

## FIRST PERSON

# First person – Marcelo da Silva

First Person is a series of interviews with the first authors of a selection of papers published in Journal of Cell Science, helping researchers promote themselves alongside their papers. Marcelo da Silva is first author on 'Clues on the dynamics of DNA replication in *Giardia lamblia*', published in JCS. Marcelo conducted the research described in this article while a postdoctoral fellow in Maria Carolina Elias's lab at Cell Cycle Laboratory, Butantan Institute, São Paulo, Brazil. He is now a newly hired PI at the Chemistry Institute, University of São Paulo, Brazil, investigating DNA metabolism of single-celled parasites.

### How would you explain the main findings of your paper in lay terms?

*Giardia* is a parasite that affects millions of people worldwide. In addition to not having mitochondria, this unicellular parasite has two nuclei. We show that the replication of these nuclei occurs very quickly using minimal cellular resources. The most interesting finding is that 20% of the *Giardia* population showed non-synchronized replication of their nuclei. After sequencing DNA using a cutting-edge approach, we gathered evidence that allows us to hypothesize that the asynchronous replication observed occurs for *Giardia* to obtain variability in important genes during its life cycle.

### Were there any specific challenges associated with this project? If so, how did you overcome them?

Scientists often encounter challenges while developing their projects. In our case, it was to perform *Giardia* DNA sequencing analyses using an innovative approach for identifying replication origins. We solved this challenge through a collaboration with another research group.

### When doing the research, did you have a particular result or 'eureka' moment that has stuck with you?

When we observed that *Giardia* had a high proportion of replication-transcription conflicts in regions containing specific genes, we knew that this finding could explain the discrepancy in the replication synchronization of the nuclei in that 20% of the population.

### Why did you choose Journal of Cell Science for your paper?

I chose Journal of Cell Science because it has a great reputation and a thorough peer-review process.

### Have you had any significant mentors who have helped you beyond supervision in the lab? How was their guidance special?

Yes. My mentors help me a lot with suggestions in the development of experiments and, most important, they guided me during the next steps of my scientific career.

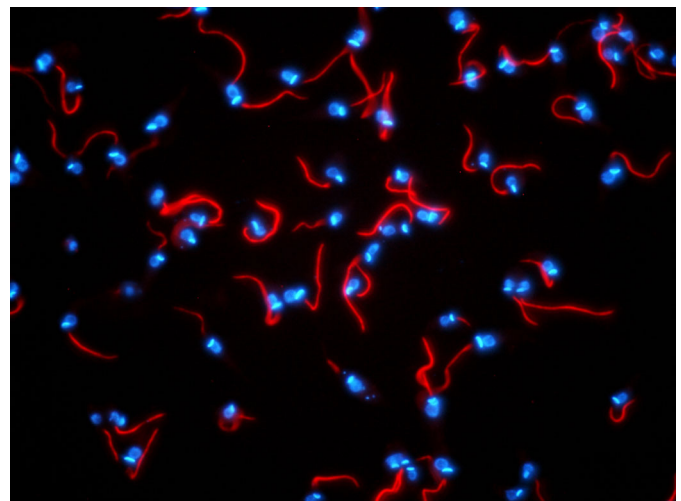
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Marcelo da Silva

### What motivated you to pursue a career in science, and what have been the most interesting moments on the path that led you to where you are now?

The main reason that led me to pursue a scientific career was to contribute to the advancement of knowledge. This is the most important task in the world, from my point of view. The most interesting moment on the path that got me to where I am now was



Immunofluorescence microscopy of *Trypanosoma* parasites. Nuclei are in blue and flagella in red.

when I decided that I wanted to be a scientist. As I was born in a 'favela' in Brazil, most people told me to give up, as it was practically impossible.

**Who are your role models in science? Why?**

Without a doubt, my role models in science are those who contributed to science being disseminated as widely as possible, such as Carl Sagan, Richard Feynman and, more recently, Neil deGrasse Tyson.

**What's next for you?**

I was recently hired as a professor at the best Brazilian university (University of São Paulo). The next step in my career is to establish a strong and solid research group, as well as to develop social projects related to scientific learning that can help those most in need.

**Tell us something interesting about yourself that wouldn't be on your CV**

I was born into an extremely poor family in a favela in the city of São Paulo, Brazil. When I was a child, I was starving, and my father abandoned us when he found out that my mother had become ill. I thus grew up with my mother assuming both roles (father and mother). My thirst for knowledge was thanks to my mother who always encouraged me to study. She was the only person who saw the future I would have.

**Reference**

da Silva, M. S., Vitarelli, M. O., Viala, V. L., Tsantalis, K., da Silva Pires, D., Franco, T. A., de Azevedo, I. L. M. J., Elias, M. C. and Tonelli, R. R. (2023). Clues on the dynamics of DNA replication in *Giardia lamblia*. *J. Cell Sci.* **136**, jcs260828. doi:10.1242/jcs.260828