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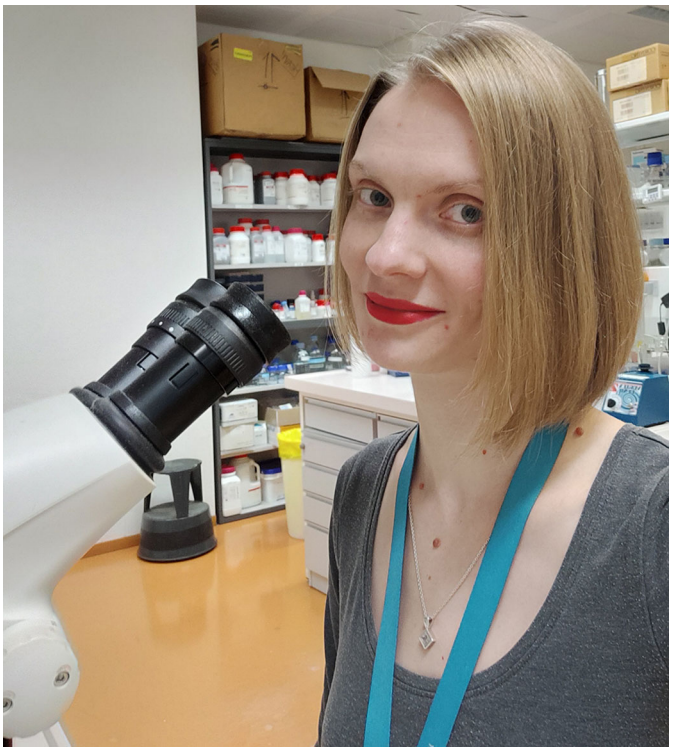
FIRST PERSON

First person – Joanna Wenda

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. Joanna Wenda is first author on 'Mitotic chromosome condensation requires phosphorylation of the centromeric protein KNL-2 in *C. elegans*', published in JCS. Joanna is a PhD student (in the process of graduating) in the lab of Florian Steiner at Department of Molecular Biology, University of Geneva, Geneva, Switzerland, investigating chromatin and cell biology, specifically centromere maintenance and mitotic chromosome formation.



Joanna Wenda

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

DNA carries the information about all processes in the cell and as such it must be faithfully inherited by the cells when they divide. To achieve this, the cells first duplicate their genetic material and then compact the long strands of DNA into condensed mitotic chromosomes. Next, the mitotic spindle attaches to specialised chromosome regions, called centromeres, and pulls the chromosomes apart into the new daughter cells. We study centromeres in a small soil worm called *Caenorhabditis elegans*. It is a great model for studying cell division-related processes due to its fast and stereotypical embryonic divisions. During our research, we discovered that one of the main proteins organising the centromere, called KNL-2, has an additional function in chromosome condensation. To ensure proper chromosome formation, KNL-2 cooperates with the condensin II complex, one of the factors compacting DNA before cell division. This cooperation is regulated by KNL-2 phosphorylation. Our work establishes KNL-2 as a link between centromere organisation and chromosome condensation in *C. elegans*.

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

During our research on KNL-2, we constructed many mutant lines, but most of them did not show any interesting phenotypes. I remember examining for the first time the phosphodeficient mutant that we now describe in our paper. With my heart pounding I looked at the dividing embryos under the microscope. I observed clear division defects and thought "seems like we're finally onto something!".

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

JCS has published many papers on chromosome condensation in the past. It also welcomes research conducted on model organisms, so we thought it was the right choice for our story. I also value the initiatives of The Company of Biologists that support the community of cell biologists. Especially the preLights highlighting interesting preprints and FocalPlane, which helped me find good microscopy resources.

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

During my PhD, apart from my advisor, Florian Steiner, I was greatly helped by Monica Gotta. She was keen to share her knowledge, but also provided encouraging words and managed to spark my enthusiasm. Perhaps the most significant mentor I have had so far was my Master's thesis supervisor Karolina Labedzka-Dmoch. When I was making my first steps in the lab, she taught me everything from holding a pipette to formulating a research hypothesis. She turned me from an interested student into a budding scientist, and I am forever grateful for that.

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?

Like most scientists-to-be, I was a very curious child. In the course of my education, I grew more and more interested in natural sciences and finally decided to study biology. One turning point on my path was when my Master's thesis supervisor took her maternity leave. As a result, I became the most senior student in the lab working on our project, and other undergraduates came to ask me for advice. Providing advice has somehow made me more confident in my own abilities. More importantly, I found that sharing knowledge and watching other people grow and develop their skills can be as fascinating as the research itself. I discovered a passion for sharing ideas, discussion and cooperation that has motivated me ever since.

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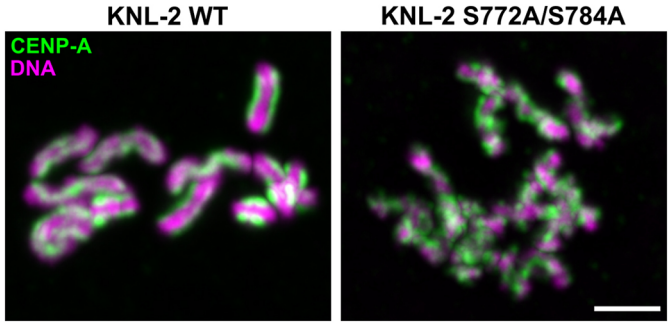

Abolishing KNL-2 phosphorylation impairs chromosome morphology. Representative image of the prometaphase chromosomes of *C. elegans* embryos in the control (KNL-2 WT) and phosphodeficient (KNL-2 S772A/S784A) strains. DNA in magenta, centromeres (CENP-A) in green, scale bar: 2 µm.

“…sharing knowledge and watching other people grow and develop their skills can be as fascinating as the research itself.”

Who are your role models in science? Why?

Barbara McClintock, Rosalind Franklin, Frances Oldham Kelsey and all others who stuck to their principles of doing rigorous science even in the face of adversity, scepticism, discrimination or external pressure. I greatly admire their persistence.

What’s next for you?

Time will tell :). After a difficult PhD, I think I am ready to try something very different. I am excited to look for opportunities that will help me develop new skills and provide me with new experiences.

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

I have a dry and slightly dark sense of humour, which makes me a fan of British comedy. Watching sketches aimed at the absurdity of life while drinking a strong cup of coffee never fails to cheer me up.

Reference

Wenda, J. M., Prosée, R. F., Gabus, C. and Steiner, F. A. (2021). Mitotic chromosome condensation requires phosphorylation of the centromeric protein KNL-2 in *C. elegans*. *J. Cell Sci.* **134**, jcs259088. doi:10.1242/jcs.259088