

# Manuel Lera Ramírez

## Personal information

### ORCID:

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### GitHub:

[@manulera](https://github.com/manulera)

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### Languages:

- Spanish (native)
- English (proficient)
- French (intermediate)
- Italian (intermediate)

## Software development

### Programming languages:

- Python
- C++
- Matlab
- JavaScript
- PHP (personal projects)
- MySQL (personal projects)

### Web development:

- HTML/CSS/JavaScript
- Symfony (PHP)
- React (JavaScript)
- FastAPI (Python)
- NGINX
- Cloud (Digital Ocean)

### Other:

- Ontology engineering (Protegé)
- Containerisation (Docker)

## Academic awards

### 2016 - Prix Syngenta Crop Protection Monthey

Best academic record in MSc promotion

### 2014 - Outstanding Achievement Award

Best academic record in Bachelor promotion.

### 2010 - Excellence in Academic Performance

Best academic record in Baccalaureate promotion.

### 2010 - Bronze medal at the Spanish National Chemistry Olympics

### 2010 - Extraordinary Baccalaureate Award

Regional distinction awarded to students with the best academic record in Baccalaureate.

## Summary

During my PhD I used fission yeast to study the mitotic spindle, combining experimental and computational approaches. I grew increasingly interested in FAIR data in the context of model organism genetics, and decided to join PomBase, the model organism database for fission yeast, where I developed quality control pipelines and worked as a biocurator. Now I am working on [Genestorian](#), an Open Source web application that will allow researchers to organise collections of model organism strains and recombinant DNA.

## Experience

### ► Postdoctoral fellow: UCL, London, UK / Apr 2022 - Sept 2024

- Working on [Genestorian](#) and [ShareYourCloning](#).

### ► Biocurator in PomBase: UCL, London, UK / Apr 2022 - Sept 2024

- Curation in collaboration with authors, documentation of website and tools.
- [FYPO](#) Phenotype ontology engineering (Protegé), software development for database quality control ([Python](#)) and ontology visualisation ([JavaScript](#)).

### ► Postdoctoral fellow: Institut Curie, Paris, France / Jan 2021 - Nov 2021

Continuation of my PhD work in the lab of Dr. Phong Tran, described below.

### ► PhD in Biology: University of Heidelberg, Germany / Sep 2016 - Dec 2020

[Phong Tran Lab, Institut Curie, France / Feb 2018 - Dec 2020](#)

- Fission yeast genetics, live microscopy and image analysis (Python/Matlab) to study microtubule dynamics in the mitotic spindle.
- First author publication measuring microtubule dynamics during anaphase B for the first time in any organism using fission yeast ([Lera-Ramirez et al. 2022](#)).
- Coauthor publication developing an analysis pipeline and graphical user interface for the analysis of microscopy movies ([Loncar et al. 2020](#)).

[François Nédélec Lab, EMBL Heidelberg, Germany / Sep 2016 - Jan 2018](#)

- Analytical modelling (Python/Matlab) and computer simulations (C++) of cytoskeleton mechanics.
- Participation in the development of the simulation software [Cytosim](#), a large C++ project involving multiple developers running for more than 16 years.
- First author publication modelling microtubule sliding ([Lera-Ramirez & Nédélec 2019](#)).
- Collaboration with experimentalists extending simulation to model their system ([Hannabuss et al. 2019](#)).

### ► MSc Biochemistry: University of Geneva, Switzerland / Sep 2014 - Apr 2016

- Master thesis in the laboratory of Prof. Marcos González-Gaitán using live embryo imaging to study oriented cell division during zebrafish development.
- Development of an image analysis pipeline and graphical user interface still used in the lab, which led to coauthorship in [Bürgi et al. 2020](#).

### ► BSc in Biotechnology: University of Zaragoza, Spain / Sep 2010 - Jun 2014

- Erasmus scholarship in University of Geneva (Course 2013-2014).
- Bachelor thesis in the laboratory of Prof. Marie-Luce Bochaton-Piallat on circadian expression of actin isoforms in pig endothelial cells.

## Awarded funding

- UKRI (Marie Curie underwrite) postdoctoral fellowship / Sep 2023
- ELIXIR-UK DaSH Fellowship / Sept 2022 - [link](#)  
Funding and training fellowship to produce training videos for PomBase users.
- Alan Turing Institute Post-Doctoral Enrichment Award / Jul 2022 - [link](#)  
£2000 to fund expert advice for the development of ShareYourCloning by the [Research Software Development Group](#) in UCL.
- LabEx Transition fellowship / Feb 2021 - [link](#)  
Fellowship to fund part of my postdoctoral stint in Institut Curie
- H2020 Marie Skłodowska-Curie Actions PhD fellowship / Sep 2016 - [link](#)  
PhD fellowship, part of an International Training Network

## Publications

### **PomBase: a Global Core Biodata Resource-growth, collaboration, and sustainability**

Rutherford KM, [Lera-Ramírez M](#), Wood V

Genetics (2024) - [doi:10.1093/genetics/iyae007](#)

### **Revised fission yeast gene and allele nomenclature guidelines for machine readability**

[Lera-Ramírez M](#), Bähler J, Mata J, Rutherford K, Hoffman CS, Lambert S, Oliferenko S, Martin SG, Gould KL, Du LL, Sabatinos SA, Forsburg SL, Nielsen O, Nurse P, Wood V.

Genetics (2023) - [doi:10.1093/genetics/iyad143](#)

### **Microtubule rescue at midzone edges promotes overlap stability and prevents spindle collapse during anaphase B**

[Lera-Ramírez M](#), Nédélec, F. J., & Tran, P. T.

eLife (2022) - [doi:10.7554/eLife.72630](#)

### **Theory of antiparallel microtubule overlap stabilization by motors and diffusible crosslinkers**

[Lera-Ramírez M](#), & Nédélec, F.J.

Cytoskeleton (2019) - [doi:10.1002/cm.21626](#)

### **Self-Organization of Minimal Anaphase Spindle Midzone Bundles**

Hannabuss, J., [Lera-Ramírez M](#), Cade, N. I., Fourniol, F. J., Nédélec, F., Surrey, T.

Current Biology (2019) - [doi:10.1016/j.cub.2019.05.049](#)

### **Kinesin-14 family proteins and microtubule dynamics define S. pombe mitotic and meiotic spindle assembly, and elongation**

Loncar, A., Rincon, S. A., [Ramírez M. L.](#), Paoletti, A., & Tran, P. T.

Journal of Cell Science (2020) - [doi:10.1242/jcs.240234](#)

### **Ligand Binding to the Collagen VI Receptor Triggers a Talin-to-RhoA Switch that Regulates Receptor Endocytosis**

Bürgi, J., Abrami, L., Castanon, I., Abriata, L. A., Kunz, B., Yan, S. E., [Lera M](#), ... van der Goot, F. G.

Developmental Cell (2020) - [doi:10.1016/j.devcel.2020.04.015](#)

### **Ase1 selectively increases lifetime of antiparallel microtubule overlaps.**

Krattenmacher, J., [Lera-Ramírez M](#), Herynek S., Liu X., Neuzil P., Nedelec F.J., Diez S., Braun M., Lansky Z.

Current Biology (submitted August 2022, in revision pending resubmission)

## Open Source Software

### **ShareYourCloning** - [Link](#)

Web application to document molecular cloning. JavaScript/React and Python/FastAPI.

### **pydna (Maintainer)** - [Link](#)

Open Source python library to simulate cloning.

### **Genestorian prototype (Hobby project)** - [Link](#)

A proof of concept prototype not intended for further development. It was used to show researchers an interface that uses links between strains, alleles, plasmids, etc. Built with PHP/Symfony and MySQL.

### **PomBase allele quality control (PomBase project)** - [Link](#)

Python pipeline to fix allele descriptions in PomBase to adhere to our nomenclature and verify aminoacid coordinates.

### **Ontology relationship viewer (PomBase project)** - [Link](#)

Simple web application (HTML and vanilla JavaScript) to visualise ontology relationships in the browser, and copy relationship maps in MERMAID format to be pasted in GitHub issues.

### **Cytosim (Contributor)** - [Link](#)

Computer simulation of cytoskeleton mechanics (C++). I extended it during my PhD, and developed a [grammar](#) for syntax highlighting of simulation configuration files.

### **Univarscatter (Personal project)** - [Link](#)

A bee swarm plot implementation in MATLAB. More than 1600 downloads from Mathworks, used by [others](#).

### **eLabFTW (Contributor)** - [Link](#)

Open Source Electronic Lab Notebook (Docker/PHP/MySQL). Contributed new page view [#2370](#).

### **BioPython (Contributor)** - [Link](#)

### **bbop-graph (Contributor)** - [Link](#)

## Mentorship Programmes

### **Google Summer of Code 2022 (Mentor)** - [Link](#)

I mentored a third year Computer Science student to develop a first prototype of a pipeline to extract genotypes from laboratory spreadsheets.

### **Open Life Science - 2021 (Mentee)** - [Link](#)

16-week mentorship programme that trains researchers to become Open Science ambassadors, focusing on inclusion and Open Science. After that, I also participated as training session facilitator.

