

FIRST PERSON

First person – Franziska Lehne

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. Franziska Lehne is first author on 'Swip-1 promotes exocytosis of glue granules in the exocrine *Drosophila* salivary gland', published in JCS. Franziska conducted the research described in this article while a PhD student in Prof. Dr Sven Bogdan's lab at the Institute of Physiology and Pathophysiology, Department of Molecular Cell Physiology, Philipps-University Marburg, Germany. She is now a postdoc in the lab of Prof. Dr Christian Helker at Philipps-University Marburg, investigating the formation of the lymphatic vasculature in zebrafish.

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

The larvae of a fruit fly need to adhere to a surface to enter metamorphosis and turn into pupae and eventually flies. Therefore, a 'glue' protein that is stored in large vesicles in the larval salivary glands needs to be secreted. For proper glue secretion, the vesicle membrane needs to contract and ultimately collapse to ensure cargo expulsion. This membrane contraction is provided by the actomyosin network and we have found Swiprosin-1 to be a regulator of this. Swiprosin-1 can alter the active myosin content at the vesicle membrane, changing the composition of the actomyosin network and, therefore, the contractile capabilities of the vesicle membrane.

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

We had previously found that Swiprosin-1 provides transient actin crosslinks in the presence of calcium. We therefore thought that in the salivary glands, Swiprosin-1's function will also be calcium dependent and that, in fact, it will have an effect on actin. But both assumptions were surprisingly not the case. Additionally, we hypothesized that the *swip-1* mutant phenotype of reduced secretion efficiency was the result of reduced actomyosin contractions. So, when I then looked at the motor protein myosin in the *swip-1* mutants, I figured that the reduced contractility would be the result of less active myosin. However, Swiprosin-1 surprised us here as well, as it actually showed quite the opposite effect on active myosin.

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

Journal of Cell Science publishes high-quality science in the field of cell biology. Our group has already published many papers in JCS, which all have been good experiences.

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

The most important mentorship in the lab was the community of PhD students. For everybody, it was easy to communicate



Franziska Lehne

with and bounce ideas off each other. From this very informal chatting about my project, I had many ideas and it sparked my scientific creativity. Also, the feedback and criticism from the entire staff of the Bogdan lab has been nothing but constructive and motivating.

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 had a keen interest in science and, since high school graduation, it has been really clear to me that I want to pursue a career in biology. Nevertheless, I also had some obstacles to overcome. After I quit my first attempt as a PhD student, I actually quit science entirely. But working in a different field actually drove me back to a fresh start and pursue a doctorate degree in biology after all. As they say, absence make the heart grow fonder.

What's next for you?

I did not plan on staying in academia but as the end drew nearer, I could not turn my back on science. Therefore, I have recently

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Confocal image of secreting larval salivary glands. The glands were stained for F-actin (green), Swiprosin-1 (magenta) and nucleus (blue).

started a postdoc position in the team of Prof Dr. Christian Helker to research the development of the lymphatic system in zebrafish.

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

I am a licensed judge for jazz, modern and contemporary dance of the German Dance Association and spend many spring weekends in rather hot gymnasiums at dance competitions, evaluating each routine. It is a fun diversion from lab work and actually quite fun to be on the reviewer side for once and watching teams striving to achieve their best performance.

Reference

Lehne, F. and Bogdan, S. (2023). Swip-1 promotes exocytosis of glue granules in the exocrine *Drosophila* salivary gland. *J. Cell Sci.* **136**, jcs260366. doi:10.1242/jcs.260366