Rachel Hill: I had a job during my senior year of undergrad at the university of Tennessee, shout out to [Todd Reynolds 00:00:07]. He was looking to bring diversity to his lab. He was a new and upcoming professor who is now tenured and doing great things. And he brought me on board as an undergraduate researcher. And then from there, he gave me the best advice, he had told me not to feel like I had to stay in my lab. He's the one that really pushed me, like graduate school, you should go for it. Like you you've got it. And gave me the best advice and said, do not feel like you have to stay in my lab, but please venture out and find what fits for you.

Speaker 2: This is the ORISE feature cast, a special edition to further together, the ORAU podcast. Join Michael Holtz for conversations with ORISE experts on stem workforce development, scientific and technical reviews, and the evaluation of radiation exposure and environmental contamination. You'll also hear from ORISE research program participants and their mentors, as they talk about their experiences and how they are helping shape the future of science. Welcome to the ORISE feature cast.

Michael Holtz: Welcome to another edition of the ORISE feature cast. We are in the run-up to celebrating national post-doc appreciation week. So this week and next week, we will be dropping extra episodes of the feature cast, featuring members of the ORISE and ORAU teams who have had post-doc experiences. My guest for this episode is Rachel Hill who works with me here at ORISE. Rachel, welcome to the ORISE feature cast. Tell me a little bit about what you do for ORISE.

Rachel Hill: Yes, so I am a section manager in the DPP side, our group, which stands for the DOE participation programs group. Specifically, the programs that I manage are for EERE, which stands for the office of energy efficiency and renewable energy. I also support a small program at the department of transportation and a small research program under the department of defense and so I'm responsible for making sure that we stay in line for the scope of the work that we do under these programs, the funding, and just the day-to-day administration and operations of the program. And as a section manager, that gives me some people management duties. So I have a small group that I'm responsible for as well.

Michael Holtz: Okay. I have to imagine that managing three programs keeps you a little busy.

Rachel Hill: That's a good way to put it.

Michael Holtz: Especially during certain times of the year. I would imagine.

Rachel Hill: Exactly.

Michael Holtz: So tell me a little bit about how you got to ORISE. How did you decide to come to work for ORISE?

Rachel Hill: Yeah, so it was quite an interesting path. So, after graduate school, I had a post-doc appointment with the university of Tennessee, animal science department, which I was doing, just still continue on, what we term is wet lab, just research, basic research at the bench. And honestly, if you can imagine after five years of graduate school, and then the two years of post-docs, I was ready to take a different term. My brain had been on overload for so long. And actually at that time that I had applied for a job with ORISE and I never heard anything, but life kept going on and I actually ended up getting a research associate position that I was doing some more of lab management and research associate type work. And it was actually from there that I got a call from ORISE an if you can imagine being on what we call in the field, self funds.

So you were just able to get paid as long as you had research dollars coming in, that's kind of a un-secure feeling to kind of have, our dark cloud over your head. And so I was just interesting and really just getting with a good company where I could bring my skills to, but then also a place that I knew that I could have some sure footing, having a young family, that was priority. And just trying to broaden the way that I was thinking every day, I would say at that point I was kind of tired of doing the research so I was excited about doing something new...

Michael Holtz: Okay.

Rachel Hill: And I found that that was a good fit, once getting the call and interviewing and coming on board at ORISE, it just seemed like a good fit for me to bring my skillset and apply it in a very different way.

Michael Holtz: How long ago was that, Rachel? That you came on board?

Rachel Hill: So I am entering my fifth year next month, actually.

Michael Holtz: Excellent. So you talked a little bit about your post-doc appointment at the university of Tennessee. Tell me a little bit more about that and I guess, starting even earlier, were you always, did you grow up interested in science? Was that something that kind of always sparked your imagination? Or was there kind of a moment where Rachel Hill says, this is what I want to do?

Rachel Hill: Yeah. Yeah. So actually, I've always been into science and math. I'm not sure if stem was as hard a term as it is now, back then, but always love science. Always loved biology. And actually from a young girl, I wanted to be a pediatrician and it was actually during my undergraduate experiences that I had two in-summer internships. One was a joint internship with Meharry medical college in Nashville, Tennessee and Vanderbilt university. And that program linked you up with third and fourth year med students and it was a wonderful experience. I mean, I had the time of my life that summer, but the individual that they had me linked with, he told me that he did not go on Christmas vacation because he had responsibilities at school and for me, honestly, it was like, what? I cannot imagine, not going home for Christmas. And so I remember kind of putting that in the back of my mind and then, the following year, I had an internship out at Lawrence Berkeley National Laboratory in their life science division.

And it was actually there that the seed was planted that I said, hey, I can still satisfy that medical part of what I want to do, but just doing it at the bench and not to say that it was easier, but it was a very different path and a different skill. And so it was actually from there that I started on this research journey. And so I had a job during my senior year of undergrad at the university of Tennessee, shout out the Todd Reynolds. He was looking to bring diversity to his lab. He was a new and upcoming professor who is now tenured and doing great things. And he brought me on board as an undergraduate researcher. And then from there, he gave me the best advice, he had told me not to feel like I had to stay in his lab.

He's the one that really pushed me like, graduate school. You should go for it. Like you've got it. And gave me the best advice and said, do not feel like you have to stay in my lab, but please venture out and find what fits for you. And it was from there that the lab that I selected during my graduate school was a toxoplasma gondii eye, which is a parasite. We can talk about that on a whole nother podcast, but it was a medical micro, right?

Michael Holtz: Okay.

Rachel Hill: And so I was able to do research there and that just kind of took me on my course of life. I didn't understand it then at the time, but from there just kind of one thing led to another. So when I finished my PhD in microbiology at university of Tennessee, kind of when you're finishing up, you're trying to find someplace to go because money is, funny.

And so I actually got accepted to a post-doc appointment in the animal science division on the agricultural campus of UT. And that was the first time I experienced the beauty of the education that I was provided because, wow, it was very different than the type of work that I did in my graduate work. I was able to still take a skillset there and make it work. And so to your question, what was I doing?

It was in the animal science department. And actually, we use bovine tissues to do the work where we were looking at prostaglandin levels and how those affect kind of, mortality and the success of pregnancies in cow, using that research to help push the science forward in humans. And so, one thing that was very interesting, my day, some days like three times a week would start at four o'clock in the morning, or I would have to go to the slaughter house up in [Bean 00:10:14] station. And on that kill floor, the people who weren't, taking the animals are, through the slaughterhouse, they would give me the ovaries and I would take those ovaries back to the lab and cultivate new skills and that would be what I would do my research in, but that had to happen like two to three times a week and so, I can remember those early drives through rural Tennessee, just like, I can't believe this is where I am right now, but it was such a wonderful experience.

Michael Holtz: Driving to Bean station to pick up cow ovaries.

Rachel Hill: Yeah. On ice. Feeling it all the way back to Knoxville.

Michael Holtz: Oh my goodness. But like you said, I mean, the science was important and that's what your research focused on. So it had to be done.

Rachel Hill: Yeah.

Michael Holtz: And how long was that appointment, Rachel?

Rachel Hill: Well, that was for two years.

Michael Holtz: And over the course of those two years, I know you liked, you enjoyed the work, but you mentioned earlier that it was grant funded and being grant funded, life is a little tenuous, right? So you've got a family and you're looking for something more long-term, totally understandable decisions. Right? And that's how you came to ORISE.

Rachel Hill: Yeah. Yeah. And so it's interesting, right? Kind of how life works itself out because my PI at the time, he was actually retiring. And so he had given me this heads up, like Rachel, I don't know how much longer going to be here and actually, he had that conversation and then it was like three months later, he was like, yeah, it's happening now. And so it was actually kind of a bit of a frantic, like, oh my gosh, what am I going to do? And things just kind of just fell in place. I had totally forgot that I had applied for this job. And when I remember getting the call, I was on my way back home from Cincinnati and getting the call from HR at the time and they were like, we want to set up a interview for you. And I had no clue it had been that long Michael, since the actual applying and receiving a phone call. So I just feel that, that was another lesson that everything works out in its own time when it's supposed to.

Michael Holtz: Everything falls into place when its supposed to. I love it. And so you've been here for, you're starting your fifth year, you said. I assume, even though you're not necessarily doing the research that your program participants are doing, I mean, obviously you understand the work that they're doing. How does that benefit the programs that you work on and the participants?

Rachel Hill: Yeah. So that has been huge. Actually, it's something that I talk about often with some of my peers, that while graduate school afforded you a very deep dive on many different labors on your research project, but the skill that was learned, like the ability to dig for answers, the ability to critical think and something they used to tell us in graduate school while you are the expert in his field, for me. So I should be, when I graduate, an expert and know all things about toxoplasma gondii, you should be able to apply that knowledge to any other field or any other subject.

And I found that to be true because it is that ability to learn how to critically think and dig for answers. So it's like, I may not have the answer to this, but I can find the answer. I should be able to apply some of this knowledge here. And that has been huge, because I'm not doing, the participants that we are managing, they're not doing micro. Some of this stuff is solar powered or advanced manufactured, but I am able to pull on my knowledge to help connect the dots and to be useful in the work that I do on a day to day.

Michael Holtz: So the basic science knowledge still applies.

Rachel Hill: Definitely, definitely. And the key, dealing... With ORISE, we have a lot of policies, there are things that are put in place to make sure that we keep our program assurance. And that's a wealth of knowledge, that's a huge, at times can feel like a Pandora's box. And so it may not be that I remember it word for word or, can shoot it off to you, but I definitely know if I can't find it here, it's another place I can find it and then I can apply it there in order to get us the right answer. So those things, I found that skill invaluable.

Michael Holtz: That sounds amazing. So you're still technically a scientist, even though you're not in the lab, but you're still using those skills that you spent so much time developing.

Rachel Hill: And especially, I want to add too, as we grow our programs here, bringing in new work and setting up these programs with different guidelines and also the technical piece behind it is that whole technical writing piece that I feel, it keeps us competitive. And also, it puts us on a peer level too, with our sponsors, not the letters behind my name, making me who I am, at all by any means, because I would never dumb myself down to that. But at the same time, there are people who exist in the world like that. So, sometimes coming up and showing up at these meetings, it can be more of a collaborative space then, I need you to do this and take care of it. So, more collaborative over administrative, if that makes sense to you.

Michael Holtz: It does. Yeah. So, and it feels like that would be a better way to approach it anyway, with your customers, with your participants...

Rachel Hill: Absolutely

Michael Holtz: With your own team members that it's... Everyone's in it together so let's work together to make our programs the best they can be.

Rachel Hill: Exactly.

Michael Holtz: Rachel, for other folks who might be listening... And again, we're celebrating post-docs, we're celebrating post-doc appointments. Would you recommend to others to seek a post-doc appointment? To participate in those programs if they're interested and available to them?

Rachel Hill: Yes, absolutely. Because I feel like during those years, because with graduate school, you've been so focused on your research and the coming of sciences. I just feel like there was a whole nother dimension of Rachel that was cultivated during that post-doc, sometimes... All of them are not created equally, but if you're able to get hooked up with a PI that is willing to allow you to think on your own and move forward with your research in a way that you are kind of guiding that, those are all again, invaluable experiences because it kind of is a shift, right? From graduate school where you're kind of under the direction of your advisor, and then they start to let you go. I remember my advisor telling me, once you start pushing back on what I'm telling you, that's when I know that you're ready to get out of here, you know?

So it's like, it's right when you're getting to that point where, you're thinking on your own, you're using all the skills that you've been taught. The post-doc allows you to really put that into motion. And so, I just found it as a great stepping stone that allowed me to built another set of great relationships, with the staff. And it was actually during my post-doc that I realized that cowboys are a real thing. I was on the agricultural campus and up until this point, I had been with straight, white coat, pipettes, beakers. And it was like, when I got over there, I realized it was like jeans, cowboy boots, bandanas, but it was still the same level of great science that was going on. So again, it just kind of adds to that depth and wealth of who you are.

Michael Holtz: Right. And it certainly seems to apply in your case that, to be open-minded about what the prospects might be, because you went from people, basically, in hospital settings to animal, basically. Animal science.

Rachel Hill: Yeah. It was like, sheep. I would sometimes go with my PI. We would have to inject the sheep with the prostaglandin hormone. And that was a drive. And some of these places we drive by every day here in Tennessee. So to the locals who hear this, they make sense. But the farms you see on, going down Alcoa highway, it's real research being done on those places. You know?

Michael Holtz: Okay.

Rachel Hill: So, I mean, I would travel with him and we would, corral the sheep and do the science there on the live models and bringing them back to that veterinary hospital. It was just a whole nother world that was opened up to being, and I didn't realize even at East Tennessee, that that level was being done really, in my backyard. You know what I mean?

Michael Holtz: Yeah.

Rachel Hill: Just talking about a life changing [inaudible 00:20:43] experience, that's a mild way to put it.

Michael Holtz: So, take the opportunity if you can get it. Be open to the possibilities of not staying in one lane, and go for it. Right?

Rachel Hill: Yeah. That's huge. Do not limit yourself just because you think you should be in one place, that you have to stay in that lane. You said it best, open yourself to the possibilities, because those possibilities may bring you back to really where you wanted... You initially intended. You just got to give yourself a chance to go outside that box.

Michael Holtz: Right. Awesome. Rachel, thank you so much for spending the last few minutes with me talking about your experience and your work. I really appreciate it.

Rachel Hill: Thank you so much for having me.

Michael Holtz: Sure thing. Thank you so much.

Speaker 2: Thank you for listening to the ORISE feature cast. To learn more about the Oak Ridge Institute for science and education, visit ORISE.ORAU.gov or find us on Facebook, Twitter, and Instagram at ORISE connect.