

CURRICULUM VITAE

IMPORTANT – The Curriculum Vitae cannot exceed 4 pages. Instructions to fill this document are available in the website.

Part A. PERSONAL INFORMATION

CV date

07/02/2023

First name	Pilar		
Family name	Gutiérrez Escribano		
Gender (*)	Female		
e-mail	ge2guesp@uco.es	URL Web	
Open Researcher and Contributor ID (ORCID) (*)	0000-0002-0604-4819		

(*) Mandatory

A.1. Current position

Position	Postdoctoral Researcher		
Initial date	01/01/2023		
Institution	University of Córdoba (UCO)		
Department/Center	Genetics	Faculty of Science	
Country	Spain	Teleph. number	
Key words	Chromatin, Genomic plasticity, Transcription, Epigenetics, Pathogenesis, <i>Fusarium oxysporum</i>		

A.2. Previous positions (research activity interruptions, see call)

Period	Position/Institution/Country/Interruption cause
2017-2021	Investigator Scientist/MRC-London Institute of Medical Sciences/UK
2015-2017	Research Associate/Institute of Clinical Sciences-Imperial College London/UK
2012-2014	Research Fellow/London Research Institute-Cancer Research UK/UK

A.3. Education

PhD, Licensed, Graduate	University/Country	Year
PhD in Biology. European Mention	University of Extremadura/Spain	2011
Postgraduate Certificate in Education (CAP)	University of Extremadura/Spain	2007
Bachelor's degree in Biology	University of Extremadura/Spain	2006

Part B. CV SUMMARY (max. 5000 characters, including spaces) to complete this section, please read carefully: "Instructions to fill CVA"

Postdoctoral researcher at the Department of Genetics of the University of Córdoba, studying fungal pathogenesis.

Prior to my formal scientific career, I graduated with a first-class degree and honours in Biology from University of Extremadura, Spain, in 2006 and was delighted to be awarded the University of Extremadura Prize for outstanding academic achievement throughout the course. I then stayed on at Extremadura studying *Candida albicans* morphogenesis under the supervision of Professor Jaime Correa-Bordes in a position funded by the FPU PhD scholarship programme from Ministerio de Ciencia e Innovación. We described how, in this human pathogen, the yeast-to-hyphae transition, which is essential for virulence, relies on the crosstalk between evolutionary conserved CDK and NDR kinase pathways. In 2010, I visited the group of Christophe d'Enfert at the Institut Pasteur to analyse the role



of these morphogenetic determinants on transcriptional regulation during biofilm formation. Also, during this period, I accumulated eighty hours of teaching experience. I successfully defended my PhD in December 2011, obtaining the maximum academic distinction and a European PhD mention, and publishing two research articles as first author in Q1 journals (Molecular Biology of the Cell, 2011 and PLoS Pathogens, 2012).

In 2012, my interest in the molecular drivers of core biological processes led me to join the research group of Sir Paul Nurse at Cancer Research UK. My postdoctoral stay was partially funded by the postdoctoral fellowship programme from Fundación Ramón Areces. During this stay I studied how CDK complexes order cell cycle progression in fission yeast. Our research showed that meiotic cycle events can be achieved by quantitative changes in CDK activity without the absolute requirement for cyclin specificity. I took primary responsibility for experiment design, performance and effective communication of my results, and thus served as the sole corresponding author of the paper published in Nature Communications (2015). This was an invaluable period in my career, working in an environment that fostered diversity and curiosity and acquiring decisive autonomy, leadership and communication skills.

In 2015 I joined Professor Luis Aragón's laboratory at Imperial College London-MRC to explore the mechanisms of DNA damage repair and chromosome biology. My motivation was to expand my technical knowledge in order to approach fundamental biological questions from an innovative perspective. During five years I continued developing my background in cell and molecular biology and genetics, acquiring also extensive experience in biochemical and biophysical methodologies. I established novel protein purification strategies from standard chromatography techniques and developed new protocols to adapt the use of cutting-edge single-molecule technologies to the mechanistic study of Structural Maintenance of Chromosome (SMC) complexes during their interaction with DNA. We obtained ground-breaking results including the real-time observation and characterisation of the molecular functions of the cohesin and Smc5/6 complexes. This work was published in top journals such as Science Advances (2019) and Molecular Cell (2020). The acquired expertise allowed me to establish prolific collaborations with highly recognised research groups in the field, both at the national (UK) and the international level. I was invited member of two PhD Thesis committees and took an active role in supervising PhD students. For this I was awarded a Mentoring Commendation from the Athena SWAN Programme (Imperial College London-MRC).

In January 2023 I joined the group of Professor Antonio Di Pietro at University of Córdoba to work in the fungal cross-kingdom pathogen *F. oxysporum*. I am intrigued by the role of chromatin as an integration platform for environmental stimuli, particularly in the context of host infection and the emergence of drug resistance. As an independent researcher I am keen on contributing to advancing the knowledge about fundamental aspects of genomic plasticity and virulence, but also on providing a novel framework to develop innovative strategies to tackle fungal pathogenesis.

Part C. RELEVANT MERITS

They may include publications, data, software, contracts or industrial products, clinical developments, conference, publications, etc. If these contributions have DOI, please include it

C.1. Publications

Must be include the corresponding author, the position occupied by the applicant researcher)

(*) Corresponding author (#) Equal contribution

1. Tanasie NL, **Gutierrez-Escribano P**, Jaklin S, Aragon L, Stigler J*. **(2/5)**. 2022. Stabilization of DNA fork junctions by Smc5/6 complexes revealed by single-molecule imaging. **Cell Rep**, 41(10):111778. doi: [10.1016/j.celrep.2022.111778](https://doi.org/10.1016/j.celrep.2022.111778). PMID: 36476856; PMCID: PMC9756111.
2. Martínez-García B, Dyson S, Segura J, Ayats A, Cutts EE, **Gutierrez-Escribano P**, Aragón L, Roca J*. **(6/8)**. 2022. Condensin pinches a short negatively supercoiled DNA loop during each round of ATP usage. **EMBO J.**, 19:e111913. doi: [10.15252/embj.2022111913](https://doi.org/10.15252/embj.2022111913). Epub ahead of print. PMID: 36533296.
3. **Gutierrez-Escribano P**[#], Hormeño S[#], Madariaga-Marcos J,(...) Moreno-Herrero F*, Aragon L*. **(1/14)** 2020. Purified Smc5/6 Complex Exhibits DNA Substrate Recognition and Compaction. **Mol Cell.**, 80(6):1039-1054.e6. doi: [10.1016/j.molcel.2020.11.012](https://doi.org/10.1016/j.molcel.2020.11.012). Epub 2020 Dec 9. PMID: 33301732; PMCID: PMC7758880. (29 citations)

4. Lee BG, Merkel F, Allegretti M, (...), Aragon L*, Beck M*, Löwe J*, Haering CH*. **(10/17)**. 2020. Cryo-EM structures of holo condensin reveal a subunit flip-flop mechanism. **Nat Struct Mol Biol.**, 27(8):743-751. doi: [10.1038/s41594-020-0457-x](https://doi.org/10.1038/s41594-020-0457-x). Epub 2020 Jul 13. PMID: 32661420; PMCID: PMC7610691. (69 citations)
5. **Gutierrez-Escribano P**[#], Newton MD[#], Llauró A, (...), Stigler J*, Rueda DS*, Aragon L*. **(1/13)**. 2019. A conserved ATP- and Scc2/4-dependent activity for cohesin in tethering DNA molecules. **Sci Adv.**, 5(11):eaay6804. doi: [10.1126/sciadv.aay6804](https://doi.org/10.1126/sciadv.aay6804). PMID: 31807710; PMCID: PMC6881171. (31 citations)
6. Garcia-Luis J, Lazar-Stefanita L, **Gutierrez-Escribano P**, (...), Koszul R*, Aragon L*. FACT mediates cohesin function on chromatin. **(3/16)**. 2019. **Nat Struct Mol Biol.**, 26(10):970-979. doi: [10.1038/s41594-019-0307-x](https://doi.org/10.1038/s41594-019-0307-x). Epub 2019 Oct 3. PMID: 31582854; PMCID: PMC6779571. (38 citations)
7. Villoria MT, **Gutierrez-Escribano P**, Alonso-Rodríguez E, (...), Clemente-Blanco A*. **(2/10)**. 2019. PP4 phosphatase cooperates in recombinational DNA repair by enhancing double-strand break end resection. **Nucleic Acids Res.**, 47(20):10706-10727. doi: [10.1093/nar/gkz794](https://doi.org/10.1093/nar/gkz794). PMID: 31544936; PMCID: PMC6846210. (8 citations)
8. **Gutierrez-Escribano P**^{*}, Nurse P. **(1/2)**. 2015. A single cyclin-CDK complex is sufficient for both mitotic and meiotic progression in fission yeast. **Nat Commun.**, 6:6871. doi: [10.1038/ncomms7871](https://doi.org/10.1038/ncomms7871). PMID: 25891897; PMCID: PMC4411289. (45 citations).
Corresponding author.
9. **Gutierrez-Escribano P**, Zeidler U, Suárez MB(...), Correa-Bordes J*. **(1/9)**. 2012. The NDR/LATS kinase Cbk1 controls the activity of the transcriptional regulator Bcr1 during biofilm formation in *Candida albicans*. **PLoS Pathog.**, 8(5):e1002683. doi: [10.1371/journal.ppat.1002683](https://doi.org/10.1371/journal.ppat.1002683). Epub 2012 May 10. PMID: 22589718; PMCID: PMC3349750. (33 citations)
10. **Gutierrez-Escribano P**, González-Novo A, Suárez MB, Li CR, Wang Y, de Aldana CR, Correa-Bordes J*. **(1/7)**. 2011. CDK-dependent phosphorylation of Mob2 is essential for hyphal development in *Candida albicans*. **Mol Biol Cell.**, 22(14):2458-69. doi: [10.1091/mbc.E11-03-0205](https://doi.org/10.1091/mbc.E11-03-0205). Epub 2011 May 18. PMID: 21593210; PMCID: PMC3135472. (44 citations)

C.2. Congress (Please, include the modality of your participation (invited conference, oral presentation, poster))

1. CHROMAVISION International Symposium. The Francis Crick Institute. London, UK. 23-24 May 2019. Attendant.
2. Workshop: “Dynamic Single-Molecule”. Lumicks. Amsterdam, Netherlands. 22-24 October 2018. Attendant.
3. Genetics Society Pombe Club. London, UK. 26 January 2015. Invited speaker: “Cyclin specificity requirement for meiotic progression in fission yeast”.
4. EMBO Conference on fission yeast: pombe 2013. 7th International Fission Yeast Meeting. London, UK. June 2013. Volunteer on the organising committee.
5. British Yeast Group Meeting 2011. Brighton, UK. 23-25 March 2011. Poster: Cbk1 dependent phosphorylation of BCR1 is required for biofilm formation in *Candida albicans*. Authors: **Gutierrez-Escribano P**, Bonhomme J, Bachellier-Bassi S, R. Vázquez de Aldana C, d’Enfert C, Correa-Bordes J.
6. International Symposium “Integrating morphogenesis with cell growth and cell division”. Salamanca, 17-18 September 2010. Fundación Ramón Areces. Attendant.
7. Human Fungal Pathogens (HFP2009). La Colle Sur Loup, France. 2-8 May 2009. Poster: Phosphoregulation of Mob2, a LATs/NDR kinase binding partner, during morphogenesis in *Candida albicans*. Authors: **Gutierrez-Escribano P**, González-Novo A, Caballero-Lima D, Pantoja-Godoy C, R. Vázquez de Aldana C and Correa-Bordes J.
8. Human Fungal Pathogens (HFP2007). La Colle Sur Loup, France. 4-7 May 2007. Poster: Regulation of cell separation during the morphogenetic switch in *Candida albicans*. Authors: González-Novo A, **Gutierrez-Escribano P**, R. Vázquez de Aldana C, Jiménez J, Correa-Bordes J.
9. Workshop: “Pathocycles: Role of cell cycle regulators in the induction of virulence programme in pathogenic fungi”. Universidad Internacional de Andalucía. Sede Antonio Machado, Baeza, Spain. 23-25 October 2006. Attendant. Regulation of cell separation during the morphogenetic



switch in *Candida albicans*. Authors: González-Novo A, Clemente-Blanco A, **Gutierrez-Escribano P**, R. Vázquez de Aldana C, Sánchez M, Jiménez J, Correa-Bordes J.

C.3. Research projects

(must indicate their personal contribution, and lines of research for which they have been responsible)

Reference: 100955 **Project title:** Functional dissection of mitotic chromatin. Senior Investigator Awards in Science. Wellcome Trust 2012-2013. 01/09/2013-28/02/2021. **PI:** Luis Aragón-Alcaide. Imperial College London. £1.397.521 **Type of participation:** Senior Researcher. Mechanistic studies of SMC complexes in chromatin dynamics.

Reference: 093917 **Project title:** Global cellular controls in fission yeast. Strategic Awards in Science. Wellcome Trust. 2010-2011. 01/12/2011-31/03/2015. **PI:** Paul Nurse. London Research Institute. £4.130.778 **Type of participation:** Research Fellow. Meiotic cell cycle control.

Reference: BFU2009-11251 **Project title:** Control transcripcional y morfogénesis por la NDR/LATS quinasa Cbk1 en *C. albicans*. Proyectos y ayudas Plan Estatal 2009. Ministerio de Economía y Competitividad. PI: Jaime Tomás Correa Bordes. Universidad de Extremadura. 01/01/2010-31/12/2012. 108.900,01 € **Type of participation:** FPU predoctoral fellow (until 15/10/2011). Characterisation of Cbk1 interactors and identification of PTMs involved in the regulation of its kinase activity.

Reference: GRU090001 **Project title:** Biología molecular del cáncer BIMOCAM. Proyectos y ayudas del Plan Regional 2008. Gobierno de Extremadura. PI: Pedro María Fernández Salguero. Universidad de Extremadura. 15/05/2009-30/04/2010. 30.514,00 € **Type of participation:** FPU predoctoral fellow. Study of molecular regulation of cell cycle progression and morphogenesis in *C. albicans*.

Reference: PRI08A017 **Project title:** Control de la morfogénesis del hongo patógeno humano *Candida albicans*. Proyectos y ayudas del Plan Regional 2007. Gobierno de Extremadura. PI: Jaime Tomás Correa Bordes. Universidad de Extremadura. 23/07/2008-23/07/2011. 24.817,00 € **Type of participation:** FPU predoctoral fellow. Study of the roles of the RAM pathway in *C. albicans* morphogenetic switch.