Wake Tech STEM Podcast – Episode 3: Duke Human Vaccine Institute

INTRODUCTION: Welcome to the Wake Tech STEM Podcast, where we highlight diversity in STEM as well as explore the multitude of career options within STEM. This podcast is a production of the Math and Science Division. Please join me as we explore STEM through the eyes of our speaker.

MARCIA MCCOY: Welcome back, fellow Wake Tech students and staff and faculty. I'm Marcia McCoy, associate professor of communication here on North Campus. And I'm excited to be a part of another STEM podcast, and joining me today is postdoctoral scholar Christine Daniels from the Duke Human Vaccine Institute. I am so excited to have you along, Dr. Daniels. How are you?

CHRISTINE DANIELS: I'm doing well. Thanks so much for having me, Ms. McCoy.

MCCOY: Wonderful. I'm so glad. And all of us are wondering how STEM is actually taking place in the real world, not just theory but actual application. So, tell us a little bit about yourself and what you do.

DANIELS: Great question. Thanks for asking. So, I'm originally from Atlanta, Georgia, but I came to Duke for my Ph.D., which I did in cancer biology, and currently, I'm working on my post doc. What that means is that I've completed my doctorate and doctoral training, and now I'm getting additional training in a special, in a specific field. So, similar to how M.D.s will pursue residencies after completing medical school, Ph.D.s often complete postdocs after graduate school, where they're able to specialize in specific areas or switch areas completely. So, for my postdoc, I chose to switch areas from cancer to HIV vaccine development.

MCCOY: Wow.

DANIELS: Yeah, it was a big leap, but I think it's really cool. My research focuses on trying to understand the barriers to people developing neutralizing antibodies against HIV, or why they can't fight the virus. And so, using that information, I design protein-based nanoparticles to use an HIV vaccine candidates. And I test these vaccine candidates in animals and then use that information about how effective they were or why they weren't effective to help design new ones. And so, it's an iterative process of vaccine design, but that's ultimately what I work on now.

MCCOY: That is awesome. And you know what, I know that with every level of achievement there had to be some hurdles that you had to jump, some obstacles you had to face. Can you share any of those with us?

DANIELS: I have a list. Well, I mean, one being a Black woman in science. I mean, that's just not something, I don't see a lot of people that look like me or have natural hair or Black or younger in this field at this level. So, I would say access is a huge hurdle. I personally didn't know that the option to be a scientist was something that I can do when I was growing up. I didn't know any scientists personally. Any scientists I could think of were old, white men. And so, it just wasn't something that I saw myself in.

Also, just getting support through the process. So, being one of the, you know, having to pioneer this path for myself and then finding people who can support me. I have my family, was very supportive in terms of like, “You can do it. We're all counting on you.” But in terms of relatability, like, they didn't really understand what I was going through. So, sometimes saying you can do it when you don't feel like you're doing so well isn't enough to kind of pull you through. So, finding that support institutionally and emotionally was really hard.

I would say the timeline, if you go to the Ph.D. route, is another hurdle just because it's so long. Undergrad is four years. You know, all the other professional schools are like four years, two years, but a Ph.D. doesn't have, like, a specified time. I know people who've been here for seven years. You know, it’s a long time, and it's really hard to be in that place when you see your peers that didn't choose this route that are going on and starting careers and families, and you're still studying and you're still, like, a student. I feel like I've been a student for my whole life, so that was, the timeline was really hard.

And impostor syndrome. I think everyone in every field can probably relate to some degree of impostor syndrome, but just always feeling like, you know, one day you're gonna get exposed or that you don't know enough and that you don't really deserve to be here. And so, that, that's a hurdle within yourself that I know I've grappled with and still to this day grapple with. So, those are some of the things off the top of my head I can think of that really impacted my journey.

MCCOY: Well, that is very powerful. And now that you mentioned even Imposter syndrome, I know I had another podcast where that was mentioned and brought up. But it makes me think about the actual failures and if you even see the word failure itself as failure or rather another hurdle to learn from or a new piece of information. But with the idea of grit, resiliency, perseverance, all of these things in this STEM field, were there any failures that you experienced that you had to really fight to overcome?

DANIELS: So, failure is a very familiar word. If you're gonna pursue science, you, you will get very accustomed to experiencing failure because most of science is failure. But in terms of feeling like a failure, I would say graduate school. So, I didn't have a straightforward graduate school journey. I actually had to start over three times when I graduated.

MCCOY: Wow.

DANIELS: Yeah, so that was one of those things where each time, you know, each time you're not successful, it's very easy to internalize it and think that there's something wrong with me or I'm not good enough or I'm not smart enough or why am I not performing as well as my peers or this person or that person. And so, that was a really hard thing to experience, especially for so long. I mean, my Ph.D. took about six years, and so to, to have to start over and to feel like I'm never gonna finish, I can't do this was really hard. But you know, I pushed through it, and I had to keep reorienting myself and finding ways to stay motivated. And I actually finished around the same time as my peers. I'm in the same position as a lot of my peers. Some of my peers, I've actually surpassed in terms of career progression.

So, I failed to say that it's a really, a Ph.D. is a hard choice, it's a hard task. Any graduate career or college career is hard, and so there's a degree of that you take on when you apply and you start doing it. But

don't let that deter you iIf your journey doesn't look like somebody else's. That's, you know, don't be afraid to start over because you lose interest or you find something that you like more or, you know, your timeline gets thrown off. None of that matters in the long run. I had a different timeline. I had a different path, but I'm still in the same place I wanted to be, and so I encourage anyone who's thinking of pursuing something, it's not too late. You can always pivot. I've pivoted so many times [indecipherable].

MCCOY: One of the things we really want to focus on in these podcasts is highlighting diversity in the STEM field. Have you faced any obstacles in your career being a person of color, and, if so, how did you overcome them? Or just what is a challenge you may be facing right now?

DANIELS: I think being a person of color in academia is the challenge, and it's not something that I think that you, that I've overcome. I think my attitude has evolved in how I deal with it, but I mean, there's definitely gonna be the, the times where the assumption is that you're not supposed to be here or that you're in a lower position that you are, than you are, or people don't give you credit for your ideas. I mean, that's just, that's a day in the life. But how I deal with that is that one, I don't think of it as a reflection of me, and two, I do as much work as possible in my spare time to try to change the climate for other people.

So, I do a lot. I'm, I'm involved in a lot of committees that are here towards making the environment more inclusive and helping people become more aware of how to interact with people who come from different backgrounds or identify differently than them. So, I serve on diversity committees. I've also tried to mentor so that we can increase the number of people that look like me or differently than me in this space, so it's not such a homogeneous community, but you have people from all different backgrounds and ethnicities represented. And so, I think that that's been, that helps me feel better to, like, know that I'm encouraging other people to see themselves in this space and to get into, you know, academia.

MCCOY: What is your favorite song or motivational quote? What keeps you going day to day, sometimes assignment or vaccine to vaccine? What, what keeps you motivated?

DANIELS: I have a couple of quotes. One is whether you think you can or you think you can't, you're right. And that just speaks to the power of the mouth and the, the, the mind and the mouth, speaking words into existence. The other one is everything is figure-outable. So, you don't go to graduate school or college because you know all the answers, but it doesn't mean you don't have the capacity to get them.

MCCOY: OK, you just invented a word. And I wanna make sure [indecipherable]. I wanna, I wanna make sure this is heard. You said figure-outable.

DANIELS: I did. I got it from one of Oprah's podcasts. She had a speaker, and that was her talk. And it was just, it just helped me a lot with impostor syndrome. I was, like, I don't know all the answers, but I can figure them out. I can find a way.

MCCOY: That’s all right. You’re inventing everything every day. I say we have a few new words. Just make sure it's known, definitely figure-outable.

DANIELS: It's a great podcast episode. You should look it up.

MCCOY: That's awesome, and I definitely will. Thank you so much, Dr. Daniels, for joining us for another Wake Tech STEM podcast. And for everyone else out here listening, we hope you will consider all of these words and consider your next step and your next venture. Until next time, stay awake.