor at the Barcelona Graduate School of Economics, more recently, I have been invited to be an Affiliated Researcher at the Institute for Political Economy and Governance (IPEG), and as a Research Affiliate at the Center for Economic Policy and Research (CEPR). In the past five years, I have developed a research agenda in the areas of development economics and political economy, and in conducting my research, I have established a network of collaborators in the United States and Europe. Since my second year at UPF, I have been a Juan de la Cierva scholar, and benefited from the Jose Castillejo grant, which allowed me to spend four months visiting the University of California, San Diego in 2016.

International on going collaborations include Professors from different universities in the US, Latin America, Asia, Africa and Europe. While in some of my work I use publicly available or administrative data, some other projects that I have worked or am working on require data collection. Several institutions have/are financing these data collection efforts, these include the International Growth Center, based at the London School of Economics, which is financing my work in Benin (£50,000); the Rockefeller Foundation, which is funding our RCT in Sierra Leone (US\$351,000); the Exxon Mobile Foundation, the World Bank, and J-PAL are providing the financial support for the project I am conducting in Indonesia (\$550,000, \$150,000 and \$27,000, respectively); and JPAL has financed some exploratory work I conducted in India, which unfortunately did not end up leading to a research project (\$10,000). UPF and the Barcelona GSE have generously provided research funding through the last five years (€40,000). Within the department, I have been part of a research group, which is financed by the MINECO.

During the past few years, I have been invited to present my work at academic seminars and conferences in different top ranked universities both in the United States and Europe, as Stanford, UC Berkeley, UCLA, UC San Diego, Columbia University, UI Urbana-Champaign, Toulouse, Bocconi University, Tinbergen Institute, Paris School of Economics, as well as in conferences of reknowned prestige in



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the fields of development economics and political economy, as CEPR, BREAD, NEUDC, WGAPE, ASSA Meetings, and IZA.

I referee about 18 papers per year for journals as the American Economic Review, the Quarterly Journal of Economics, the Journal of the European Association, AEJ: Applied, Journal of Development Economics, Review of Economics and Statistics, among many others.



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**Nombre:** SIMON CASTEL, JOSEP  
**Referencia:** RYC-2017-21763  
**Área Científica:** Historia y Arte  
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#### Título:

Historia de la ciencia, la técnica y la medicina

#### Resumen de la Memoria:

Mi investigación se caracteriza por innovación historiográfica y metodológica, alcance internacional y perspectivas interdisciplinarias. Ejerzo desde hace casi veinte años la profesión de historiador, en el cruce de varias disciplinas del Área "Historia y Arte" (MINECO) y el Área de Historia (código 55, UNESCO): Historia de la ciencia, la técnica y la medicina, historia de la educación, historia del libro, historia contemporánea, y museología. Soy un especialista internacional en historia de las ciencias físicas, historia de la educación científica, y cultura material de la ciencia. Contribuciones a obras de referencia internacional como el Oxford Handbook of the History of Physics, el Wiley-Blackwell Companion to the History of Science o la Spring ilustran esta experiencia.

Profesor Titular de Historia de la Ciencia, la Técnica y la Medicina (Profesor Asociado/Associate Professor según nomenclatura colombiana/estadounidense), después de itinerario profesional en Europa (España, Reino Unido, Francia), Estados Unidos, y América Latina (México, Colombia, Brasil). Carrera refrendada por becas internacionales de instituciones como British Council, European Commission, Library of Congress, Smithsonian Institution, Société de Physique et d'Histoire Naturelle de Genève, Centro de Investigaciones y Estudios Avanzados (México) o National Academy of Education (Estados Unidos).

Consciente de los nuevos retos de la globalización, he realizado investigaciones en siete países (España, Reino Unido, Francia, Estados Unidos, México, Colombia, Brasil), desarrollando una agenda metodológica para la historia comparada y transnacional contemporánea de la ciencia, la técnica y la medicina.

Mi trabajo tiene cinco puntos focales (Disciplinas, Pedagogía, Cultura del libro, Cultura material y visual, Internacionalismo y Transnacionalismo) que convergen en una agenda histórica original que requiere conocimientos profundos de varias historiografías nacionales, los métodos de la historia comparada y transnacional, una variedad de fuentes históricas (desde el archivo al museo, pasando por el laboratorio y los testimonios orales), y la habilidad de desarrollar conexiones interdisciplinarias. Mi investigación combina un enfoque histórico en la ciencia, la técnica y la medicina, con aproximaciones provenientes de disciplinas tales como la historia de la educación, la historia del libro y la lectura, los estudios visuales, los estudios de instrumentos científicos, la historia diplomática, el análisis comparado de estudios de caso europeos, estadounidenses y latinoamericanos, y el estudio de la circulación internacional del conocimiento científico.

Mi investigación actual está articulada alrededor de dos núcleos principales. El primero centrado en la innovación pedagógica en la enseñanza de las ciencias y la técnica desde el siglo XIX hasta el presente. El segundo, en las interacciones e intersecciones entre ciencia, técnica y medicina, en un marco de trabajo que combina investigación histórica con innovación pedagógica y recuperación patrimonial y museológica. Ambos núcleos tienen un desarrollo internacional que aborda preguntas de investigación en diferentes contextos nacionales, los compara, y estudia la importancia de las relaciones internacionales y los agentes internacionales y transnacionales en las Américas y Europa.

#### Resumen del Currículum Vitae:

Profesor Titular de Historia de la Ciencia, la Técnica y la Medicina, después de ocupar puestos como investigador y profesor en Europa (España, Reino Unido, Francia), Estados Unidos, y América Latina (México, Colombia, Brasil). Carrera refrendada por becas internacionales de instituciones como British Council, European Commission, Library of Congress, Smithsonian Institution, Société de Physique et d'Histoire Naturelle de Genève, Centro de Investigaciones y Estudios Avanzados (México), Smithsonian Institution y National Academy of Education (Estados Unidos), entre otros.

Profesor invitado en instituciones de relieve internacional tales como Massachusetts Institute of Technology, Colegio de México, Museu de Astronomia e Ciências Afins, Universidade Federal de Bahia, Cinvestav, o John W. Kluge Center at the Library of Congress.

He realizado investigaciones en siete países (España, Reino Unido, Francia, Estados Unidos, México, Colombia, Brasil), desarrollando una agenda metodológica para la historia comparada y transnacional contemporánea de la ciencia, la técnica y la medicina.

En mi trabajo he demostrado la complementariedad de la investigación y la enseñanza. He sido profesor-tutor en las universidades de



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Oxford y Leeds, profesor asociado en la Universidad de Valencia, profesor contratado-doctor y titular en la Universidad del Rosario, y profesor invitado en programas de excelencia internacional en Francia, Estados Unidos, México, Colombia y Brasil. He ofrecido cursos para audiencias diversas (licenciatura, maestría, doctorado, maestros, adultos, estudiantes de historia, sociología, antropología, periodismo, ingeniería, ciencias y medicina). He desarrollado esquemas pedagógicos innovadores que confrontan al estudiante a los retos de la profesionalización para contribuir al desarrollo de agendas internacionales dentro del campo académico de la Historia.

En mi investigación he demostrado la habilidad de desarrollar proyectos tanto individuales como colectivos y el uso de nuevos medios para construir programas interinstitucionales de amplia proyección. Por ejemplo, fundé Arban, una agenda electrónica de historia de la ciencia, la técnica y la medicina que tiene un papel importante en la articulación y dinamización de una red regional (que incluye 3 comunidades autónomas españolas y quince grupos de investigación), y coordiné el grupo de investigación europeo STEP (Science and Technology in the European Periphery). Análogamente he desarrollado el Instituto Raimundo Russi de Historia Aplicada de la Ciencia, la Técnica y la Medicina, basado en Bogotá pero con proyección internacional, y estoy coordinando la creación y consolidación de una Red Colombiana de Patrimonio en Salud.

En el desarrollo de mi carrera he contribuido a conectar la investigación universitaria con el contexto patrimonial y de trabajo en los museos. Mi trabajo ha sido clave para desarrollar proyectos de museo y de recuperación patrimonial en la Universidad de Valencia, University of Leeds, Universidad Nacional Autónoma de México y Academia Nacional de Medicina de Colombia. Mi perfil como historiador e investigador museológico está basado en experiencia profesional en instituciones de alto nivel internacional como la University of Oxford y la Smithsonian Institution.



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**Nombre:** BERNARDO ORDIZ, DAVID  
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**Área Científica:** Medicina Clínica y Epidemiología  
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#### Título:

Células dendríticas y macrófagos intestinales humanos en la enfermedad inflamatoria intestinal.

#### Resumen de la Memoria:

My current field of expertise relies on study of human dendritic cells (DC) as modulators of immune responses in health, and how changes in their properties are related to development of gastrointestinal diseases like inflammatory bowel disease (IBD). I have described that DC properties are dependent on the local microenvironment as DC acquire a tolerogenic phenotype when exposed to an intestinal microenvironment from healthy controls (Bernardo et al, Inflamm Bowel Dis, 2012; Bernardo et al, Clin Exp Immunol, 2013) while the local microenvironment in IBD abrogates it (Mann, et al, Inflamm Bowel Dis, 2014; Landy et al, Inflamm Bowel Dis, 2014) in an IL-6 dependent manner in ulcerative colitis (UC) (Bernardo et al, Eur J Immunol, 2012) or via leptin in Crohn's disease (Al-Hassi, et al Mucosal Immunol, 2013).

I am also studying the crosstalk between the commensal microbiota and intestinal DC. I have found that such dialogue is mediated by soluble factors including bacterial immunomodulatory STp peptide (Bernardo et al, PLoS One, 2012; PCT/ES2012/070643; WO/2013/034795), which is found in the colon from healthy controls but not from UC patients. When cultured in vitro, STp restored altered properties of gut DC in UC (Al Hassi et al, Mol Nutri Food Res, 2014). Indeed, the presence of circulating IgA antibodies towards STp discriminates between healthy controls and IBD patients (either active or quiescent) while STp also has the capacity to reverse murine models of DSS-colitis (work in progress).

Finally, I became interested in the compartmentalization of immune responses through the human gut. Upon obtention of funds from the Biotechnology and Biological Sciences Research Council (BBSRC; £983,945) I have demonstrated that human intestinal DC subsets, phenotype and function change through the length of human gut (Bernardo et al, Mol Nutri Food Res, 2018) not only between the large and the small bowel (Mann et al, Immunol Letters, 2013; Al-Hassi, Bernardo et al, Mucosal Immunol, 2013; Mann, Bernardo et al, Gut 2016) but also between the human proximal and distal colon (Bernardo et al, Cell Mol Gastroenterol Hepatol, 2016) while they are also influenced by the age of the donor (Bernardo et al, Oncotarget, 2016).

Building on my extensive and unique expertise on the study of human intestinal DC and macrophages which I have developed in the last years, in May 2015 I moved to Hospital Universitario La Princesa (Madrid, Spain) upon obtention of a project as a PI from the "Proyectos Jóvenes Investigadores" (SAF2014-56642-JIN; 169,000€; 2015-2018). Since then, I have also obtained funds as PI from several National Associations (AEG, GETECCU, ACAD) and the Industry. Moreover, I have also obtained two research grants from the Community of Madrid to incorporate a research technician and a junior Postdoc into my own research group. My long-term goal is continuation of basic research in partnership with new clinical partners in human intestinal mucosal immunology directing my own research group with the final aim to develop tissue-specific immunotherapy approaches avoiding the collateral effects of systemic immunomodulation. Having therefore developed an independent international and multidisciplinary research network, this fellowship is my natural continuation to become a future world research leader on the study of human mucosal immunology in IBD.

#### Resumen del Currículum Vitae:

BSc in Biology (University of Oviedo, 2002), MSc in Molecular Genetics (University of Oviedo, 2004) and PhD on mucosal immunology (University of Valladolid, 2008), I performed my postdoc at Imperial College London (United Kingdom, 2009-2015). Upon direct supervision of Prof Stella C. Knight, a world-renowned authority in human mucosal immunology, I was directed the work of 3 MD students, a research technician and several visiting researchers. In 2015 I moved back to Spain as PI on a grant from "Proyectos Jóvenes Investigadores". The quality of my organisation and project management skills are proven by my capacity to establish an active network which allowed me to publish original research articles in 5 different laboratories, in 3 different countries, where I have worked (Spain, 2001/9; the Netherlands, 2006; UK 2009/2015; and Spain since 2015) showing my ability to be flexible and well organised in my approaches to research.

I have obtained personal fellowships from Spain ("Beca de Inicio a la Investigación" and "Beca FPU") and the European Union (FP7-People-2008-IEF). I have been named as a research collaborator in projects funded by the industry ("Abbot Spain", "Dendrico SL", "Sweetdig Diagnostics"); in grants from competitive calls both in Spain ("Instituto de Salud Carlos III", "Gobierno de Castilla y León", "Agencia Española de Cooperación Internacional", "Asociación de Celiacos de Madrid", "Asociación Española de Gastroenterología", "Asociación Castellana de Aparato Digestivo" and "Grupo Español de Trabajo en Enfermedad de Crohn y Colitis Ulcerosa") and the UK (Biological Sciences Research Council "BBSRC" and St Mark's Hospital Foundation). As PI, I have obtained funds from the Spanish Government



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Proyectos Retos Jovenes Investigadores, Asociación Española de Gastroenterología, Grupo Español de Trabajo de Enfermedad de Crohn y Colitis Ulcerosa, Asociación Castellana de Aparato Digestivo, Comunidad de Madrid and the industry (MSD and Spherium Biomed).

To date, I have 62 published peer-reviewed SCI publications (826 total citations; h-index: 16), 2 PCT patents, 7 book chapters and 3 non-indexed publications. I have been awarded twice as best communication in a conference and performed 25 invited talks (USA, Spain, UK and Norway). I was selected to attend the 60th Meeting of Nobel Laureates in Lindau (Germany) in 2010. I have been recognized as a Bright Spark in Immunology at the British Society for Immunology Conference (2013) and as a Rising Star by Sociedad Española de Patologías Digestivas (2014). I am reviewer of 13 and editor of 6 indexed peer-reviewed journals and member of 7 scientific societies. I have been external reviewer/examiner of 14 PhDs.

I have reviewed projects for the Medical Research Council (UK), Coeliac UK, Sociedad Española de Enfermedad Celiaca, Health Research Board (Ireland), Sociedad Española de Patologías Digestivas, Netherlands Organisation for Health Research and Development (ZonMw), Duch Technology Foudnation STW and Fondos de Investigación Sanitaria Carlos III. I am also involved in public engagement activities being scientific advisor of 2 patient associations (Coeliac UK and Spanish Society of Coeliac Disease), having written 5 lay articles in non-scientific journals and being a contributor of a science divulgation blog ([www.dciencia.es](http://www.dciencia.es)).



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**Nombre:** CABALLERO GAUDES, CESAR  
**Referencia:** RYC-2017-21845  
**Área Científica:** Tecnología Electrónica y de las Comunicaciones  
**Correo Electrónico:** c.caballero@bcbl.eu

#### Título:

Signal processing for communication systems and functional magnetic resonance imaging

#### Resumen de la Memoria:

My research has focused on the development of signal processing algorithms and data analysis methods for communication systems and for the study of human brain function with functional magnetic resonance imaging (fMRI).

As for my research in the field of communication systems, this took place while I obtained the degree of Telecommunications Engineer and 'Diploma de Estudios Avanzados' (D.E.A. degree) in Mobile Network Information and Communication Technologies, and also worked as Profesor Ayudante at the Department of Electronics and Communications Engineering; all of them at the University of Zaragoza. During this period I also had research positions at the Department of Communications Engineering of the Tampere University of Technology, and did visiting research stays at the Department of Communications Engineering of the University of Cantabria and Centre Tecnològic de Telecomunicacions de Catalunya. My work in the field of communication systems mainly focused on three research projects: a) the design of fast frequency synthesizers based on in-phase and quadrature (I/Q) modulation and digital tuning; b) the application of support vector machines for robust array beamforming and blind channel identification; and c) the study of the capacity bounds of multiple-input multiple-output multi-access channels with erroneous channel information.

My research in the field of fMRI data analysis started with my PhD at the University of Nottingham, and continued during my postdoctoral positions at the Hôpitaux Universitaires de Genève and the Basque Center on Cognition, Brain and Language, where I am Juan de la Cierva Research Fellow and also work as MRI engineer. My research in the area of fMRI data analysis sits in the interface between biomedical signal processing, neuroimaging and the study of human brain function. More specifically, my contributions have tried to improve the identification and characterization of the blood-oxygenated level dependent (BOLD) response to individual neuronal events at the level of single subject analysis. For that, my work has involved the development of: a) deconvolution algorithms based on regularized least-squares estimators that estimate the brain's response to single-trial events without prior information of their timings; b) denoising methods that improve data quality; and c) information-theoretic approaches that make the most effective and balanced use of simultaneously recorded EEG and fMRI data. Beyond an engineering focus, these methods have been applied in two neuroimaging applications. First, the study of time-varying activity of functional brain networks while a subject is at rest, where my work has contributed to demonstrate the existence of transient, spontaneous BOLD events that modulate the brain's intrinsic low frequency fluctuations typically observed in resting state fMRI data. Second, the mapping of interictal epileptic activity in drug-resistant epileptic patients, where my work has suggested that the assumptions adopted in traditional model-based analyses of interictal epileptic activity with EEG/fMRI do not significantly constrain the localization of the epileptogenic zone, and that fMRI-based deconvolution algorithms can be a promising approach to locate the sources of epileptic activity in case of negative EEG-based findings.

#### Resumen del Currículum Vitae:

Dr. César Caballero Gaudes finished his Telecommunications Engineer Degree in June 2002 at the University of Zaragoza, Spain, performing his thesis at the Technological University of Tampere, Finland. He completed his Master of Advances Studies (DEA) in Mobile Network Information and Communication Technologies at the University of Zaragoza in Sept. 2004. From Sept. 2004 to Sept. 2006, he was profesor ayudante at the Department of Electronics and Communications Engineering of the University of Zaragoza, where he taught several undergraduate courses in signal processing and advanced communications systems. During these years, his research focused on machine learning methods for robust array beamforming and blind channel identification, and the capacity of multiple-input multiple-output communication systems. In September 2006 he started his PhD at the University of Nottingham, United Kingdom, where he was awarded an FP6- Marie Curie Research Training Fellowship. Awarded on October 2010, his PhD project was a collaboration between the Sir Peter Mansfield Magnetic Resonance Center (School of Physics and Astronomy), the School of Computer Science, and the Division of Statistics (School of Mathematics) and concerned the development of novel methods of functional MRI data analysis to non-invasively study single-trial events in visual and motor paradigms without prior knowledge of their timing at the level of single individuals, and characterize transient spontaneous brain activity at rest. In February 2010, he joined the Centre for Biomedical Imaging (CIBM) at the Department of Radiology and Medical Informatics of the Hôpitaux Universitaires de Genève (HUG), Switzerland, as a postdoctoral research fellow in MRI methods for applied clinical research. At this position, he investigated methods for single-trial fMRI analysis and the study of interictal epileptic activity with simultaneous EEG and fMRI, and also assisted scientists and clinicians of the HUG and the University of Geneva to perform MRI research studies. In February 2012, he joined the Basque Center on Cognition, Brain and Language (BCBL), where he works as MRI engineer, supervises the daily operation of the Siemens PrismaFit 3T MR system, participates in several MRI-related research projects,



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and teaches advanced fMRI methods at the Master of Cognitive Neuroscience of Language of the UPV/EHU. In June 2013, he was awarded a Marie Curie IEF grant to investigate the non-stationary dynamics of functional brain networks at rest. He has been co-principal investigator of a MINECO project to investigate the neurophysiological correlates of working memory networks with a multimodal approach (EEG, fMRI, MEG). He was awarded the Juan de La Cierva postdoctoral fellowship in November 2016. His research has resulted in 11 journal publications, and more than 50 conference proceedings and abstracts presented in international meetings. He has been co-supervisor of 2 PhD thesis, with 2 more in process, as well as several master and undergraduate students. Since 2012 he is an elected member of the IEEE Bio Imaging and Signal Processing Technical Committee  $\square$  the main committee of the IEEE in the field of medical imaging and biomedical signal processing-, and regularly serves as reviewer of international journals and conferences (Neuroimage, Human Brain Mapping, ICASSP, ISBI, ICIP, ISMRM, OHBM, etc)