



20 Questions with... Jessica Esseltine

Assistant Professor of Cancer and Development, Faculty of Medicine, Memorial University of Newfoundland

20 Questions with 20 Stem Cell Scientists from Across Canada

1. Where were you born? Where did you grow up?

I was born and raised in St. Thomas, Ontario. It is a small town, just south of London. Its claim to fame is that it was where Jumbo the Elephant died in a train accident. Visitors to St. Thomas are still greeted by a giant elephant rear end when they enter the city.

2. Where did you go to school?

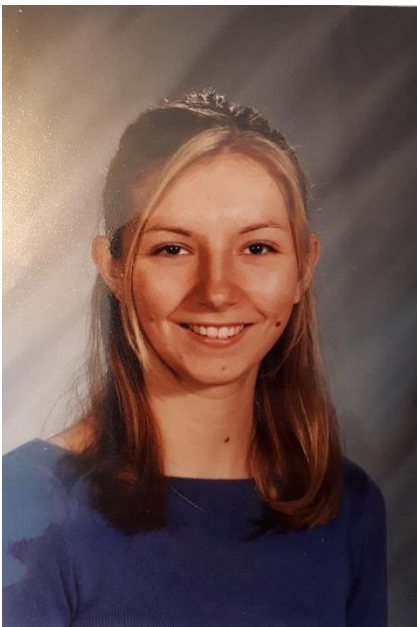
I did all of my education at the University of Western Ontario in London. My undergrad degree was in genetics in the Department of Biology and then I did my PhD at the Schulich School of Medicine and Dentistry in Physiology and Pharmacology.

In my PhD I studied G protein-coupled receptors, which is somewhat different than what I'm doing now.

I did a postdoc at the University of Washington in Seattle, WA, where I looked at protein kinase A and protein dynamics. I followed that up with a second postdoc back at Western, again in the Schulich School of Medicine and Dentistry, where I studied gap junctions. And that was when I discovered stem cells.



Jessica as a toddler



Jessica in high school

3. What did you want to be when you grew up?

I know at one point I wanted to be a veterinarian. And I recall when I was about 9 or 10 years old, I told my mom that I wanted to be the Dean of Science. So, I think that from a pretty early age, this career path was where I was headed.

4. What are you researching right now?

I have two main areas of research. First, we are trying to model rare genetic disorders using stem cells from patients. The second stream of research is looking at how cells communicate with each other.

5. Why stem cells?

I discovered stem cells quite late in my training, only really in the last two years of my postdoctoral work.

Until that point, I knew that I was probably going to make a career in science, but it didn't really inspire me. It was when I discovered stem cells that I realized that this was absolutely what I wanted to do with my life!

It was my supervisor's suggestion that I work with patient-derived iPSCs and the first time I ever saw a stem cell culture, I looked at them and said, 'oh, those are ugly little cells!' I really offended the technician that was training me. She responded that it was, 'a very beautiful cell culture.' She thought that I was maligning her cell culture technique, but I just thought that the cells themselves looked ugly. Then I did my first differentiation experiment and literally watched the cells change shape and size – right before my eyes. It seemed miraculous. And I never wanted to do anything else from that point on.



Undergrad convocation from Western

6. Who in your opinion, are the top three Canadian stem cell researchers in history?

This is a really hard question because Canadian stem cell researchers have always been creative, driven and at the forefront of stem cell research.

Obviously, Drs Till and McCulloch discovered stem cells, around 60 years ago. Then Dr. Rossant and Dr. Nagy demonstrated the embryonic stem cells have the potential to become any tissue in the embryo, so that was also a major discovery.

But I guess if I had to choose, some may say this is corny, but my favourite researchers are probably my grad students. They are smart, hardworking, creative and I feel really lucky to be able to work with them, mentor them and learn from them.

7. What are your predictions for stem cell advances in the next 5, 10, 20 years?

Researchers right now in the world and in Canada are using all sorts of different techniques to integrate basic, translational, biological and biomedical research using tools like computer programming, robotics, engineering, mathematics and a whole host of other seemingly disparate disciplines.

So, I don't know exactly where stem cell research is headed in the next five, ten or 20 years, but I know that it will be exciting, and that Canadians will be at the forefront.

8. What are you reading right now? What is the best book you ever read?

Right now, I'm reading the *10,000 Doors of January* by Alix E. Harrow.

In terms of the best book I have ever read, that's a two-way tie between *Go Dog, Go* by P.D. Eastman and *The Stormlight Archive* by Brandon Sanderson. It is actually a series of books, the newest one just came out in November, 2020.

9. Who is your favourite scientist?

This is actually a great question because my favorite scientist is the late Doctor Henry Barnett. The reason why he's my favorite scientist is because when I was in my first year of my Masters – I was probably two or three months into my program – and he gave a lecture at Western. I was relatively new and I did not know who he was. He was quite old at that point and he shared with us stories about his life and his research career.

He was a resident in Toronto General Hospital. This was before the war and before penicillin was widely available in Canada. He told us all about how tragic syphilis patients were because there was absolutely no treatment. And then he shared his experience of when he gave the first syphilis patient in Canada a dose of penicillin. He explained that if it had been a week or two before that moment, this person would have died – suffered terribly and then died – but because of this treatment she was able to go home and raise her family and live a happy, normal life.

He went on to share what it was like to live through World War Two in Canada and then he shared details about his research. He researched the effects of aspirin on stroke patients and his work was seminal in making aspirin one of the primary treatments of stroke patients.

He ended his presentation by sharing that he himself had had a stroke when he was in his late 70s and they had treated him with aspirin. As a result of the treatment, he suffered almost no residual symptoms after his stroke.

I was about 22 years old, had just started studying science and didn't really know anything about anything and I was completely inspired by this man and his life story.

10. What in your opinion is the single most important health science or biomedical breakthrough?

In my opinion it would be the discovery of penicillin, for sure. Before that people would die from a simple scrape or a urinary tract infection. Today we are very lucky to have had that discovery.

11. What are your hobbies outside of the lab?

I read a lot of fantasy novels. I read like I breathe!

I also like to garden but I am terrible at it. The house that I live in now had a gorgeous garden – the previous owner was an avid gardener – and I am slowly killing that beautiful garden right now.



Enjoying the East Coast Trail in 2020

12. What is your favourite place to visit?

Cottage country. Any cottage country really. As long as there is swimming, hiking, canoeing, s'mores. I don't think anything can get better than that.

13. What is the best way to start your day?

I like to play with my dogs. They are usually pretty chipper in the morning. I have two rescue dogs.

14. What are the top three songs in your personal playlist? What is your guilty pleasure song on your playlist?

They change all the time. Right now, I am really into The Wknd. I like Khalid. But really, anything from the Foo Fighters to Fleetwood Mac.

15. If not a scientist, what would be your dream job?

Number one would be independently wealthy. Number two would be fantasy author.

16. What advice would you give to a trainee just starting out? To a young kid in primary school?

I tell all of my trainees that just like life, science is never perfect. If it were perfect, then we would live till we're 1,000 years old and we wouldn't have things like the climate crisis that we are in right now.

It's OK that science isn't perfect, and it's very important to acknowledge the pros and cons of any experimental design or stream of research. Just because it's not perfect doesn't mean it's not worth doing. We just try the best that we can within this imperfect system that we have.

To a young kid in primary school, I would tell them that it is OK to fail. I fail a lot – I fail every single day. I'm wrong, a lot, and it doesn't bother me. I know a lot of things and I don't know a lot more things, and that's OK. There is always someone that's going to be better than you at some things. And that is OK too.

17. What is something you think everyone should do at least once in their lives?

To love someone.

18. What is your favourite movie?

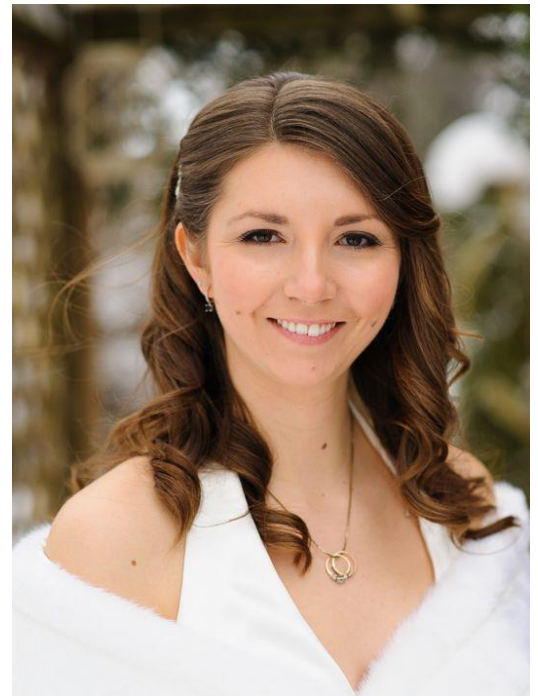
Forrest Gump. I have watched that movie so many times.

19. What is your favourite word? What word do you use too much?

Ostensibly.

20. What do you wish you knew more about?

I would really love to know what my dogs are thinking.



Jessica at her wedding