RODRIGO GARCÍA-TEJERA

CONTACT

Institute of Genetics and Cancer, University of Edinburgh.

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EDUCATION

2024 - PhD in Regenerative Medicine

University of Edinburgh, UK

Main project: Stochastic modelling of regulation strategies in stem cell populations.
Teaching: Primer for Mathematical Modelling for Biologists (EASTBIO).

2019 - MSc in Physics

Universidad de la República, Uruguay

Main project: Relationship between connectivity and functionality in synthetic neural networks.
Other topics: Statistical mechanics; Monte Carlo methods; Non-linear physics; Complex networks; Complex systems school (ICTP, Trieste, Italy).

2014 - BSc in Physics

Universidad de la República, Uruguay

Thesis: The role of intermediaries in the synchronisation of pulse-coupled oscillators

OVERVIEW

As a mathematical biologist with a physics background, I'm focused on merging physics-based ideas with experimental and computational techniques to understand living systems. My research explores how stem cell manage to maintain and regenerate tissues in the face of randomness, questioning how these cells communicate, self-organize, and adapt. I also investigate how cancerous tissues exploit the tumour microenvironment to fuel phenotypic plasticity, metastasis, and resistance to treatment. For me, mathematical models are not just tools for prediction; they're lenses that allow us to uncover hidden patterns in experimental results, driving the design of more powerful and precise experiments.

EMPLOYMENT

2024-present

Cross-disciplinary Research Fellow, Institute of Genetics and Cancer, University of Edinburgh, UK.

Postdoctoral researcher: Integrating quantitative and experimental approaches to understand the emergence of phenotypic heterogeneity and plasticity in cancerous tissue.

2011-2021

Research assistant and lecturer, Physics Institute, Universidad de la República, Uruguay.

Lecturer: Introduction to Biophysics II; Laboratory of Biophysics I; Laboratory of Biophysics II; Laboratory of Physics IV, Laboratory of Physics V.
Teaching assistant: Laboratory of Physics I, Laboratory of Physics II, Statistical Mechanics, Introduction to Physics II.
Research assistant: Statistical Mechanics and Nonlinear Physics group.
Other tasks: Staff representative at Physics Institute's teaching board.

2017-2019

Lecturer, Universidad Tecnológica, Uruguay.

Biomedical engineering: Lecturer in Waves, Mechanics and Heat Transfer; lecturer in Electrical Physics.
Mechatronics engineering: Lecturer in Electromagnetism.

AWARDS AND GRANTS

10/2025

Best contributed talk award at the Crick international Cancer Conference

09/2025

Best Poster Prize runner-up Organoids Are Us conference

09/2023

Wilmut Prize runner-up
Award to best final-year PhD research talk at Centre for Regenerative Medicine, University of Edinburgh.

06/2022

Best Poster prize runner-up
Award to best second-year PhD poster presentation at Centre for Regenerative Medicine, University of Edinburgh.

03/2020

Edinburgh Global scholarship
Award covering the overseas tuition fee for the PhD in Regenerative Medicine.

01/2020

Chancellor's Fellows studentship
Award providing stipend for the PhD in Regenerative Medicine.

09/2016

Comisión Sectorial de Investigación Científica (CSIC) research grant 97/2016
Small grant aimed at early-career researchers and advanced post-grad students to conduct a piece of research independently.

03/2015

Agencia Nacional de Investigación e Innovación (ANII) MSc. grant
Grant and stipend to undertake a 2 years Masters by Research course.

PUBLICATIONS

- Short, S., García-Tejera, R., Schumacher, L.J., & Coutu, D.L. (2025). Next-gen lineage tracing: Integrating imaging, sequencing, and computational tools to unravel development. npj Systems Biology and Applications, 11(1), 60.
- García-Tejera, R., Tian, J. Y., Amoyel, M., Grima, R., & Schumacher, L. J. (2025). Licensing and niche competition in spermatogenesis: mathematical models suggest complementary regulation of tissue maintenance. Development, 152(1).
- (PhD Thesis) García-Tejera, R. (2024). Stochastic modelling of regulation strategies in stem cell populations. University of Edinburgh.
- Gallot, T., Gau, D., & García-Tejera, R. (2023). Coupled oscillations of the Wilberforce pendulum unveiled by smartphones. American Journal of Physics, 91, 865–866.
- García-Tejera, R., Schumacher, L., & Grima, R. (2022). Regulation of stem cell dynamics through volume exclusion. Proceedings of the Royal Society A, 478(2266), 20220376.
- García, R., Martí, A., Cabeza, C., & Rubido, N. (2020). Small-worldness favours network inference in synthetic neural networks. Scientific reports, 10(1), 1-10.
- (MSc. Thesis) García, R. (2019). Connectivity inference in neural networks with C. elegans structure.
- García, R., Rubido, N., Marti, A., & Cabeza, C. (2014). The role of intermediaries in the synchronization of pulse-coupled oscillators. The European Physical Journal Special Topics, 223(13), 2819-2829.
- Cabeza, C., Briozzo, C., Garcia, R., Freire, J., Marti, A., & Gallas, J. (2013). Periodicity hubs and wide spirals in a two-component autonomous electronic circuit. Chaos, Solitons & Fractals, 52, 59-65.

CONFERENCES

10/2025

Crick International Cancer Conference, The Francis Crick Institute, London, UK.
Contributed talk: 'Mapping the Paths and Rates of Phenotypic Switching through Experimental and Mathematical Modelling of Colorectal Cancer Plasticity'.

09/2025

Organoids Are Us Conference, CRUK Scotland Institute, Glasgow, UK.
Poster: 'Poster: Mapping the Paths and Rates of Phenotypic Switching through Experimental and Mathematical Modelling of Colorectal Cancer Plasticity'.

05/2025

Beatson International Cancer Conference, CRUK Scotland Institute, Glasgow, UK.
Poster: 'Poster: Mapping the Paths and Rates of Phenotypic Switching through Experimental and Mathematical Modelling of Colorectal Cancer Plasticity'.

02/2025

INTERPHACE Symposium, The Francis Crick Institute, London, UK.
Contributed talk: 'Integrating experimental and computational approaches to unravel stem cell dynamics in *Drosophila* spermatogenesis'.

07/2024

European Society for Mathematical and Theoretical Biology Conference, Toledo, Spain.
Contributed talk: 'Licensing and niche competition in spermatogenesis: mathematical models suggest complementary regulation of tissue maintenance'.

05/2024

Physics of Biological Cells Conference, University of Edinburgh, UK.
Contributed Talk: 'Licensing and competition of stem cells at the niche combine to regulate tissue maintenance'.

11/2023

Stem Cell Fate Choice Mechanisms and Models, University of Bath, UK.
Invited speaker: 'Uncovering regulation strategies of somatic stem cells in spermatogenesis'.

09/2023

Physics of Living Matter Conference, University of Cambridge, UK.
Poster: 'Uncovering regulation strategies of somatic stem cells in spermatogenesis'.

05/2023

Edinburgh Mathematical Biology Conference (EdMathBio), University of Edinburgh, UK.
Invited speaker: 'The role of licensed states of somatic stem cells in spermatogenesis'.

09/2022

European Society for Mathematical and Theoretical Biology Conference, Heidelberg, Germany.
Contributed talk: 'Regulation of stem cell dynamics through volume exclusion'.

08/2022

Dynamics Days Europe 2022, University of Aberdeen, UK.
Contributed talk: 'Stochastic modelling of stem cell dynamics'.

07/2022

Biology for Physics Conference, Biomedical Research Centre, Barcelona, Spain.
Contributed talk: 'Finding signatures of regulation strategies in stem cell populations'.

08/2020

Society for Mathematical Biology Annual Meeting, virtual meeting.
Poster: 'Small-worldness favours network inference in synthetic neural networks'.

11/2018

Dynamics Days Latin America and the Caribbean, Punta del Este, Uruguay.
Poster: 'Connectivity inference in networks with C.elegans structure'.