Western Faculty Profile: Dr. Derek McLachlin

Background

Dr. Derek McLachlin is an assistant professor in the Department of Biochemistry at Western University. He obtained his PhD at Western University for his work on the quaternary structure of E. coli ATP synthase. Dr. McLachlin did his post-doctoral studies at Rockefeller University in New York City, where he analyzed phosphorylated peptides from complex mixtures. Ellen Xu and Cheryl Yip had the chance to interview him to learn more about his research and his time as a professor at Western.

Questions for Dr. McLachlin

Tell us about yourself.

I was born in London, second of two boys, and moved to Chatham, Ontario and grew up there. I completed my BSc in Biochemistry and Chemistry at McMaster University, and then went on to complete my doctoral degree at Western. I’m the first person in my family, even including previous generations, to pursue science as a career.

If you’re the first science person in your family, what influenced your decision to choose science?

I always had an aptitude for math and science in school. I enjoy the systematic approach of trying to find out what the truth is and discovering reality. Science is a systematic logical way of finding out information about the world. As someone who is a thinker and an analytical person, choosing science just naturally made sense to me.

What kind of research have you done and what are you working on now?

At Rockefeller, I looked at ways of studying protein phosphorylation, predominantly through mass spectrometry. I would collaborate with other labs that had proteins they wanted analyzed for the unknown locations of phosphorylation. My main project revolved around developing technology to specifically enrich phosphopeptides from complex mixtures – to specifically purify out phosphopeptides from a mixture of peptides. I am now a professor teaching biochemistry at Western and am also an academic counsellor for biochemistry.
What made you choose this area of biochemistry?

As you go on with science, certain areas and disciplines just resonate and excite you more. Analyzing protein phosphorylation is also an important project since it is such a key regulatory mechanism. It seemed like a challenge and I thought it would fit my strength and my background knowledge in protein chemistry.

How does a student interested in biochemistry decide where to specialize, especially since biochemistry is such a diverse field?

After second year, you’ll get a better sense of what areas you are drawn toward. Talk to different people, like academic counsellors, so they can give you a sense of what the discipline is like. It is important to be open-minded, so that you can explore all your options and make a well-informed decision. Remember that changing courses to switch into something you feel you’d be better at does not mean failure. You definitely want to persevere through difficulty, but if it’s not in your best interest, know you can explore something else.

What advice would you give a student looking to gain some lab and research experience with a professor?

The best thing a student can do is to look on websites for professors who are doing research related to what they are interested in. The biggest thing to remember is not to be afraid to take the initiative and ask. Professors get these kinds of requests a lot. You have to get over that fear of wondering “Should I contact that professor?” and “Will he or she be annoyed?” When you’re writing to supervisors, you don’t have to write a whole novel; just be genuine and show them who you are, what kind of person you are and that you are looking for experience. Remember that, if you persist, there are different avenues to get into a lab, like work-study positions or volunteering.

What kind of responsibilities do students typically have once a professor agrees to let them work in their lab?

Students who have only just begun experience building usually start with small responsibilities and tasks that don’t require much judgement, like pipetting, making buffers using a pH meter, and cleaning dishes. As you prove yourself to be reliable, you are then entrusted with more responsibilities, like running SDS-PAGE or Western blots. It is important to show that you can follow protocols and can keep your eyes and mind open while on task. This ties right back into why you should study something you are interested in. It is much easier to find motivation to do those initial menial tasks when you know you are working toward something you like. This is especially important in the future when you earn a bigger role in a lab and things go wrong. You’ll have to put in extra work and time to find out what the problem is and this is less frustrating when you’re genuinely interested in what you’re doing. Always avoid a situation where you feel like avoiding the work!

What are some qualities that professors look for in a potential research assistant?

Professors are always looking for diligent, motivated, curious and enthusiastic students who are willing to learn! They are also looking for students who show appreciation for their work. It is important to be real and display genuine interest, as professors want someone who will, as they fit into the lab environment, think independently and critically and take ownership and responsibility for things. You have to show that you are someone who is willing to invest time into this and that you are interested in their work. Professors are looking for someone whose email doesn’t look like it’s been copied and pasted to 50 other labs, asking for the same thing. When you talk to the professors, you don’t have to be an Einstein.
about their topic – just demonstrate you have actually taken the time to read their work. Be sincere and remember that getting research experience is not just about looking for another bullet to add onto your resume.

**When it comes to applying for graduate work, how important and/or relevant is your undergraduate field of discipline?**

For biochemistry graduate work, if you have an honours degree in biochemistry or some related discipline, you are qualified to apply to and enroll in the biochemistry graduate program here at Western. Your undergraduate work doesn't necessarily have to reflect your chosen graduate field of work, although prior experience does work to your advantage. Research experience does count for graduate work applications, as it shows more evidence of strong lab skills and hands on knowledge. There are other ways however of getting into the biochemistry graduate program – or any graduate program I would imagine – as each individual has their own unique skill sets. For example, if you have an affinity towards computers and you have a background in biochemistry, you could enter into a bioinformatics lab.

To read more on Dr. McLachlin, please visit his website at [http://www.biochem.uwo.ca/fac/McLachlin/McLachlin.html](http://www.biochem.uwo.ca/fac/McLachlin/McLachlin.html)