

## CURRICULUM VITAE (CVA)

CV date 17/10/2025

### Part A. PERSONAL INFORMATION

First name	Rosa		
Family name	Fernández		
Gender (*)	Female	Birth date	18/07/1983
Social Security, Passport, ID number	47043096T		
e-mail	rosa.fernandez@ibe.upf-csic.es	URL Web: www.metazomics.com	
Open Researcher and Contributor ID (ORCID) (*)	0000-0002-4719-6640		

#### A.1. Current position

Position	Científico Titular		
Initial date	15/12/2023		
Institution	Institute of Evolutionary Biology (CSIC-UPF)		
Department/Center	Biodiversity		
Country	Spain	Teleph. number	677638810
Key words	Phylogenomics, Terrestrialization, Invertebrate systematics		

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

Period	Position/Institution/Country/Interruption cause
June 2024 - January 2025	Maternity Leave
2020 - 2023	Ramón y Cajal Fellow, Institute of Evolutionary Biology
July - December 2019	Maternity Leave
2017 - 2019	Postdoctoral Fellow, Center for Genomic Regulation, Spain
2012 - 2016	Postdoctoral Fellow, Harvard University
2007 - 2011	PhD Student, Universidad Complutense de Madrid

#### A.3. Education

PhD, Licensed, Graduate	University/Country	Year
PhD, Conservation and Evolutionary Biology	Universidad Complutense de Madrid	18/11/2011
MsC, Conservation and Evolutionary Biology	Universidad Complutense de Madrid	June 2009
BSc, Biology (major in Zoology)	Universidad Complutense de Madrid	June 2006

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

I received my PhD in Evolutionary Biology from the Complutense University of Madrid in 2011. After a postdoc at Harvard University (2012-2016) with Prof. Gonzalo Giribet, I completed a second postdoc at the Center for Genomic Regulation and Barcelona Supercomputing Center (2017-2019) with Prof. Toni Gabaldón. My postdoctoral work was supported by competitive grants such as Fundación Caja Madrid, Juan de la Cierva-Incorporación, and Marie Skłodowska-Curie. In 2018, I received a Ramón y Cajal fellowship, and since 2020, I lead the Metazoa Phylogenomics and Genome Evolution Lab at the Institute of Evolutionary Biology (CSIC-UPF). Our research focuses on how animals adapted their genomes to colonise extreme environments, such as land and caves, to better understand the evolutionary origins of terrestrial and cave biodiversity.

I have been awarded several national and international research grants, including an ERC Starting Grant in 2020 (€1,5M) and a Human Frontier Science Program project in 2022 (€1M). In 2022 I also received funding within the 'Biodiversity Genomics Europe' project (Horizon Europe) to coordinate biodiversity sampling in biodiversity hotspots (funding as task leader: €403,000; total

project budget: €21M). I am also the principal investigator of two projects financed by the Agencia Estatal de Investigación (Proyecto de Generación de Conocimiento ref. PID2019-108824GA-I00, AEI, and Consolidación Investigadora, ref. CNS2023-144624), and one funded by Horizon Europe to infer function of genes in the ‘dark proteome’ of animal genomes (€250,000).

I have co-authored ca. 96 scientific publications, being first/last author in articles in relevant journals in the field of evolutionary biology such as *Nature Ecology and Evolution* (IF: 15.46), *Nature Communications* (IF: 17.69), *Molecular Biology and Evolution* (IF: 16.24), *Systematic Biology* (IF: 15.683) or *Current Biology* (IF: 10.834). I have also participated as a co-author in articles published in *Science* (IF: 47.73) or *Trends in Ecology and Evolution* (IF: 17.712), the product of collaborations with pan-European consortia. I have teaching experience at the university level and teaching and coordinating international postgraduate workshops on genomics and phylogenomics (see C5 below).

I have participated in national evaluation panels (AEI, Ramón y Cajal program, and FECYT, internal review of ERC proposals), and international (European Commission, ERC-CoG and BiodivERsA+ programs; Austrian Science Foundation, CONICYT Chile, Fundación Clemente Estable de Uruguay, Croatian Science Foundation, and the Swedish Research Council, where I have served as vice-chair on a panel in 2021 and 2022, and as a chair in 2023). At the Institute of Evolutionary Biology, I coordinated the Diversity commission, (2020-2021), and am a member of the Executive Board of the Institute (‘junta directiva’) and the Chair of the Biodiversity program. I have also served as elected member of the board of directors of the Spanish Society for Bioinformatics and Computational Biology and an elected council member of the pan-European consortium [European Reference Genome Atlas](#) (ERGA), formed by ca. 1,300 scientists around Europe and where I currently serve as an elected member of the Executive Board. My team actively participates in outreach activities such as yearly talks at schools to commemorate the International Day of Girls and Women in Science (11<sup>th</sup> February), blog entries in national newspapers such as [Ara Diari](#), or the scientific direction of outreach-oriented scientific videos, such as ‘[The Tree of Life](#)’ funded by one of the ‘conexiones’ established by CSIC (LifeHUB, where I also serve as a member of the executive board). Since 2024, I am an elected member of the [Academia Joven de España](#), and recipient of the ‘[Premio Nacional de Investigación Ángeles Alvariño](#)’.

## Part C. RELEVANT MERITS

### **C.1. Publications - Top 10 publications in the last 10 years (full list of publications [here](#))**

1. Vargas-Chávez C, Benítez-Álvarez L, Martínez-Redondo GI, Álvarez-González L, Salces-Ortiz J, Eleftheriadi K, Escudero N, Guiglielmoni N, Flot JF, Novo M, Ruiz-Herrera A, McLysaght A & **Fernández R. 2024.** A punctuated burst of massive genomic rearrangements by chromosome shattering and the origin of non-marine annelids. *Nature Ecology and Evolution*, <https://www.nature.com/articles/s41559-025-02728-1>
2. Martínez-Redondo GI, Barrios-Núñez I, Vázquez-Valls M, Rojas AM & **Fernández R. 2025.** FANTASIA leverages language models to decode the functional dark proteome across the animal tree of life. *Communications Biology*, <https://www.nature.com/articles/s42003-025-08651-2>
3. Balart-García, P., Aristide, L., Bradford, T., Beasley-Hall, P.G., Polak, S., Cooper, S.J.B., **Fernández, R. 2023.** Parallel and convergent genomic changes underlie independent subterranean colonization across beetles. *Nature Communications*, <https://www.nature.com/articles/s41467-023-39603-1>

4. Martínez-Redondo, G.I., Simón Guerrero, C., Aristide, L., Balart-García, P., Tonzo, V., **Fernández, R.** 2022. Parallel duplication and loss of aquaporin-coding genes during the ‘out of the sea’ transition as potential key drivers of animal terrestrialization. *Molecular Ecology*, <https://doi.org/10.1111/mec.16854>
5. Balart-García P, Cieslak A, Escuer P, Rozas J, Ribera I, **Fernández R.** 2021. Smelling in the dark: phylogenomic insights into the chemosensory system of a subterranean beetle. *Molecular Ecology* <https://doi.org/10.1111/mec.15921>
6. **Fernández R**, Marcet-Houben M, Legeai F, Richard G, Robin S, Wucher V, Pegueroles C, Gabaldón T, Tagu D. 2020. Selection following gene duplication shapes recent genome evolution in the pea aphid *Acyrtosiphon pisum*. *Molecular Biology and Evolution* <https://doi.org/10.1093/molbev/msaa110>
7. **Fernández R**, Gabaldón T. 2020. Gene gain and loss across the Metazoa Tree of Life. *Nature Ecology and Evolution* <https://doi.org/10.1038/s41559-019-1069-x>
8. Phillips H, (...), **Fernández R**, (...), Eisenhauer N. 2019. Global distribution of earthworm biodiversity. *Science* 366 (6464), 480-485. [Selected for journal cover](#)
9. **Fernández R**, Kallal RK, Dimitrov D, Arnedo MA, Giribet G, Hormiga G. 2018. Phylogenomics, Diversification Dynamics, and Comparative Transcriptomics across the Spider Tree of Life. *Current Biology* 28, 1489-1497. [Highlighted in The New York Times](#)
10. **Fernández R**, Sharma PP, Tourinho AL, Giribet, G. 2017. The Opiliones Tree of Life: shedding light on harvestmen relationships through transcriptomics. *Proceedings of the Royal Society B: Biological Sciences*, 284 (1849), 20162340

### **C.2. Conferences - Top 10 congress contributions in the last 10 years**

1. **Fernández, R.** *On hopeful monsters and the origin of animal terrestrial biodiversity*. EMBO Lectures on Evolutionary and Comparative Genomics, October 2024, Nauplio, Greece. Invited Keynote speaker.
2. **Fernández, R.** *Genome changes facilitating extreme habitat shifts in animals*. Congreso Regional de la Society for Molecular Biology and Evolution (SMBE), Montevideo (Uruguay), October 2022. Invited Keynote speaker.
3. **Fernández, R.** *A punctuated burst of massive genomic rearrangements and the origin of non-marine annelids*. EMBO Workshop on Genome assembly, September 2022, Brussels, Belgium. Invited Keynote speaker.
4. **Fernández, R.** *Parallel and convergent (macro)evolution facilitated extreme habitat shifts in animals*. International Symposium on Reference Genomes for Biodiversity, Cologne (Alemania), September 2022. Invited Keynote speaker.
5. **Fernández, R.** *Metazoa evolution through the lens of phylogenomics*. Symposium on Frontiers in Molecular Zoology, September 2019. Göttingen (Germany). Invited Keynote speaker.
6. **Fernández, R.** *Leveraging gene duplications to understand genome evolution across the metazoan tree of life*. Jornadas Argentinas de Sistemática y Cladística, April 2019. Tucumán (Argentina). Invited Keynote speaker.
7. **Fernández, R.** *The Spider Tree of life: a phylotranscriptomics approach*. European Congress of Arachnology, July 2018. Vác (Hungary). Invited Keynote speaker.
8. **Fernández, R.** *The Arthropod Tree of life through the lens of phylogenomics*. Willi Hennig Society Meeting, September 2016. Buenos Aires (Argentina). Invited Keynote speaker.
9. **Fernández, R.** *The Arthropod Tree of life through the lens of phylogenomics*. Department of Zoology, Cambridge University, September 2015. Cambridge (UK). Invited speaker.
10. **Fernández, R.** *Pitfalls and promises in the Arthropod Tree of life*. Department of Zoology, University of Massachusetts-Lowell, March 2014. Lowell (MA, USA). Invited speaker.

### **C.3. Research projects - Top 10 projects**

- *La reestructuración del genoma como impulsor de la adaptación al hábitat terrestre en anélidos clitelados* (BREAK2ADAPT). Agencia Estatal de Investigación (PID2024-161173NB-I00), 2025-2027, 213.750€. PI: **Rosa Fernández**
- *FAIR AI models for functional annotation of biodiversity genomics resources, and the investigation of function in the ‘dark proteomes’ across the Animal Tree of Life* (FAIRFUN4Biodiversity). Horizon Europe (OSCARS\_1st call\_229), 2025-2027. 250.000€. PI: **Rosa Fernández**

- *Más allá de la oscuridad: descifrando la base genómica de la colonización de cuevas en invertebrados a escala macroevolutiva* (SURFACE2CAVE). Agencia Estatal de Investigación (CNS2023-144624), 2023-2025. 199,885.92€. PI: **Rosa Fernández**
- *Land animal evolution: genomic landmarks on the path to terrestrial life* (SEA2LAND). European Research Council, Starting Grant (grant agreement 948281), 2021-2026. 1,499,450€. PI: **Rosa Fernández**
- *Reconstructing water to land transitions in arthropods through atoms, genes and fossils*. Human Frontier Science Program (grant agreement RGY0056/2022), 2022-2025. 1,080,000\$. PI: **Rosa Fernández**
- Biodiversity Genomics Europe. Horizon Europe (grant agreement 101059492), 2022-2025. 21M€. Budget as PI ('task leader'): 403,165€
- *Evolución de artrópodos terrestres: hitos genómicos en el camino hacia la vida en tierra firme*. Agencia Estatal de Investigación (PID2019-108824GA-I00), 2020-2023. 166,980€. PI: **Rosa Fernández**
- *The giant under our feet: genome sequencing of the Catalan endemic giant earthworm* Norana najaformis. First call of the Catalan Biogenome Project, 2020-2021. 7,000€. PI: **Rosa Fernández**
- *Exploring terra incognita: terrestrialization of arthropods in the era of genomics*. Marie-Sklodowska-Curie Individual Fellowship (grant agreement 747607), European Commission, Horizon 2020, 2018-2019. 170,121€. Budget for research: 20,000€. PIs: **Rosa Fernández & Toni Gabaldón**
- *Soil fauna of New Zealand: harvestmen and onychophorans*. Putnam Foundation, Harvard University (12,500\$), 2016. PI: **Rosa Fernández**

#### **C.4. Contracts, technological or transfer merits**

- *Virtual Symposium on Phylogenomics and Comparative Genomics*. Online, July 2020. Funded by The Company of Biologists (1,678€). Main organizer: **Rosa Fernández**. 1,040 participants

#### **C.5. Teaching experience**

- Since 2023 - Member of Board of Directors and lecturer, Workshop on Phylogenomics and Genome Evolution, Evomics, Cesky Krumlov, Czech Republic
- Since 2023 - Lecturer, Workshop on Genomics, Evomics
- Since 2019 - Coordinator & Instructor, Workshop on Phylogenomics & Population Genomics: Inference and Applications, University of Barcelona
- 2017 - Teaching assistant, I Workshop on Phylogenomics, Evomics.
- 2016 - Coordinator and instructor, Principles of Phylogenomics, Buenos Aires, Argentina
- 2009 – 2011 - Teaching assistant, 'Biología de Organismos y Sistemas', Universidad Complutense de Madrid (120 hours)

#### **C.6. Institutional Responsibilities & Prizes**

- 2024 - Premio Nacional de Investigación Joven, categoría 'Ángeles Alvarino'
- Since 2024 - Elected member, Academia Joven de España
- Since 2024 - Member executive board, Institute of Evolutionary Biology (CSIC-UPF)
- Since 2023 - Elected Executive Board Member, European Reference Genome Atlas (ERGA)
- 2021 - 2023 - Elected council member, European Reference Genome Atlas Consortium
- 2021 - 2023 - Elected board member, Sociedad Española de Bioinformática y Biología Computacional
- 2023 - Chair, Swedish Research Council, NT-C panel (Genetics and Evolutionary Biology)
- 2021 - 2022 - Vice chair, Swedish Research Council, NT-C panel (Genetics and Evol. Biology)
- 2021 - 2024 - Member of Executive Board, Conexiones LifeHUB-CSIC.
- 2020 - 2023 - Managing Editor, *PCI Genomics*; Associate Editor, *Systematics and Biodiversity* and *PeerJ*
- 2020 - 2021 - Coordinator, Diversity Committee, Institute of Evolutionary Biology (IBE)
- Since 2023 - Scientific Coordinator, Genomics Unit, IBE
- Since 2023 - Member of Executive Board & Chair of Biodiversity Program, IBE