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How did you spend your career?

My first foray into plant research was as an undergraduate at the University of Chicago, working in two labs, with Manfred Ruddat on plant–pathogen interactions and with Deborah Charlesworth on plant evolution and inbreeding. These experiences, coupled with a summer working on a farm in rural Missouri, motivated me to go to graduate school at the University of California (UC), Davis, where I worked with Richard Michelmore on disease resistance genes and their evolution, focused on lettuce. I was a postdoc with Michele Morgante when he was visiting (from the University of Udine) at DuPont's Agricultural Genomics group in Delaware, and then I returned to the Michelmore lab for a second postdoc before starting my own lab at the University of Delaware in 2002. I was fortunate to have obtained an NSF Plant Genome Research Program award while still a postdoc at UC Davis; that funding allowed me to explore the use of the first next-gen sequencing method known as massively parallel signature sequencing (MPSS), and this early award turned out to be influential in directing the course of my lab's subsequent work.

My lab's work focuses primarily on plant small RNAs, including their function, biogenesis, and evolution, using a combination of experimental and computational methods. With a head start on the field in using next-gen sequencing, we had an opportunity to pioneer many methods and applications, with much of this early work done during a long-term collaboration with Pam Green, whose lab was next door at the University of Delaware. We codeveloped the method and published the first next-gen-based sequencing of small RNAs, and that led later to methods for the analysis of mRNA targets of small RNAs. The informatics methods developed in my lab allowed us to identify novel microRNAs, dissect miRNA and siRNA biogenesis pathways, identify tissue-specific expression patterns, study microRNA evolution, determine novel targets of microRNAs, and understand the role of small RNAs in plant epigenetics.

What do you consider to be your most important contributions to plant science?

The early development of new methods for characterization of RNAs, along with the bioinformatics methods to analyze those data, were major contributions. I think these approaches helped people start thinking about sequencing-based measurements of RNA, and ultimately there was a massive shift to this sort of approach. These days, it's woven into the work of almost everyone doing genetics or genomics, but back then, we were almost the only group using it. Together with Pam Green and her lab members and colleagues in industry working on the MPSS methods, we enabled genome-wide analyses of small RNAs, which revolutionized the field for biologists working in all sorts of organisms. Later work with Pam, published at about the same time as similar methods from the labs of Mike Axtell and Brian Gregory, enabled high-throughput analysis of microRNA targets. This combined set of methodological advances led to a wide range of subsequent studies

In addition, our examination of secondary siRNAs, work started in my lab by my former student Jixian Zhai, turned out to be highly informative. These small RNAs were known mainly for the set of eight *trans*-acting siRNA (tasiRNA) loci in Arabidopsis and a few other species. Their evolution and characterization focused on the *TAS3* locus. Together with collaborators focused on other diverse plant species, my lab members examined and continue to analyze many diverse species; we've published on rice, Medicago, maize, soybean, tomato, Norway spruce, and eventually more than 100 different plant species. This showed a number

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of interesting things, including that *TAS3* is indeed the most well conserved long, noncoding RNA in plants, but the modes of processing into tasiRNAs are incredibly diverse when you look across plants separated by tens of millions of years of evolution. In addition, this secondary siRNA pathway appears to have been adapted for regulation of all sorts of gene families—disease resistance genes, for example. In many angiosperms, most obviously in grasses, they play a key role in anther development, but this particular function remains unclear. And thus many more interesting questions are yet to be addressed.

When did you become a member of ASPP/ASPB?

I became a member in 2003, after I started as a faculty member. In retrospect, this was about a decade later than I should have joined, as there are so many advantages to becoming a member when you're a student. The Society is strongly supportive of early career members, and this is reflected in the varied activities, including networking, that are organized at the annual meeting. Those networking opportunities are helpful to get established in the field.

How did the Society impact your career, and what motivated you to become a Founding Member of the Legacy Society?

I've been attending the Plant Biology meetings since the early 2000s, and I've always been impressed at how supportive the meetings are for colleagues at all stages of their career. The meetings are a great opportunity to meet with collaborators and hear about the latest work in diverse areas of plant biology. In addition, the Society's journals have had a tremendous impact on my career. My original first-author publications were a pair of back-to-back papers in *The Plant Cell,* and together with many coauthors, I've been an author on another 35+ papers in ASPB journals, including *The Plant Cell, Plant Physiology,* and *Plant Direct.* I've also worked as an editor for *The Plant Cell*, which exposed me to the latest work in my field and introduced me to experienced and renowned scientists who were also serving on the editorial board and submitting their work to the journal. The service to the journal has been one way to give back to the Society, but the Legacy Society is another, which I felt was important given all that ASPB has done for me and my career.

What important advice would you give to individuals at the start of their career in plant science?

Perhaps these bits of advice are clichés, but they have served me well, and presumably others as well. Find a way to forge your own path, but look to others to see how they deal with the challenges that inevitably arise. Of course, it takes time to find that path, as we all start under the tutelage of more experienced scientists, and there's likely an element of luck in terms of working on a topic as new questions or technologies open it up to discoveries. However, if you ask enough questions, a few topics are likely to be more interesting than you might have expected, and this might provide insights you can develop in your own work.

Additionally, when you get to the point in your career at which you're in charge of hiring, be sure to hire people with great personalities, curiosity, and diverse and interesting experiences, viewpoints, and backgrounds. Skills can be learned, but personality traits may be harder to change. Treat those people really well, as these are relationships that you can maintain over a lifetime as mentor, colleague, and friend.

Finally, in my experience, collaboration has been tremendously important to my own success, so I work hard to be a good collaborator and find new collaborators—although I recognize that this may not generalize to everyone's area of expertise or way of working.

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