

Jacob González Isa

PhD student at the University of Cambridge

Department of Plant Sciences & King's College Cambridge
MSc in Computational Biology — BSc (Hons) in Biochemistry

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Profile

Evolution is to me the most fascinating thing in Life.

I love fundamental research - I have been passionate about dissecting the principles of Life and Evolution since I was very young. My research combines long-read sequencing, computational biology and molecular genetics to understand some of the most repetitive (and least understood) regions of the genome: centromeres.

I enjoy developing new experimental and computational approaches that make previously inaccessible biology measurable.

More than 4 years of research experience in the intersection of epigenetics, genomics and bioinformatics.

Research interests

Long-read sequencing, centromeres and heterochromatin, 3C genomics, phylogenomics, proteomics, machine learning, meiosis and recombination

Education

PhD student in Plant Sciences — Postgraduate "la Caixa" Fellow

Department of Plant Science, University of Cambridge, Cambridge (UK) October 2024 - Present

- Funded by the competitive **"la Caixa" Foundation Postgraduate Abroad Fellowship**, awarded from the hands of the King of Spain Felipe VI.
- Working in the group of [Genetic and Epigenetic Inheritance in Plants](#) (Prof. Henderson)
- I am investigating the principles of chromatin architecture in the centromere (including how centromeric DNA folds) and the evolutionary mechanisms acting in the centromeres, especially recombination. For that:
 - Work as a **bioinformatician**
Pipeline and tool development, design of phylogenomic studies, long-read analysis, comparative genomics across species, 3C genomics, deep-learning (protein language models)
Bash, Python, R, Nextflow, HPC computing (SLURM).
Projects portfolio can be found on [my Github](#).
 - Work in **wet lab**
IP-MS (Immunoprecipitation followed by Mass Spectrometry), Pore-C (long-read 3C genomics), Nanopore sequencing with PromethION, etc.
- Graduate representative

MSc in Computational Biology

Technical University of Madrid (UPM), Madrid (Spain) September 2023 - July 2024

- Average of 9.56/10 - First Class Honours (ranked 2nd in cohort)
- Student representative
- Relevant courses:
 - Big Data Engineering (Apache Spark)
 - Machine Learning
 - SQL, SPARQL and Semantic Web
 - Computational methods in Evolution, Structural Biology and Biosystems modelling
 - Genomic data analysis and visualization
 - Genome assembly and annotation, variant calling, metagenomics.

BSc (Hons) in Biochemistry

University of Seville, Seville (Spain)

September 2019 - July 2023

- Average of 9.55/10 - First Class Honours (ranked 1st in cohort)
- 19 courses with Honours (top mark in class) out of 40
- Student representative
- Intern at the Department of Computer Science and Artificial Intelligence (2022/2023)

Erasmus+ year abroad - BSc Biochemistry (Biotechnology specialization)

University of Turin, Turin (Italy)

September 2021 - July 2022

- Funded by Erasmus+ full-year scholarship
- Additionally funded by the Santander Bank Erasmus Scholarship 2021/2022

Additional research experience

MSc thesis - Research Intern

CBGP (Centre of Plant Biotechnology and Genomics), Madrid (Spain) January 2024 - August 2024

- Working in phylogenomics and comparative genomics within the [research group of Jaime Huertas-Cepas](#)
- Advanced bash, R and Python integrated in High Performance Computing (HPC) with SLURM.
- ETE toolkit for phylogenomic analysis.
- MSc thesis: "Detection of metagenomic functional enzyme variants of biotechnological and ecological interest through phylogenomics" (grade: 10/10)

Erasmus+ Research Intern

ISTA (Institute of Science and Technology Austria), Vienna (Austria) July 2023 - September 2023

- Funded by Erasmus+ Internship Scheme
- Working in [Prof. Friml group](#), international reference in the auxin signalling field
- CRISPR/Cas9-mediated targeted mutagenesis in *Marchantia polymorpha*, cloning (Gateway, Gibson assembly), plant transformation, optimization of protoplast isolation of the microalgae.

BSc Thesis - Research intern

Department of AI and Computer Science, University of Seville, Seville (Spain)
October 2022 - June 2023
IBVF (Institute of Plant Biochemistry and Photosynthesis), Seville (Spain)

- Funded by the Scholarship by the Ministry of Education of Spain for Collaboration at University Departments
- Working in the group of [Systems Biology and Biotech in Microalgae](#).
- Microalgae culture, optimization of ChIP-seq protocol, Western blotting, bioinformatic analysis (cistromics and transcriptomics)
- BSc thesis: "Characterization of the epigenetic modification H3K27me3 in *Klebsormidium nitens*" (grade: 9.5/10)

JAE Intro CSIC (National Spanish Research Council) Research Intern

IRNAS (Institute of Natural Resources and Agrobiology of Seville), Seville (Spain)
October 2022 - June 2023

- Working in the [group of Ionic and Water Regulation in plants](#)
- Plant culture setup in hydroponics and soil, genotyping, RNA-seq, lyophilization, RT-PCR
- Funded by the JAE-Intro Scholarship

Amgen Scholars Programme

Department of Plant Science, University of Cambridge, Cambridge (UK) July 2022 - September 2022

- One of the most competitive Summer Research Programmes in Europe (5% acceptance rate). Funded by Amgen Foundation and coordinated by Harvard University
- Working in the group of Genetic and Epigenetic Inheritance in Plants (Prof. Henderson)
- Sequence alignments and phylogenetic analysis

Publications

- Piotr Włodzimierz*, Estela Perez-Roman*, **Jacob González Isa***, Michael Hong, Meng Zhang, Ludmila Oliveira, , Katharine Jenike, Robin Burns, Chenxi Zhou, Sagarika Koppera, Mia Becker, Nicola Gorringer, Petr Novak, Yennifer Mata-Sucre, Ioannis Kontoyiannis, Mark Blaxter, André Marques, Jiri Macas, Alexandros Bousios, Richard Durbin, Ian Henderson. Cyclical evolution of centromere architecture across 193 eukaryote species. *Submitted, In review* (2025)
- Piotr Włodzimierz*, Estela Perez-Roman*, Amanda Souza Câmara*, Gokilavani Thangavel, Laura A. Robledillo, Meng Zhang, **Jacob González Isa**, Letícia Maria Parteka, Marco Castellani, Bruno Huettel, André L. L. Vanzela, Ian R. Henderson, Alexandros Bousios, André Marques. Pan-genome analysis reveals the evolutionary dynamics of repeat-based holocentromeres. *Submitted* (2025)

Research funding and projects

- Frank Smart Studentship. Departmental award of £1,000 for research expenses.
- "Evolution of the eukaryotic pancentromere" - BCV-2025-3-0035. 500,000 CPU hours in RES (Spanish Supercomputing Network) HPC computing resources.

Teaching and research mentoring experience

Supervisor of the course "Mathematical and Computational Biology", University of Cambridge October 2024 - Present

- Course of second year (Part IB) of Natural Sciences degree at the University of Cambridge.
- More than 40 hours of teaching in small groups of undergraduates, plus revisions of exercise sheets.
- Project marker (more than 30 hours of marking projects of the course).

Supervisor of final-year undergraduate research project, University of Cambridge October 2025 - March 2026

Assistant teacher at the K-mer Workshop for Biodiversity Genomics, Wellcome Genome Campus (Hinxton, UK). June 2025

- I designed one of the [practical exercises](#) at the workshop.

Congresses, Conferences and Talks

- **Oral presentation (15 minutes)** at Gordon Research Seminar and **Poster presentation** at Gordon Research Conference "Centromere Biology 2026", New Hampshire, US July 2026.

- **3-minute Thesis Presentation** at LMB-EPFL Graduate Student Symposium 2026, LMB-MRC, Cambridge July 2026.
- **Poster presentation** at Advisor and Postgraduate students Annual Dinner, King's College, Cambridge May 2026.
- **Chair and Oral presentation (15 minutes)** at 2nd year Annual Postgraduate Presentation, Department of Plant Sciences, Cambridge May 2026.
- **Poster presentation** at XVI British Meiosis Meeting, Royal Society, London April 2026.
- **Oral presentation** (15 minutes) presenter at Research Cafe, Sainsbury Laboratory, Cambridge February 2026.
- **Oral presentation** (20 minutes) presenter at Symposium for Life and Biological Sciences (SymBLS) 2025, Cambridge. November 2025
- Symposium **organizer**, flash talk and poster presentation at the XV Spanish Bioinformatics Symposium October 2025
- **Poster award** at Workshop "Repetitive DNA: Function, Structure and Evolution", at Institut Botanic, Barcelona. October 2025
- Conference **organizer** of NoCaSS (Norwich and Cambridge Science Symposium). I attracted funding of more than 3,000 pounds. June 2025
- **Organizer and speaker** of Nucleate "From Lab to Market II" Workshop Series (entrepreneurship and scientific educational programme) May 2025
- 13th TULIP Summer School 2025 in France (fully funded; 15 participants among more than 1300 applicants) March 2025
- Attendance British Meiosis Meeting 2025 February 2025
- 30-minute **oral presentation**: "The Centromere Paradox: Why does the most important part of our DNA evolve so fast?" at King's College, Cambridge. October 2024
- Symposium **organizer** and poster presentation at the 1st Congress of the Spanish Society of Bioinformatics and Computational Biology (SEIBIC) June 2024
- Organizer and presenter of Nucleate "From Lab to Market" Workshop Series August 2024
- Summer school "Aula Blas Cabrera" (fully funded) on research, teaching and scientific innovation for the top 80 Spanish university students June 2024
- Poster presentation - JABI (Conference of Bioinformatics in Andalusia) June 2024

- Oral presentation at 2nd EELISA Scientific Student Competition in Budapest (Hungary) April 2024
- Poster presentation - IV International CBGP Workshop "Frontiers in Plant Sciences" July 2023
- Virtual Attendance - European Conference on Computational Biology 2023 - Issued by ISCB June 2023
- Poster Presentation - "Enhanced primary root growth in tomato through chloride nutrition: Insights from transcriptomic analysis", European Plant Biology Congress 2023 December 2022
- Oral presentation and Poster for the IX Conference in Marine Biotechnology in Andalusia - The University of Malaga September 2022
- Poster Presentation during the Amgen European Symposium August 2022
- Poster Presentation during the Sainsbury laboratory summer students' session August 2022

Fellowships, Honours and Awards

- **Excellentium 2026** in Lyon, France (fully funded; 100 participants worldwide). This is an international leadership summit in the biotechnology sector July 2026
- **Travel grants** by the **Genetics Society** (£500) and the **Cambridge Philosophical Society** (£400) for a Gordon Research Conference in the USA May 2026
- 13th **TULIP Summer School 2025** in France (fully funded; 15 participants among more than 1300 applicants) June 2025
- 3rd place in the Portuguese Bioinformatics League. My team MrPlanta was among the 4 finalist teams out of more than 50 international teams. March 2025
- FPU scholarship for doctoral studies in Spain (2nd position out of 216 awardees in Life Sciences). Declined. October 2024
- **End-of-Masters Award** (400€) by the Technical University of Madrid as 2nd ranked student October 2024
- **Open Bioinformatics Foundation (OBF) Event Fellowship** (600€) to attend the 1st Congress of the Spanish Society of Bioinformatics in Valencia August 2024
- 1st position in the 2nd EELISA Student Competition in Budapest for my oral presentation of my MSc thesis. In addition, I was awarded a competitive travel grant to attend this event. June 2024

- **Postgraduate 'la Caixa' Foundation Fellowship.** Selected among +1000 applicants to receive funding for my PhD studies (more than 120,000€). This fellowship is awarded from the hands of the King of Spain. May 2024
- **Rafael del Pino Excellence Scholarship.** One the most competitive fellowships (2% acceptance rate) for postgraduate studies abroad (48,000€). I had to decline it due to incompatibilities with the "la Caixa" Postgraduate Fellowship. April 2024
- Winner Nova 111 Student List. Ranked as one of the top 10 Spanish students in the field of Biosciences May 2024
- Winner in the II Edition of Debate Tournament - Cátedra IDANAE. This Debate Tournament aimed to promote discussions on the topic "Should AI be implemented in Healthcare systems?" May 2024
- **Excellence award by 'Real Maestranza de Caballería' and 'Seville Town Hall'** (1,500€) for the top-ranked student in the Faculty of Biology graduating class of 2022/2023 (with +150 graduating students each year). March 2024
- Scholarship for Collaboration in the Department of Plant Biotechnology (1,800€) at the Technical University of Madrid. January 2024
- Excellence Scholarship (900€) by the Technical University of Madrid, granted to new Masters students with the best academic records. December 2023
- **Extraordinary End-of-Degree Award**, exclusively granted to the top-ranked student in the graduating class of Biochemistry 2022-2023 November 2023
- #CampusSEBBM by the Spanish Society of Biochemistry and Molecular Biology for extraordinary academic performance June 2023
- Scholarship of the Spanish Ministry of Education for the collaboration at University Departments (2,000€). November 2022
- Atrévete 2022 Scholarship by McKinsey & Company consultancy firm (top 10 university students in Spain). The top consultancy firm McKinsey & Company awards 1000€ to the top ten Spanish undergraduates willing to develop their potential and leadership skills. October 2022
- JAE Intro Scholarship by the Spanish National Research Council (CSIC) to fund my stay as a research intern (3,500€). October 2022
- **Amgen Scholars Programme 2022.** Fully funded summer internship at the University of Cambridge. June 2022
- Santander Bank Erasmus Scholarship 2021/2022 awards 500€ to Erasmus outgoing students with the best academic records. June 2021

Training and Additional Formation

Languages

- **Advanced English** (grade A in Advanced Cambridge Exam, C2 level)
- **Intermediate French** (B1 DELF)
- **Intermediate Italian** (B1 by the University of Turin)
- **Basic German** (A2/B1 by Official School of Languages of Seville)

Courses

- 12th Repeat Explorer Workshop "Repetitive DNA Annotation in Genome Assemblies"
May 2025
- Bayesian Phylogenetics Workshop by the Society of Spanish Researchers in UK and the
Systematics Society April 2025
- Entrepreneurship Lab Social Venture Residential at University of Cambridge February
2025
- Entrepreneurship Lab Residential Week and One-year Programme at University of Cam-
bridge October 2024
- One-month International Workshop on Plant Genomics - DE<code> LIFE July 2024
- Machine Learning and Big Data for Bioinformatics (online, 100 hours) at University of
Granada Apr 2024 - June 2024
- McKinsey Forward Programme May 2024
- Microsoft Certified: Azure AI Fundamentals May 2024
- Implementation of Machine Learning in Biology, VIII Bioinformatics Symposium at
University of Granada February 2024
- Phylogenomic data analysis and visualization using ETE Toolkit (in person) at Techni-
cal University of Madrid November 2023
- Programming in Python at University of Málaga June 2022
- Biology Meets Programming: Bioinformatics for Beginners (online) at UC San Diego
(online) August 2021

Service activities and volunteering

- **Co-Founder and Editor of "Tea Phytologist"**, a student-led, satirical, spoof jour-
nal which was founded in 1908 in the Department of Plant Sciences of the University of
Cambridge. March 2026 - Present

- **Founder and President of "Red Pioneros"**, an NGO that helps high-school students from underprivileged backgrounds (working class, first generation, etc.) to access higher education <https://www.redpioneros.org/> October 2025 - Present
- **Graduate representative of the Postgraduates of the Department of Plant Sciences**, University of Cambridge October 2024 - Present
- **Student leader at Nucleate UK**. I am helping participant teams of Activator UK to navigate through the flagship Nucleate's accelerator program. October 2024 - Present
- **Mentor at Nucleate Dojo Programme**. I helped undergraduates to transition to their PhD with advice in their PhD applications January 2026 - May 2026
- **Student leader at Nucleate UK**. I am helping participant teams of Activator UK to navigate through the flagship Nucleate's accelerator program. October 2024 - Present
- Member of ISCB (International Society for Computational Biology) Regional Student Group from Spain, a community for students interested in Bioinformatics that organize symposiums, talks and related activities. January 2024 - Present
- **Co-MD Nucleate Spain**, a student-led organization representing the largest global community of bio-innovators. Since July 2024, I have worked as the co-Managing Director of Nucleate Spain. January 2024 - January 2026
- Member of CivicoZero Turin (welcoming unaccompanied foreign minors alone in Italy) and SottoSupra Turin (Youth Movement for Save the Children, carrying out awareness-raising and active citizenship actions to promote and protect the rights enshrined in the UN Convention on the Rights of the Child). October 2021 - June 2022

Media outreach and mentions

- [Jacob González, the young Andalusian who is shining at Cambridge with his scientific career](#) - TV interview for "La tarde, aquí y ahora" (biggest audience in CanalSur channel). August 2025
- [A scientist from Seville at the University of Cambridge: 'There are still prejudices about Andalusians, but they are gradually disappearing.'](#) ABC newspaper (with the biggest audience in Andalusia) interviewed me and published a series of four articles. TikTok and Instagram shorts were also released, which accumulated around 1 million views. July 2025

- ["They study in Cambridge"](#) - Radio interview by Ainhoa Caballero for the radio program "Spaniards Abroad". RNE (Radio Nacional Española) is Spain's national public radio broadcaster. July 2025
- [A student from Seville receives a grant from the 'la Caixa' Foundation to study a postgraduate course abroad](#) - "Aljarafe Noticias" Newspaper June 2025
- [Bioinformatics, Spain and I](#) - Blog and website of the Open Bioinformatics Foundation (OBF)
- [Postgraduate studies abroad with a 'La Caixa' Fellowship](#) - University of Seville September 2024
- [The new voices of science - Different paths and the same goal: living for and from science](#) - Front cover of "El Diario Montañés" and "UIMP" newspapers August 2024
- [What is like to be part of the 2nd EELISA Student Scientific Competition?](#) - EELISA website June 2024
- [Interview about my Erasmus year at the University of Turin](#) - University of Seville November 2022
- [My experience as an Amgen Scholar at the University of Cambridge](#) - University of Seville September 2022