

David M. Ryba Pushing the Field Forward

Pam Goldberg-Smith

In pursuit of the academic science lifestyle, David M. Ryba promotes collaborative efforts to push the field forward. He earned his BS degree in Biological Sciences at the University of Illinois in Chicago, where he also earned a PhD in Physiology and Biophysics comentored by R. John Solaro and Beata M. Wolska. David began his postdoctoral research in the Daniel P. Kelly laboratory at the University of Pennsylvania in Philadelphia. In 2017, David won the International Society for Heart Research's Junior Early Career Investigation award.

You Recently Moved to Philly. How Has the City Been Treating You?

I just arrived last week (in mid-May), spent some time exploring, and started work on Monday. There's a lot to do in Philly even though the area is small. Choosing a lab to do my postdoctoral training in was difficult. There are so many wonderful people working in cardiovascular sciences. However, after coming to Penn to interview, and spending some time with Dan Kelly, the lab, and the city, it felt like the right fit.

Tell Us About Your Latest Project, and What Interests You About It?

I've been fortunate to have quite a few projects in John Solaro's lab back in Chicago. My main work has revolved around dilated cardiomyopathy.¹⁻³ In layman's terms, this is where the heart muscle weakens and eventually gets so large and the walls thin that it cannot sufficiently pump blood to the rest of the body. We utilized novel compounds called "biased ligands" and found that they're able to positively increase contractility of hearts at the level of the proteins that are responsible for generating force. Since then, we've become interested in angiotensin, a hormone involved in blood pressure regulation, signaling in the heart, and are working on understanding protein modifications induced by these signaling pathways. What interests me most about

these projects is seeing vast changes in many compartments of the cell due to altering the signaling from a single receptor. It's really exciting.

What Can You Say About Your Background?

I was born in Chicago, although my mom and I moved to the northwest suburbs when I was young and I attended school there. I've always liked science. Though neither of my parents were scientists, they were always very supportive of my interests. My dad works in construction as a ready-mix driver and my mom works as a caseworker for the State of Illinois. In elementary school, I wanted to be a chemist. After taking organic chemistry in college, however, I discovered it was not something I wanted to pursue. I instead majored in Biology.

What Led You to Study Cardiovascular Science?

As an undergrad, I was a premed (I think a lot of people in our field start there), but I didn't have too much of a notion of research as a career. I was interested in getting involved in undergrad research. During my job as a resident

assistant, one of my supervisors, Tanganyika Wilder, a grad student at the time, suggested I work with her in John Solaro's lab where she was finishing her PhD. I really enjoyed studying sarcomeres. What captivated me was the immediate functional response you could see in some of the experiments.

How Hard Do You Work?

I think I work pretty hard. When I'm in the lab, I'm there for normal business hours. More often than not, when I'm doing experiments and writing, I can log 12 to 14 hours a day. Plus I'll come in over the weekends to finish up experiments or to push things forward. It can be a consuming career. I'd say that being a scientist in academia is not a job, it's a lifestyle.



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What Has Been the Most Exciting Moment in Your Career?

The first thing that comes to mind is the confirmation of my first independent hypothesis when I discovered β -arrestin (a scaffolding protein) was localized to the sarcomere. It was super gratifying to see it was real and that I had been right. Being awarded a fellowship and seeing my work published for the first time was also exciting.^{3,4} And then I was selected to compete in, and won, the International Society for Heart Research's Junior Early Career Investigation competition. Initially I couldn't believe they thought my work good enough to present as part of the competition. I got super anxious right up until the moment I walked into the room. It's such an honor, of course, to communicate your work to a large audience.

What Has Been Your Main Challenge, and What Steps Have Taken You Overcome It?

I used to struggle with "imposter syndrome," worrying and doubting my accomplishments to the point where I didn't think I belonged, like I'm parading around as a scientist. I think it's pretty common in science though. To overcome this I think, in part, was learning to trust myself, which is super hard when surrounded by incredibly bright and accomplished scientists. What helped me was realizing that the field, and science in general, is so dynamic. We're all learning together as we try to push the field forward.

What Worries You Most About Your Future? What Is the Main Obstacle That You Foresee in Pursuing an Academic Career?

I have "generic" worries that everyone in my position going into academia has. Will my project be meaningful or impactful? Will I secure funding? Personally, I wonder if I will be creative enough, and ask the right questions to push field forward. I think that's why we're all here.

What Would You Tell Someone Following in Your Career Path Are Important Qualities for Success?

Perseverance and flexibility are very important. Things can take an extremely long time and might not work out how you think. It's important to maintain goals.

What Would You Do to Improve Training in Research?

Personally, I feel so fortunate in my training as both my PhD advisors, John Solaro and Beata Wolska, were the best kind of

mentors I could ever ask for. However, as becoming technically proficient and knowledgeable in the field are important, I see a need for a more business-minded training. A principal investigator can be responsible for millions of dollars in funds and managing a lab of different personalities. I'm not exactly sure what the training would look like, but I think it is an important aspect to learn.

What Do You Like and Dislike About Research?

I like the collaborative nature of science and research in general. It's really a unique opportunity to have the ability to work with people all over the world. Also, I feel lucky that I'm paid to pursue my interests and lines of thought. And hopefully, one day, I can see how my research makes a positive impact on people's lives. Personally, I can be impatient when it comes to my work. A lot of science, in my opinion, is a waiting game, whether it's waiting for an incubation period, or waiting to hear back regarding grants or manuscripts.

How Do You Spend Your Time Outside of the Lab?

I really enjoy running. I'll jog a couple miles down the lake, or now the new Schuylkill river trail. It's important for me to take a break from science every now and then to get a different perspective. I like to meet up with friends and go to local breweries to unwind. And I keep in touch with my parents. The move to Philly will be particularly hard on my mom but they're happy for me.

Disclosures

None.

References

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