

Saioa Manzano-Morales

PHD STUDENT · COMPARATIVE GENOMICS

Barcelona Supercomputing Center, Plaça d'Eusebi Güell, 1-3, 08034 Barcelona, Spain
Institute for Research in Biomedicine (IRB Barcelona), Baldori Reixac, 10, 08028, Barcelona, Spain

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Education

University of Barcelona (UB)

Barcelona, Spain

PHD GENETICS

Sept. 2022 - present

- Comparative Genomics - Barcelona Supercomputing Center, Life Sciences Department
- Comparative Genomics - Institute for Research in Biomedicine Barcelona, Mechanisms of Disease
- Advisor: Dr. Toni Gabaldón

Technical University of Madrid (UPM)

Madrid, Spain

MS COMPUTATIONAL BIOLOGY

Sept. 2020 - Sept. 2021

- Specializations: Computational-Systems Biology and Genomics, Computational Biology and Data Science
- Master's Thesis in Evolutionary Dynamics of Genomes, Viruses and Microbial Populations Group
- Advisors: Dr. Jaime Iranzo, Dr. Jaime Huerta-Cepas

University of the Basque Country (UPV-EHU)

Leioa, Spain

BS BIOCHEMISTRY AND MOLECULAR BIOLOGY

Sept. 2015 - July 2019

- Bachelor's Thesis in Bacterial and Fungal Biomimics Group
- Advisor: Dr. Aitor Rementería

Research Experience

Barcelona Supercomputing Center - Comparative Genomics Group

Barcelona, Spain

ADVISOR: DR. TONI GABALDÓN

2022 - Present

- Dissertation: "Relative Timing and Modularity in The Path to the Last Eukaryotic Common Ancestor"

Centro de Investigaciones Biológicas Margarita Salas - Biotechnology for Lignocellulosic Biomass

Madrid, Spain

ADVISOR: DR. JORGE BARRIUSO

2021 - 2022

- JAE Intro Fellowship awarded by CSIC
- Project: Degradation of conventional plastics by microbial consortia

Centre for Plant Biotechnology and Genomics - Evolutionary Dynamics of Genomes, Viruses and Microbial Populations

Madrid, Spain

CO-ADVISORS: DR. JAIME IRANZO, DR. JAIME HUERTA-CEPAS

2021

- Master's Thesis: "Inference and Comparison of Prokaryotic Pangenomes: Orthology vs Sequence Identity. Comparing the PanX, EggNog-mapper and Roary Pipelines"

University of The Basque Country - Dept of Immunology, Microbiology and Parasitology

Leioa, Spain

ADVISOR: DR. AITOR REMENTERÍA

2017-2019

- Ikasler Fellowship awarded by the Basque Government
- Bachelor's Thesis: "Phenotypic Characterization of strains of *Aspergillus fumigatus*: effect of fmaA mutations on growth and stress response"

Publications

PUBLISHED

Langschied, F., Bordin, N., Cosentino, S., Fuentes-Palacios, D., Glover, N., Hiller, M., Hu, Y., Huerta-Cepas, J., Coelho, L. P., Iwasaki, W., Majidian, S., **Manzano-Morales, S.**, Persson, E., Richards, T. A., Gabaldón, T., Sonhammer, E., Thomas, P.

D., Dessimoz, C., & Ebersberger, I. (2024). Quest for Orthologs in the Era of Biodiversity Genomics. *Genome biology and evolution*, 16(10), evae224.

de la Fuente, I*, **Manzano-Morales, S***, Sanz, D., Prieto, A., & Barriuso, J. (2024). Quorum sensing in bacteria: in silico protein analysis, ecophysiology, and reconstruction of their evolutionary history. *BMC genomics*, 25(1), 441.

Bernabeu, M*, **Manzano-Morales, S***, & Gabaldón, T. (2024). On the impact of incomplete taxon sampling on the relative timing of gene transfer events. *PLoS biology*, 22(3), e3002460.

Manzano-Morales, S*, Liu, Y*, González-Bodí, S., Huerta-Cepas, J., & Iranzo, J. (2023). Comparison of gene clustering criteria reveals intrinsic uncertainty in pangenome analyses. *Genome biology*, 24(1), 250.

IN REVIEW

Bernabeu, M*, **Manzano-Morales, S***, Marcet-Houben M*, & Gabaldón, T. (2025) Diverse ancestries reveal complex interactions during eukaryogenesis.

Bernabeu, M*, **Manzano-Morales, S***, & Gabaldón, T. (2025) Phylogeny-aware simulations suggest a low impact of unsampled lineages in the inference of gene flow during eukaryogenesis.

IN PREP

Manzano-Morales, S, Gabaldón, *Phylogenomics of Asgard archaea reveals pervasive horizontal gene transfer and a role of gene duplication in expanding genome size*

Awards, Fellowships, & Grants

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| 2022 | Predoctoral Grant , Gobierno Vasco - Government of the Basque Country | <i>Not taken</i> |
| 2022 | IV Bioinformatics Datathon: Award to the best Master's Thesis in Bioinformatics (Finalist)
, University of Granada | |
| 2021 | JAЕ Intro Fellowship , Consejo Superior de Investigaciones Científicas - CSIC | |
| 2018 | Ikasiker Fellowship , Gobierno Vasco - Government of the Basque Country | |

Presentations

CONTRIBUTED PRESENTATIONS

Manzano-Morales, S, Gabaldón, T., 6-8 May 2025. *Pervasive horizontal transfer and extensive gene duplication shape Asgard archaeal genomes*: 12th BSC Doctoral Symposium, Barcelona (Spain). **Oral Presentation**

Manzano-Morales, S, Bernabeu, M., Marcet-Houben M., Gabaldón, T., 14 November 2024. *Diverse ancestries reveal complex symbiotic interactions during eukaryogenesis*: BSC Life Sciences Department Seminar, Barcelona (Spain). **Oral Presentation**

Manzano-Morales, S, Gabaldón, T., 3 Sept- 5 Oct 2024. *Phylogenomics of Asgard archaea reveals pervasive horizontal gene transfer and a role of gene duplication in expanding genome size*: CGUE, Sant Feliu de Guixols (Spain). **Poster**

Manzano-Morales, S, Gabaldón, T., 20 June 2024. *Unveiling the relative contribution of horizontal gene transfer and gene duplication in the genome expansion of Asgard archaea*: XXIII Jornada de Biología Evolutiva, Barcelona (Spain). **Oral Presentation**

Manzano-Morales, S, Gabaldón, T., 20 June 2024. *Unveiling the relative contribution of horizontal gene transfer and gene duplication in the genome expansion of Asgard archaea*: XXIII Jornada de Biología Evolutiva, Barcelona (Spain). **Oral Presentation**

Manzano-Morales, S, Bernabeu, M., Marcet-Houben M., Gabaldón, T., 7-8 May 2024. *Reconstructing prokaryotic metabolic contributions to the Last Eukaryotic Common Ancestor*: 11th BSC Doctoral Symposium, Barcelona (Spain). **Oral Presentation**

Manzano-Morales, S, Gabaldón, T., 17-19 January 2024. *Horizontal Gene Transfer in Asgard Archaea*: SESBE, Málaga (Spain). **Poster**

Manzano-Morales, S, Gabaldón, T., 22-27 July 2023. *Horizontal Gene Transfer in Asgard Archaea*: SMBE, Ferrara (Italy). **Poster**

Manzano-Morales, S, Gabaldón, T., 5 July 2023. *Horizontal Gene Transfer in Asgard Archaea*: XXII Jornada de Biología Evolutiva, Barcelona (Spain). **Oral Presentation**

Manzano-Morales, S, Gabaldón, T., 9-10 May 2023. *Horizontal Gene Transfer in Asgard Archaea*: 10th BSC Doctoral Symposium, Barcelona (Spain). **Oral Presentation**

Manzano-Morales, S, Gabaldón, T., 3-7 October 2022. *A pan-genome view of the Asgard archaea, the closest relatives of eukaryotes*: ERGA Biodiversity Genomics, Online. **Poster & Lightning talk**

Manzano-Morales, S, Gabaldón, T., 17-18 September 2022. *A pan-genome view of the Asgard archaea, the closest relatives of eukaryotes*: Quest for Orthologs 7, Sitges (Spain). **Poster**

Manzano-Morales, S, Gabaldón, T., 12-17 September 2022. *A pan-genome view of the Asgard archaea, the closest relatives of eukaryotes*: EMBO Workshop. Comparative genomics of unicellular eukaryotes: Interactions and symbioses, Sant Feliu de Guixols (Spain). **Poster**

Teaching Experience

Spring 2024	Comparative and Functional Genomics, BS Bioinformatics, Universitat Pompeu Fabra (UPF) , Teaching Assistant	Barcelona, Spain
Spring 2023	Comparative and Functional Genomics, BS Bioinformatics, Universitat Pompeu Fabra (UPF) , Teaching Assistant	Barcelona, Spain
Fall 2022	Bioinformatics, BS Biology, Universitat Pompeu Fabra (UPF) , Teaching Assistant	Barcelona, Spain
Spring 2022	Comparative and Functional Genomics, BS Bioinformatics, Universitat Pompeu Fabra (UPF) , Teaching Assistant	Barcelona, Spain

Outreach & Professional Development

OUTREACH ACTIVITIES

Feb 2025	Programa 100tífiques , Presenter	Barcelona, Spain
Jan-Jun 2025	Crazy about Biomedicine - Fundació Catalunya La Pedrera , Volunteer Teacher	Barcelona, Spain
Apr 2023	Crazy about HPC - Fundació Catalunya La Pedrera , Volunteer Teacher	Barcelona, Spain
Apr 2023	Crazy about HPC - Fundació Catalunya La Pedrera , Volunteer Teacher	Barcelona, Spain
Feb 2023	Life Sciences Open Day - Barcelona Supercomputing Center , Volunteer and Presenter	Barcelona, Spain
May 2022	Women's Health Awareness Week- Barcelona Supercomputing Center , Volunteer	Barcelona, Spain
May 2022	9th BSC Doctoral Symposium- Barcelona Supercomputing Center , Volunteer	Barcelona, Spain
2022-Present	Bioinfo4Women - Barcelona Supercomputing Center , Member	Barcelona, Spain
Sep 2022	BSC Open House - Barcelona Supercomputing Center , Volunteer	Barcelona, Spain

WORKSHOPS

2024 Workshop in Phylogenomics, Český Krumlov, Czech Republic, 21 January - 3 February 2024

COURSES

Advanced Cognitive Abilities Critical thinking, Analytical skills, Questioning, Universitat Politècnica de Catalunya, 2024, 6h.

Oral Presentations: Beyond Slides, ThePaperMill, 2023, 8h.

Core communication skills, time and project management, ThePaperMill, 2022, 16h.

Scientific Outreach, Laniakea Management & Communication, 2021, 120h.

PROFESSIONAL MEMBERSHIPS

- Societat Catalana de Biologia (SCB) - Catalan Society for Biology
- Society for Molecular Biology and Evolution (SMBE)
- Sociedad Española de Biología Evolutiva (SESBE) - Spanish Society for Evolutionary Biology
- Sociedad Española de Microbiología (SEM) - Spanish Society for Microbiology
- Spanish Regional Student Group (RSG-Spain) - International Society for Computational Biology (ISCB)