

In Conversation with Indigenous PhD Candidate and UVic alumna Danielle Hanke

Can you tell me a little bit about yourself and where you are from?

I'm Red River Metis, originally from Manitoba. I grew up in a small town called Flin Flon, Treaty 5 Territory, and then moved down south to a town called Neepawa, Treaty 2 Territory. I grew up in Manitoba my whole childhood. When I was looking into universities, I was interested in general science, but I didn't really know what I wanted to do yet. I applied to the University of Manitoba and the University of Saskatchewan, and then I saw an ad for UVic, and I thought that it looked beautiful – and a bit warmer than the prairies! I applied, and ultimately decided to go to UVic. I spent four years at UVic, and now I am at UBC Vancouver for grad school. This campus is on the lands of the Musqueam, Squamish and Tsleil-Waututh Nations, which is such a beautiful area, and that is where I am at now.

Since graduating from UVic you have continued your education in the pursuit of your PhD in Pharmaceutical Sciences. Can you tell us about your current research?

I am currently in Brent Page's lab here at UBC Pharmaceutical Sciences, which is a medicinal chemistry lab. Basically, there are a bunch of different projects within our lab that focus on developing small drug-like molecules for different proteins that are involved in disease.

My project specifically is looking at a protein called STAT5, which is involved in some blood cancers and brain cancers. Basically, I do a lot of chemistry to make a lot of molecules that are mostly the same, but a little bit different. I also do the biochemical and cell-based testing with those molecules, to see if they're doing the things that we are hoping that they're doing, and having the effects that we are aiming for. It's a lot of chemistry, mostly making molecules. Once I've made the molecules, I do get to look at the other side and test them with proteins or in cells and actually see what they are doing, which is pretty cool.

What inspired you to choose Pharmaceutical Sciences?

Honestly, I was getting towards the end of my undergrad, I still didn't really know what I wanted to do as a career. I had been thinking about grad school throughout my fourth year as I was working on my honors project. I did my honors project in Katherine Elvira's lab. I was working on an awesome microfluidics project, and I realized I really loved research, but wasn't sure if I wanted to stay within microfluidics for grad school. The medicinal chemistry course at UVic, I think it was Chem 437 or something like that, was really cool and piqued a lot of my interests within research. It was an interesting mix of chemistry and biology - I really liked organic chemistry, but I enjoyed seeing the biological applications of that chemistry. I was browsing for different graduate programs and was looking at chemistry departments, and then I saw the Pharmaceutical Sciences Department at UBC. I found Brent's lab and saw that it was a lot of medicinal chemistry - things that I was excited about within that course that I took at UVic and was eager to learn more about. I ended up joining his lab. I joined as a master's student initially, and then transferred to the PhD program within a year. I've been here ever since which has been great, and I really like the type of research that I'm doing. I'm getting to the end now, and I'm ready to wrap up this project. But overall, it's been great and I'm happy with how things turned out.

How does your Indigenous identity influence the way that you approach your research?

There are a lot of core values that I really try to bring into research. Traditional Métis stories really emphasize sharing and community, and I take a very collaborative approach in my research. I'm very lucky that within my faculty there are a lot of different labs that are doing very different types of research. I can lean on the expertise of my friends that are in other labs when I have research questions. It's cool to have these discussions and share knowledge about different areas. Sometimes in academia, it can be very individualistic, with the mindset that "this is my project and I'm on my own," - but I really like taking an approach that's much more collaborative. Like, hey, what if we try this experiment, in your lab, and then I can test something of yours over here. Or like, I could make a molecule for you if you need that. I think that has influenced how I approach things.

Keeping balance in my life is an important thing as well. In academia there can be that mindset of needing to be in the lab for every single hour of every single day to be productive. But a lot of my values growing up were of honoring that balance between work, personal life, community, and family. So, I really try and take that approach throughout undergrad and grad school. I love the research that I do, but there are so many other beautiful parts of my life that I think are important to stay true to as well.

It is interesting being in pharmaceutical sciences, because sometimes it can feel so different from traditional wellness and healing practices from our ancestors. I think it is important to honor and respect both. Since starting my research in this field, it has gotten me more interested in learning about traditional medicines and diving into it a little bit more. I think it's cool to have an understanding of both sides, and to learn more about it.

As an Indigenous student in chemistry, were there any challenges that you faced at UVic or during your PhD? How did you navigate those challenges?

Being so far from home, away from family and community, was difficult when I moved. I started my PhD in September 2020, which was peak Covid lockdown. So, when I joined this faculty, I couldn't meet anybody in person. We had very strict lab regulations about how many people could be in the building at a time and had alternating working hours so that we could accommodate all of our lab members. Meeting people, even within my faculty, was hard. I didn't know anyone in Vancouver, and when I first started, I was the only Indigenous grad student in my faculty. Now there's one more, and he is in my lab actually, so that's fun.

Lacking that sense of community was a bit difficult and to overcome that I really tried to find places where I could find that community. One of the first things I got involved in was this Indigenous STEM mentorship program with Let's Talk Science, where I got paired with a co-mentor and a mentee who was an undergraduate student in STEM. It turned out all three of us were Métis, and we got to bond over that, and share some stories which was really nice. I've also joined an organization called Indigenous Women Outdoors that operates out of the Sea to Sky area. I have found a sense of community there as well, and I got to meet all these other Indigenous women and gender diverse folks that are interested in outdoor sports. Learning about the land from people that grew up here has been amazing, because I am a guest on this land. Meeting a lot of other Indigenous people and creating a sense of community was helpful in overcoming those challenges of being so far away from my family.

One of the other major challenges would be lack of representation within this field. I feel like Indigenous people in STEM are underrepresented, and women in STEM are underrepresented. As an Indigenous woman in STEM, sometimes it feels very lonely. I have a very supportive lab group and faculty, which is nice, and they help me get over that imposter syndrome that I sometimes have. Again, honestly, finding community has been super helpful in fighting that loneliness. It was empowering to see that the two people I got paired with in the Indigenous STEM mentorship program were women as well - it was like, "Hey, we're all here, we're all doing the damn thing!" It is challenging at times, but ultimately, I think that having the support of community really helps to navigate those challenges and make it a little bit easier.

Reflecting on your journey so far, what accomplishments are you most proud of?

The things that I am most proud of are the outreach and mentorship that I've been able to volunteer with and take part in. Of course, there are things within my research that I'm proud of as well, certain awards, and it's cool to have papers published. But I get a lot of joy from taking part in these mentorship activities and getting to be that representation for somebody else, because it can be so hard when you don't see people like you in these positions. I am extremely proud to be an Indigenous woman in STEM.

I did a lot of work with Science Venture when I was at UVic. I did a co-op term with them, and after that, I stayed on and worked weekend workshops. I ended up working one last summer with them in 2020. During that summer, I got to do a lot of Indigenous STEM outreach which was so much fun. It was virtual because of the pandemic, but it was cool because we got to reach so many nations across the island. I was doing all these workshops and seeing the kids get so excited about different activities. It was awesome to be a part of that and help ignite that spark of "science is actually cool" and "science can be fun". With the mentorship stuff, again, it was so rewarding to be that representation and help other people navigate some of the challenges that we talked about earlier. Those are the things that I am grateful to have been a part of, and that I'm really proud of. I'm excited to hopefully be able to keep participating in those sorts of things and continue to be that visibility.

As you approach the completion of your PhD, what are your goals for the future?

That is a great question – I'm still kind of trying to figure it out. I'll hopefully be defending my PhD thesis by the spring or early summer next year. I've been looking into different postdoc positions, mostly in Europe actually. I am hoping to do my postdoc for maybe a year or two, experience a new research environment, and maybe experience a new living environment as well, if I get to move somewhere else. I haven't totally decided what path I want my career to take, whether I want to stay in academia, or move to industry, or move to something else. I'm hoping to keep doing research in a similar field for a couple of years as a postdoc and see where it goes from there. I have found some labs that I think do cool research, I have talked to a few supervisors, and hopefully something will shake out. We'll see what happens.

What advice would you give to Indigenous students who are considering a degree in chemistry?

I would say that if you're interested in chemistry, just go for it! There are so many different areas within the field of chemistry, it's so broad. There are so many different things that you can do. I would emphasize that there is space for you here, even if you might not see it or feel it sometimes. There are people that can be there to help you through. There is space for Indigenous chemists. For undergrad students, take advantage of office hours and don't be afraid of getting a tutor. Chemistry can be hard sometimes, but it is worth it. Form study groups, that's a big one. Finding community will give you support throughout your degree and beyond. Especially if you are moving far away from home, trying to find that community early can really help you get settled. Also, having balance in your life, I think, is really important. Chemistry is cool, but it doesn't have to be your whole life. So, make sure that you are taking time for yourself, and doing the other things that are important to you. That has saved me throughout my studies. In STEM and academia in general, there can be people bragging "I was in the lab 16 hours yesterday", and I think it is important to realize that you don't have to do that. It is possible to be successful in chemistry, while having balance in your life.