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FIRST PERSON

First person – Kévin Adam

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. Kévin Adam is the first author on 'A PIM-CHK1 signaling pathway regulates PLK1 phosphorylation and function during mitosis', published in Journal of Cell Science. Kévin conducted the research in this article while a PhD student in the lab of Patrick Mayeux at the Cochin Institute, Paris, France. He is now a Research Associate in Tony Hunter's lab at the Salk Institute for Biological Studies, La Jolla, USA investigating the involvement of non-conventional phosphorylation from the SONAtes phosphate categories in cancer development.

Kévin Adam.

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

Like workers in a factory, proteins are important players in cells and they can fulfil different positions. The kinase group of proteins, specifically, could correspond to a site manager, collecting signals and forwarding them by a process called phosphorylation to the correct target through a signaling pathway. If the signal is misleading or not regulated correctly, it can create deleterious outcomes like cancer development. Kinases can have different and/or redundant functions, depending on their context, and can be part of different networks, interacting with specific partners in time and space, which will lead to a global event in the cell. Our data defined how three known kinases (PIM, CHK1 and PLK1) function relative to each other to regulate one important event in the life cycle of cells, mitosis (cell division). It also brings to light the direct mechanism for a side activity of CHK1, independent of its known emergency function under conditions of DNA damage. Considering the implication of these kinases in the field of cancer, particularly in leukemia, a better knowledge of their internal communication will help in the development of alternative therapies.

"If you put things in perspective, you can always learn something from every situation and every person, even in an unexpected way."

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

Scientific research itself is a constant challenge as we dive into the unknown. You have to constantly adapt your approach and your mind in response to the data, and not the reverse, which also means that you must evolve with the project and this takes time. One of the challenges for me regarding this project was that after four years of work on PIM2 kinase, I completed my PhD and left the lab to start a postdoc in the USA and join my wife, who was already there. Since then, I have worked on different projects and it was more difficult to finalize this part of my PhD project that I did not want to be lost. Thanks to my excellent collaborators and co-authors who maintained the project, we were able to validate and conclude the relationship between the proteins that we first envisaged several years ago. So, collaboration was key to overcoming most of the challenges.

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

I would not say that there was one specific moment but a succession of results and discussion that led us to this conclusion. At the beginning of the project, I was trying to define the impact of PIM2 knockdown on PLK1 phosphorylation, but we did not know the direct mechanism. Separate but convergent observations from our collaborator in Toulouse revealed the potential involvement of CHK1 as a substrate of PIM, and that is how the connection started.

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

The data introduced in the paper clearly focused on the way that some kinases interconnect in a signaling cascade to regulate an

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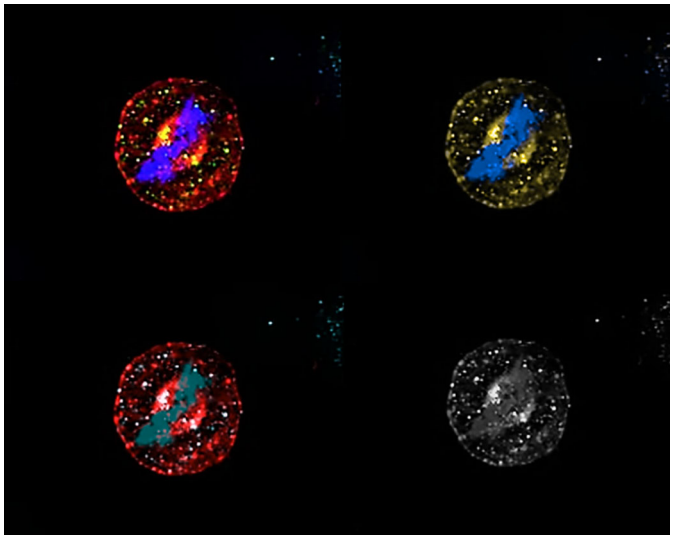

To be aware of and appreciate the power of colors in science; an unusual color blind representation of fluorescent data. All four replicates represent the same PLK1 and PIM2–HaloTag co-localization in HeLa cells at metaphase. PIM2–HaloTag fusion protein (red), PLK1 (green) and DNA (blue) stained for a standard trichromatic view with a yellow signal suggesting the co-localization (upper left cell). Alongside are two simulations of dichromatic color deficiency, protanopia (upper right cell) and tritanopia (lower left cell), as well as one of monochromatic color deficiency, achromatopsia (lower right cell).

important aspect of cell biology. It shows new mechanisms involved at a specific cell cycle step and helps us to better understand what happens in the cells and how it happens. That was a perfect fit for Journal of Cell Science.

Have you had any significant mentors who have helped you beyond supervision in the lab?

Through the years I have met different 'models' of scientist and mentor. If you put things in perspective, you can always learn something from every situation and every person, even in an unexpected way. So yes, I definitively got significant help and guidance to define the science I wanted to do and how I wanted to do it. During this project, my PhD supervisor Patrick Mayeux taught me integrity and at the same time gave me independence in my work. My collaborators Stephane Manenti and Christine Didier have respectively shown me enthusiasm and perseverance in science. And my co-author Mireille Lambert, who was my fellow sufferer during difficult times in the lab, shared her joie de vivre.

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?

I have always wished to be useful and helpful. I realized the real power of science later in high school, then more specifically health science at university, with a focus on cancer research, and my interest has persisted ever since. In addition, through time and experience, my curiosity has expanded to other cultures and countries through traveling. All those three elements are a good fit for a scientist. The most interesting moments that led me to where I am now were an internship abroad at the Cambridge Research Institute (UK) and my experience as a PhD consultant for innovative projects. These experiences make me realize that science does not have a border, that scientists need to grow networks to progress together and that all the skills you develop can be applied to more than one specific field.

If you had to do something differently, what would it be?

Communication is very important in science and I would certainly increase the visibility of my work and project, as well as expressing my opinion earlier.

Who are your role models in science? Why?

Even if I admit that there are good role models, I do not want to follow a role model. I want to become my own role model and will do my best to constantly be a better version of myself. That is how you progress!

What's next for you?

For the time being, I plan to pursue my postdoc at the Salk Institute, where I am working on a new exciting area in phosphoproteomics, chasing the elusive phosphohistidine and defining the function of histidine kinase in human cancer. But in the longer-term, I am planning to leave academia to reach new professional environments, new challenges. I am curious about other systems and I want to expand my field of application in science.

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

I am a backpacker at heart who loves to discover new places, new activities and special food.

Reference

Adam, K., Cartel, M., Lambert, M., David, L., Yuan, L., Besson, A., Mayeux, P., Manenti, S. and Didier, C. (2018). A PIM-CHK1 signaling pathway regulates PLK1 phosphorylation and function during mitosis. *J. Cell Sci.* **131**, jcs213116.