

FIRST PERSON

First person – Shu Yao Leong

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. Shu Yao Leong is first author on 'The tail domain of the plant kinesin-12 POK2 is a versatile interaction hub', published in JCS. Shu Yao is a PhD student in the lab of Erik Schäffer at the Center for Plant Molecular Biology (ZMBP), University of Tübingen, Germany, investigating microtubules and their interactors.

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

We study how plant cells divide, a process that's a bit like a carefully choreographed stage play. Many different molecules 'step on and off the stage' at just the right moments to make sure everything runs smoothly. In our work, we looked at one particular protein called POK2, a kinesin motor protein. We found that POK2 interacts with at least three other molecules, which probably helps it stay in the right place during division. The main job of POK2 is to arrange tiny fibres called microtubules, which act like scaffolding, to guide the division process. Based on our results, we think that POK2 uses these connections to anchor itself to certain spots, helping position the scaffold so the cell divides in the right way.

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

The most challenging part was the purification of the POK2 tail, which frustratingly aggregated quite a bit. Shorter constructs seem to alleviate this aggregation, but since the shorter constructs bound microtubules at lower affinities, we could not replace the full POK2 tail with shorter constructs. Thankfully, after optimisation, we obtained soluble POK2 tail, although the yield was not high. The purification was, however, very reproducible, so we just needed to repurify it often. Later during experimentation, we realised that its insolubility may be due to its inherent tendency to cluster at increasing concentrations. Fortunately, this meant that our single-molecule experiments were well within 'soluble' conditions. Whether or not this clustering is physiological and is significant is discussed briefly in our paper and is an interesting line of thought that is definitely worth pursuing in future studies.

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

For me, the eureka moment came much later, only once we were putting the paper together and seeing all the results in a single setting. The concentration-dependent clustering and many interactions of the POK2 tail possibly explained why the construct was difficult to purify and also tricky to work with.



Shu Yao Leong

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

We chose Journal of Cell Science because of its reputation for solid research papers. Being able to publish with JCS means that our work also meets the standards of good research. Also, we get a tree planted for our paper in the Forest of Biologists!

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

Being part of the Center for Plant Molecular Biology (ZMBP) is really special because it's a large institute with an open lab policy. You interact on a daily basis with many different scientists at different stages of their career, with little hierarchy. It's great because I have so many mentors to provide me with advice and lessons from their own journeys, and with whom I can exchange ideas. It has really taught me the importance of community and discussion for allowing great work to happen.

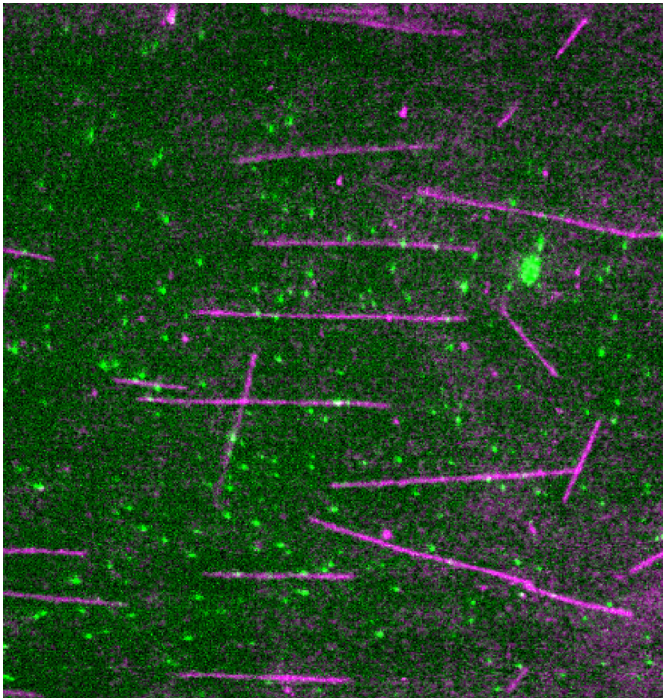
What motivated you to pursue a career in science, and what have been the most interesting moments on the path that led you to where you are now?

I just really like microtubules!

Who are your role models in science? Why?

I have several role models among my colleagues: Alexandra Ciorîță, for enjoying science; Hauke Drechsler, for integrity; Serapion 'Ionas' Pyrpasopoulos and Yannic Lurz, for curiosity; and Maria

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Single-molecule eGFP-POK2^{2083–2771} (imaged by TIRF, green) landing on surface-immobilised microtubules (imaged using IRM, magenta).

Kharlamova, for getting things done! And many other people for the parts they have played, in no small way, along my academic journey.

What's next for you?

I have enjoyed microtubule research for close to 11 years now, doing fundamental *in vivo* and *in vitro* work. I've been an academic my whole adult life, but now my curiosity is driving me towards working on something more applied. For this, I think a career outside academia would satiate my inquisitiveness both from the technical and human aspects. I believe this would be a challenging and interesting next step in my life.

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

I like bureaucracy and enjoy organising stuff. Marie Kondo's 'sparks joy' philosophy is my life.

Reference

Leong, S. Y., Muras, L., Fischer, B. S. J., Jang, S., Gurskaya, A., Chugh, M., Pyrpassopoulos, S., Drechsler, H. and Schäffer, E. (2025). The tail domain of the plant kinesin-12 POK2 is a versatile interaction hub. *J. Cell Sci.* **138**, jcs263785. doi:10.1242/jcs.263785