© 2018. Published by The Company of Biologists Ltd | Journal of Cell Science (2018) 131, jcs218834. doi:10.1242/jcs.218834

FIRST PERSON

First person – Simona Amodeo

First Person is a series of interviews with the first authors of a selection of papers published in Journal of Cell Science, helping early-career researchers promote themselves alongside their papers. Simona Amodeo is the first author on 'Characterization of the novel mitochondrial genome replication factor MiRF172 in *Trypanosoma brucei*', published in Journal of Cell Science. Simona is a PhD student in the lab of Torsten Ochsenreiter at the Institute of Cell Biology, University of Bern, Switzerland, investigating mitochondrial genome anchoring, replication and inheritance in *Trypanosoma brucei*.

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

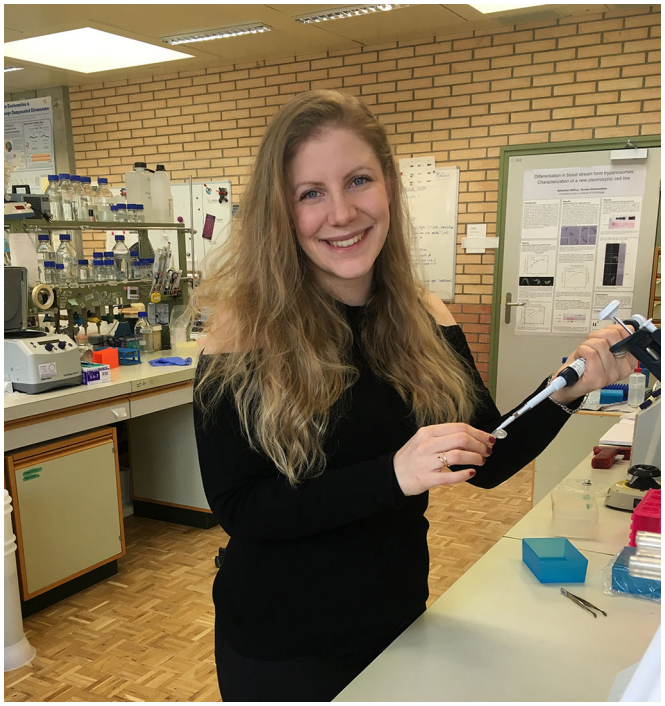
All cells need to produce energy to live. Eukaryotic cells, such as the cells of our body, but also the single-celled parasite *Trypanosoma brucei*, produce this energy in their mitochondria. To allow all the important information required for energy production and other essential reactions performed in the mitochondrion to be inherited, part of the information is encoded by the genes of the mitochondria, with the other part encoded by the nuclear genome. In this way, when cells divide, each cell can make sure that their daughter cells will inherit all the information that they need. *T. brucei* has a very special mitochondrial genome: unlike other eukaryotic cells, the mitochondrial genome is anchored via the flagellum (a tail-like structure that allows locomotion). Moreover, the *T. brucei* mitochondrial genome has a very special structure (resembling chain mail), called kinetoplast DNA. This kinetoplast DNA consists of an enormous amount of DNA (much more than the mitochondria in our cells contain). The duplication of this complex kinetoplast DNA is still poorly understood. We have identified a new protein, MiRF172, which is involved in the duplication of this complex structure and helps us to address unresolved questions about inheritance of kinetoplast DNA in *T. brucei*.

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

A major challenge we had to overcome was detection of the protein for immunofluorescence and western blot analysis. First, we tried to create an antibody against the relatively large MiRF172 protein. We were not successful. Next, we decided to tag MiRF172. MiRF172 is a mitochondrial protein and thus possesses an N-terminal pre-sequence for mitochondrial import, which made N-terminal tagging impossible. The C-terminus contains repetitive sequences that complicated C-terminal *in situ* tagging because transfections of *T. brucei* cells are performed using the cell's recombinant homology machinery. We tried different tagging methods and tags until we finally had our MiRF172 protein successfully tagged. I mention this challenge here because our lab got stuck on a very commonly used method that should have been straightforward, something that I, as a young researcher, will always take into account for future work.

Simona Amodeo's contact details: Institute of Cell Biology, University of Bern, 3012 Bern, Switzerland.

E-mail: simona.amodeo@izb.unibe.ch



Simona Amodeo

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

One of the most beautiful moments has to do with the tagging challenge mentioned above. I can still remember the day when I saw the wonderful localization of MiRF172 in the cell through immunofluorescence microscopy for the first time. I was so enthusiastic about the finding that I immediately emailed a picture (below) to our lab head, Prof. Torsten Ochsenreiter.

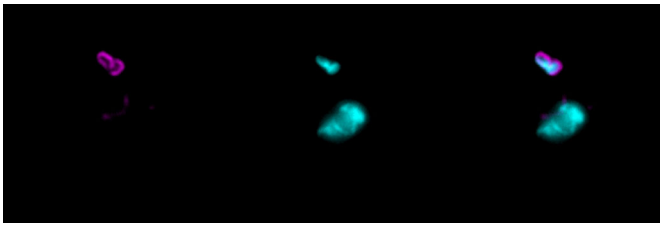
Why did you choose Journal of Cell Science for your paper?

We chose Journal of Cell Science because it is part of a not-for-profit organization with a very strong reputation in cell biology, and because of its history, starting as a journal specializing in microscopy. Characterization of MiRF172 involved elaborate usage of microscopy analyses, including the very powerful stimulated emission depletion (STED) microscopy.

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

In Switzerland, we have apprenticeships that allow direct acquisition of a profession within a company, together with a school education. I learnt the skills required to be a lab technician with a specialisation in biology before I decided to study biology. My first exposure to research was as an apprentice. My mentor at that time encouraged me a lot and let me establish new methods to answer unsolved questions. That was when the spark of research ignited for me. In my time at university, my most significant mentor was Prof. Torsten Ochsenreiter. Besides his function as lab head, he

Journal of Cell Science (2018) 131, jcs218834. doi:10.1242/jcs.218834



Tagged MiRF172 (magenta) in bloodstream form *T. brucei* cells, with kinetoplast DNA (small bilobed structure) and the nucleus (both cyan).

is an excellent lecturer who not only teaches his topic but is also always open to answer all the questions students have about professional development, academic careers and much more.

“[…] one reason I want to pursue a career in science is that my profession is my passion.”

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?

My family have always supported me in doing what I love and they taught me that it is a privilege to be able to work in a field that you have a passion for. So, one reason I want to pursue a career in science is that my profession is my passion. It is a great honour to be involved in the process of gaining knowledge that is then provided to everyone and will eventually help other people to address their own questions. There are two key decisions I made in the past that influenced my professional development. One was the day I was offered an extension of my contract as a quality control lab technician following my apprenticeship, after which I decided to pursue further education at university. The other was the day I was offered the position of PhD student. With the decision to do a PhD I also decided to stay in academic research for a several more years and so far I am very happy with that decision.

Who are your role models in science? Why?

There are many inspiring women in science, including famous ones and also former and current members of the Institute of Cell Biology at the University of Berne. Amongst other things, they show how it is possible for a woman to be successful in science without excluding having a family of their own.

What’s next for you?

I am now in my second year as a PhD student and I enjoy being a part of academia at the moment. I don’t want to close any doors yet, especially because I also work as a high school biology teacher alongside my PhD studies. It depends which opportunities I get in the future, but at the moment I can imagine myself pursuing a career in academic research.

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

I have another passion, which is cooking. I am half Italian and ever since I can remember I have spent weekends and holidays in the kitchen all day long with my grandmother and my mother, creating wonderful homemade pastas, sugos, preserved vegetables and many more delicious dishes. I love cooking for other people and I love the silence at the table when they just enjoy the food I have cooked for them so much that they forget to talk at all. I also love cooking because it has so many similarities to bench work. Or maybe I got to love bench work because it has similarities to cooking!

Reference

Amodeo, S., Jakob, M. and Ochsenreiter, T. (2018). Characterization of the novel mitochondrial genome replication factor MiRF172 in *Trypanosoma brucei*. *J. Cell Sci.* **131**, jcs211730.