

In the Spotlight—Postdoc

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With whom and where did you study?

I did my PhD with Chris Jiggins at the University of Cambridge, where I was funded by a Wellcome Trust doctoral training program in Developmental Mechanisms. I was studying the genetics and development of wing patterns of *Heliconius* butterflies, a neotropical group which is notable for both within-species polymorphism and between-species mimicry. This regularly took me to the Smithsonian Tropical Research Institute (STRI) in Gamboa, Panama, where I began to work with Owen McMillan. After finishing my PhD, I started a postdoc with Arnaud Martin at George Washington University where

I've been working on wing patterning genetics and development in a whole zoo of lepidoptera for the last 5 years, and more recently I've been returning to Dr McMillan's lab at STRI to work on an NSF Rules of Life project where I am using single cell transcriptomics to characterize cell fate decisions during the development of *Heliconius* wing patterns.

What got you interested in biology? when did you know evodevo was for you?

I was born with the Mendelian genetic condition oculocutaneous albinism. I distinctly remember being about 7 or 8 years old, and my mum patiently and delicately explaining to me how genetic inheritance worked, to help me understand myself better. It absolutely fascinated me, and that fascination never really went away; I never stopped wanting to know more about how genes worked. That ended up leading me to an undergraduate degree in developmental biology at the University of Manchester, where I had great lecturers who introduced me to the cis-regulatory hypothesis of evolution, population genetics, and butterflies. I realized that if we want to figure out how variation in genomes can produce variation in phenotypes, one of the best ways we could do that was to consider the genomes of diverse natural populations.

What scientific challenges and opportunities does evodevo provide, that help you to design research projects that go beyond your work?

I love that our field is inherently interdisciplinary. I get to regularly engage with population genetics, hardcore developmental biology and embryology, with cell and molecular biology, and with ecology and behavioral science. Sitting on the cusp of these different areas gives me a broad overview of biological sciences that I don't think people in other segments of the academic community get to feel the full effect of!

What are issues that you feel the discipline needs to address for junior researchers?

The postdoctoral career stage is inherently very unstable. Financial support is not always easy to come by, and there is often an expectation on people to move around a lot. Even when you do have a relatively stable position, as I have been lucky enough to have for the last few years, salary is often not competitive and can be very short term. This is making postdoctoral positions increasingly unappealing to people, which is having negative consequences on labs who are finding it increasingly difficult to recruit new postdocs. Academic scientists in the US need to be searching for and implementing ways to improve this system. Two areas that would help the most would be (1) increasing salaries and (2) increasing employee benefits like

pensions, as both would give more stability to employees. However, many universities are deeply reluctant to discuss the first issue, and many are actively redefining postdocs as trainees so they can remove employee benefits from them. I don't know how to solve this problem.

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