Scientists

Passion Breeds Opportunities

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Crislyn D'Souza-Schorey's contributions to the fields of membrane trafficking and cytoskeletal remodeling caught our attention. Curious to know more, *BioTechniques* asked her about the ambitions, character, and motivations that led to her success.

What pivotal event led to your current research focus?

I worked on a small GTP-binding protein, ARF6, as a postdoc. At the time, I showed that it played a role in endosomal membrane trafficking and also governed structural organization at the cell surface. When I set up my own lab, I looked at the same protein in polarized cell systems.

The first thing we did was put the active protein into epithelia. We looked under the microscope expecting one thing, but instead found that ARF6 regulated cell-cell contact. That sparked an entirely different line of investigation into the trafficking of adhesion molecules.

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We continued along that vein, but branched out from our original focus because of the type of molecule that ARF6 is and its role in signaling. In a nutshell, we are interested in the whole spectrum of phenotypes of epithelial motility: how cells break down their contacts and acquire the ability to migrate and invade. That's what led us to look at tumor cell invasion and metastasis.

What has been the highlight of your career so far?

That's a tough one. Ask me again in another 10 years.

I was thrilled when we got that *Science* paper published while I was a postdoc, but I don't know if I could pinpoint that as the highlight. The small breakthroughs, the "a-ha" moments, that happen every day are exhilarating. It is exciting when you answer a question so that you can ask the next one.

What is the most important current research question in your discipline?

This is such a broad and medically relevant area that to pinpoint the single most important thing would be difficult, but I would say that understanding the tumor microenviroment and how it affects tumor progression is a critical area, not just because of the bearing it has with my research but in general. Understanding how cancer stem cells accumulate genetic mutations is also a hot topic.

What is your training philosophy? How do you inspire your students and post-docs?

My philosophy for my students is to do the best you can and ask the most interesting questions you can. If the rationale of your approach is sound and the basis of your question is sound, then go for the most challenging project. Do what interests you most because it is your enthusiasm that will keep you alive in this field. The opportunities are there. The times have never been better for the ability to make a breakthrough, so you owe it to yourself. And in some ways, I think as scientists, we also owe it to society.

We have spoken at American Cancer Society events. My students and postdocs do this with much enthusiasm; they fundraise and speak about their research. I think they realize the importance of informing society and the lay public about the value of doing good science. They take that pretty seriously.

What other volunteer or community work do you do?

I attend patient support groups, for example, and answer questions about various therapies that might be out there. I make it very clear that I'm not a physician; I'm a scientist. But I help convey the importance of doing basic and translational research in generating these medical breakthroughs.

In terms of outreach, we encourage kids. There are plenty of opportunities here, for example, to judge science fairs and science competitions. I volunteer my time and I know that people in my lab have volunteered their time as well. A few months ago, a secondary school student came to me and wanted to shadow me because he was writing an article on a day in the life of a professor. He came into the lab and I talked to him about why I do what I do.

Do you have any pet projects outside of your major research focus?

Yes, but I would describe it more as a pet ambition. I plan to integrate other disciplines into what we do. I hope these plans can materialize in the not-too-distant future. For example, it would be interesting to interface cell biology with nanotechnology and microfluidic platforms. If successful, it could revolutionize diagnostic capability and early stage detection of disease. This is an area I'd like to pursue.

Interviewed by Kristie Nybo, Ph.D.

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