

## FIRST PERSON

# First person – Westley Heydeck

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. Westley Heydeck is first author on '*Tetrahymena* Poc5 is a transient basal body component that is important for basal body maturation', published in JCS. Westley conducted the research described in this article while a PhD student and scientific consultant in Professor Mark Winey's lab at the University of Colorado, Boulder, CO. He is now a Technical Application scientist at NanoString Technologies, Seattle, WA, where he is studying complex diseases using animal models and new technologies.

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

Basal bodies are complex cellular structures that are required for the formation of hair-like projections called cilia. Cilia serve a variety of important functions, and when basal bodies and/or cilia become dysfunctional it can lead to human disease. Given that *Tetrahymena thermophila* cells have hundreds of highly organized basal bodies, this model system was used to uncover a novel role for Poc5 in basal body maturation. Using live-cell imaging, Poc5 was found to be present only in assembling basal bodies and was removed prior to cilia formation. In *Tetrahymena* cells lacking Poc5, basal bodies were overproduced and the number of cilia was reduced. *Tetrahymena* has two Poc5-like genes (Poc5 and Sfr1), and deletion of both genes revealed basal body maturation defects, compromised cilia formation, and cell lethality.

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

The main challenge of this project was that a substantial amount of this research was performed while I was a PhD student, but then after graduating and changing roles it became necessary to collaborate with researchers across multiple institutions to complete this work. This challenge was also the most rewarding aspect of the project, because it allowed me to work with a great group of researchers and helped me be more effective as a scientist, both at the bench and remotely.

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

A result that sticks with me is when it became clear that loss of both Poc5-like genes leads to *Tetrahymena* cell death, while cells lacking either gene could be propagated indefinitely. This indicated that there was a degree of functional overlap between these two genes and guided our downstream studies that led to uncovering basal body maturation defects in these cells.

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

We chose Journal of Cell Science because this high-quality journal publishes basal body and centriole studies that use a variety of



Westley Heydeck

model systems, as well as broader, impactful cell biology papers. Given the scope of the work presented in Journal of Cell Science, I have found myself consistently reading these studies throughout my research career.

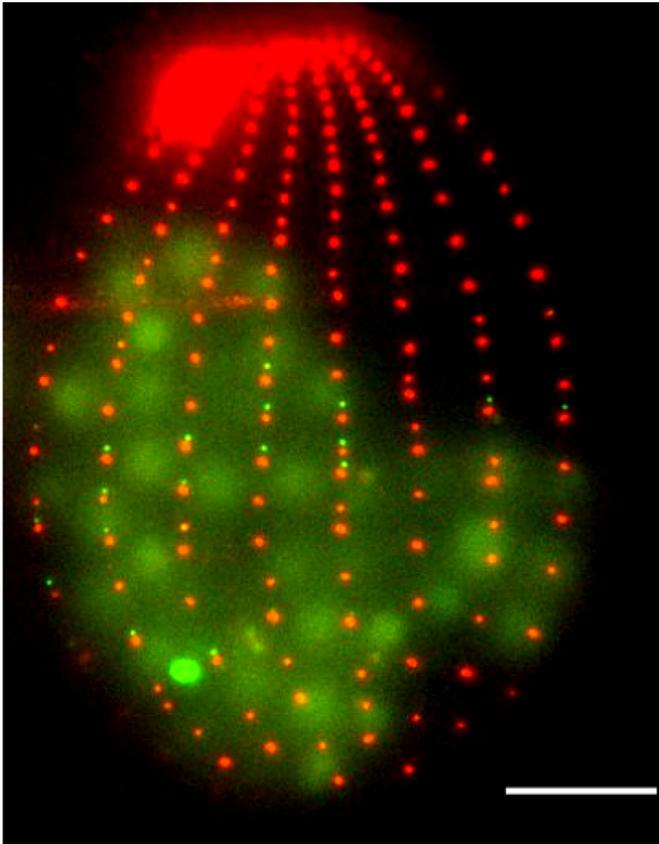
### Have you had any significant mentors who have helped you beyond supervision in the lab? How was their guidance special?

As a graduate student, I was incredibly fortunate to have multiple mentors in the lab that were instrumental during my PhD and who became significant mentors as I navigated scientific life after graduate school. Beyond the amazing mentorship of Mark Winey (my thesis advisor), I have received honest and encouraging guidance from Shelly Jones, Janet Meehl and Alex Stemm-Wolf. The collective mentorship from these three helped me grow into an independent scientist and guided me into a role in industry well-suited for me.

### 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 been interested in the life sciences and was fortunate to work as a lab technician at the Virginia Institute of Marine Science while in high school. This experience exposed me to life as a scientist and prompted me to get a PhD in molecular, cellular and developmental biology. The most interesting moments on my scientific path have been talking to more senior scientists and realizing that they often took an interesting route that led them to

Westley Heydeck's contact details: NanoString Technologies, 530 Fairview Ave N, Seattle, WA 98109, USA.  
E-mail: heydeckw@gmail.com



Live-cell image of *Tetrahymena thermophila*, where GFP-tagged Poc5 is only detected in assembling basal bodies. Oral apparatus and cortical row basal bodies are labelled with Poc1–mCherry. Scale bar: 10  $\mu$ m.

unexpected new opportunities. I have used these moments to remain optimistic and not be intimidated by changing scientific directions and roles.

#### **What's next for you?**

I have recently started a role at NanoString Technologies in Seattle, Washington, as a Technical Application scientist. I thoroughly enjoyed working as a bench scientist in academia and being at the forefront of discovery, but I also realized that I am interested in a broad spectrum of research and find it rewarding to help other researchers. In my current role, I am exposed to cutting-edge research and consult researchers on using our technology to push the boundaries of their science.

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

I love cooking curries and other time- and ingredient-intensive dishes!

#### **Reference**

Heydeck, W., Bayless, B. A., Stemm-Wolf, A. J., O'Toole, E. T., Fabritius, A. S., Ozzello, C., Nguyen, M., and Winey, M. (2020). *Tetrahymena* Poc5 is a transient basal body component that is important for basal body maturation. *J. Cell Sci.* **133**, 240838. doi:10.1242/jcs.240838