

FIRST PERSON

First person – Alaina Willet

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. Alaina Willet is first author on 'Phosphorylation in the intrinsically disordered region of F-BAR protein Imp2 regulates its contractile ring recruitment', published in JCS. Alaina is a Research Instructor in the lab of Kathy Gould at Vanderbilt University, Nashville, TN, USA, investigating the mechanisms regulating contractile ring formation in fission yeast.

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

Cytokinesis is the final step in the cell division process that results in the physical separation of two new daughter cells. For a cell to perform cytokinesis, it builds a band around the cell middle that constricts, thereby pinching the cell into two. This band is termed the contractile ring. To study this, we use a model organism called *Schizosaccharomyces pombe*, or fission yeast. Fission yeast are an excellent model system because they are relatively easy to work with and approximately two-thirds of fission yeast genes are conserved in humans. One protein that is important for fission yeast cytokinesis is called Imp2. Imp2 helps scaffold the contractile ring to the plasma membrane and recruits several additional proteins important for the cell to successfully divide. Thus, cells lacking Imp2 usually fail cytokinesis. In this study, we sought to better understand how Imp2 is regulated by phosphorylation. We found that phosphorylation of Imp2 is important to promote Imp2's stability and ability to localize to the cell division site.

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

Defining the phosphorylation sites within Imp2 was particularly challenging because they are numerous and because multiple kinases phosphorylate Imp2. It took many iterations of kinase assays and large-scale purifications combined with mass spectrometry to nail down the complete set of sites. This project was truly a collaborative effort among lab members due to the wide array of experimental expertise needed to complete this study.

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

Journal of Cell Science has published many interesting papers on cytokinesis, and thus we thought the readership of JCS would be interested in our paper!

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

Dr Gould has been my most significant mentor in my scientific career. Not only has she provided me with rigorous scientific



Alaina Willet

training, but she has also been instrumental in guiding me in finding a career path. With Kathy's support, I have tried out many career options, from data scientist to entrepreneur. With the knowledge from these experiences, I have been able to be confident in my decision to continue to pursue a career as a scientific researcher within an academic lab.

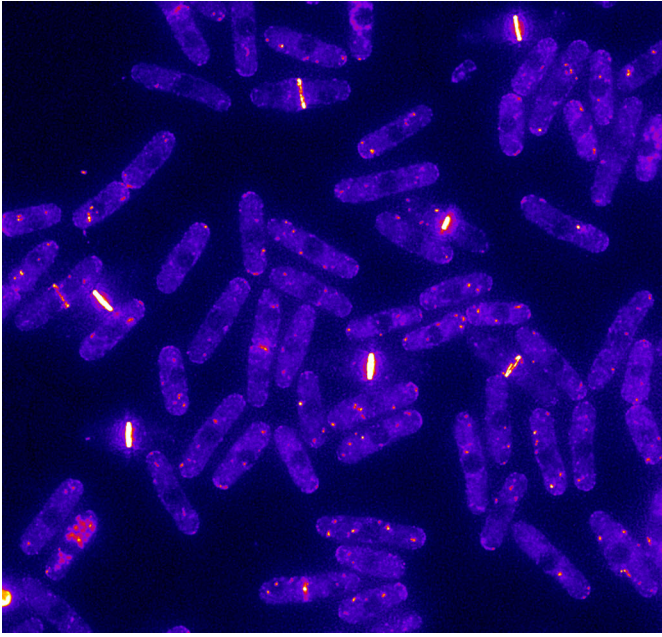
What motivated you to pursue a career in science, and what have been the most interesting moments on the path that led you to where you are now?

Two things motivated me to pursue a career in science. The first was my experience in AP biology class during my senior year of high school. We had a class of only four people, and at every chance we got, our teacher had us perform little experiments to illustrate key biology concepts. It was in this class that I fell in love with learning everything related to cell biology. The second is that my older brother, who is also a scientist, encouraged me to seek out a research lab during my undergraduate studies to try out research. It turned out that I loved conducting research as well!

What's next for you?

I was just recently appointed as a Research Instructor in Dr Gould's lab, which is a non-tenure-track faculty position.

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Live-cell imaging of cells expressing Imp2–mNeonGreen from the endogenous locus. Imp2 localizes to the contractile ring during cytokinesis.

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

Outside of the lab I am busy trying new recipes, going for walks in the beautiful Tennessee outdoors and raising a tiny human!

Reference

Willet, A. H., Igarashi, M. G., Chen, J.-S., Bhattacharjee, R., Ren, L., Cullati, S. N., Elmore, Z. C., Roberts-Galbraith, R. H., Johnson, A. E., Beckley, J. R. et al. (2021). Phosphorylation in the intrinsically disordered region of F-BAR protein Imp2 regulates its contractile ring recruitment. *J. Cell Sci.* **134**, jcs258645. doi:10.1242/jcs.258645