

Early Career Investigators Forum

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On being a scientist and a mom; successfully walking a tightrope

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Among all the obstacles that women face when pursuing a career in science, the gratifying experience of becoming a mom can turn into a major challenge. This turning point in life can put different aspects into perspective. Female scientists walk on a tightrope to find a balance between career and family life. Many start to reevaluate their goals, lower their career expectations, and in some cases give up their scientific dreams. Inna Rabinovich-Nikitin [Figure 1], the mother of three girls, is one of those young scientists that managed through hard work and resilience to hit her career milestones. She was just appointed as Assistant Professor at the University of Manitoba, Department of Physiology and Pathophysiology and Institute of Cardiovascular Sciences; “It’s not trivial to be a woman in science and to be successful and reach heights”, Inna says excitedly about her very recent achievement, “I feel very proud because I know that this is a great example for any women, and especially for my daughters, that women can do anything”. My heart is filled with joy and excitement as I ask Inna to share her story as a successful scientist mom.

Inna, please tell us about yourself, where you come from and how you ended up in Canada?

I was born in Moldova, Kishinev. When I was five years old, I immigrated with my family to Israel. After completing a B.Sc. in general biology at Tel Aviv University, I enrolled in the M.Sc. program in the



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Figure 1. Inna Rabinovich-Nikitin, Ph.D.

Department of Molecular Microbiology and Biotechnology at Tel-Aviv University, under the supervision of Dr. Beka Solomon. My thesis focused on studying the effects of monoclonal antibodies against the β -secretase cleavage site of APP on Alzheimer's disease. I then pursued Ph.D. training in the same laboratory, studying AMD3100, an immunostimulant of hematopoietic stem cells, as a potential therapeutic approach for neurodegenerative diseases, including Alzheimer's disease and Amyotrophic Lateral Sclerosis. After completing my Ph.D., I moved to Canada, with my family, my husband and two daughters at the time, to pursue my postdoctoral fellowship. I was a Canadian Institutes of Health Research (CIHR) funded postdoctoral fellow in the laboratory of Dr. Lorrie Kirshenbaum at The University of Manitoba, Institute of Cardiovascular Sciences. During my postdoctoral fellowship, I studied the molecular mechanisms that underlie circadian rhythms in the heart and how disruptions to circadian rhythms affect cardiac ischemic injury. Dr. Lorrie Kirshenbaum's lab has been an amazing environment and I have learned a lot here. This was when I realized that I love Canada, I love Winnipeg and here I felt that I found the place where I want to establish myself. Recently, I was appointed as an Assistant Professor at The University of Manitoba, Institute of Cardiovascular Sciences. I am now in the process of setting up the laboratory, recruiting students, and establishing my research programs that will focus on Women's heart health, cardiac metabolism, and circadian biology.

You changed your field of research in your postdoctoral fellowship; what was its impact on your career?

Postdoctoral training introduced me to advanced research skills and disciplines. I was interested in developing my research training in an area that is novel for me but has always been one of my biggest areas of interest, the area of cell death of cardiovascular diseases with a specific interest in circadian biology.

In my case, I moved to cardiovascular research, and the knowledge I earned during my graduate studies in biotechnology helped me a lot to pursue my current research. I'm sure that in the future, I will be able to combine both areas of cardiovascular research and biotechnology towards developing a new therapy to treat cardiovascular disease.

What experiences in your life have led you to pursue a career in basic research?

Since I remember, I was always very interested in science. The moment in time that I think changed everything for me was when I was eight years old and my parents went on vacation and they asked me what I want them to bring me back as a gift. I said either a microscope or a telescope. They brought me a microscope. I guess that meant a lot to me, because if they had brought me a telescope, maybe I would have been a physicist today. Who knows? I played a lot with the microscope, checking every object possible under the lens. Then, I started to borrow science and medicine books from the library and read about every system and disease that interested me. I also liked to challenge myself by trying to realize how a system or a process in our body works before I went to look it up. Therefore, when the time came to choose a career path, it was natural that I would pursue a career in science. Recently, I fulfilled my childhood dream by becoming an independent researcher. I plan to develop a research program that will focus on Women's Heart Health, with the goal of increasing awareness, improving diagnosis and developing better treatment for women who are dealing with cardiovascular disease.

Is there any particular scientist, or person that inspired you to pursue cardiovascular research?

I was always around science, but I remember specifically one event when I was watching a show about the first human heart transplant and they were talking about Dr. Christian Bernard, who performed the first human heart transplant. That show deeply impressed me, just seeing the innovation, the creativity, and the "thinking out of the box" approach that he had, have inspired me profoundly as a cardiovascular researcher.

What challenges did you face in pursuing your academic career?

Thankfully, I can't point to any major challenges I faced during my career path. I was always very lucky to be around inspiring mentors that helped me with any questions and challenges or any obstacles I faced. Especially when I moved to Canada, I was very fortunate to have my postdoctoral fellowship with Dr. Lorrie Kirshenbaum. He helped a lot in making the transition to a new country and new area of research as smooth as possible. He has always been a great inspiration to me and very supportive and encouraging. I think he helped to shape my scientific worldview a lot and thanks to his mentorship and his leadership, I have learned more skills to continue to grow professionally.

What habits have you established in your day-to-day life that you believe contributed to your success?

In general, I think I am a pretty positive person. I don't waste time on negative energy and bad thoughts. A positive attitude helps me a lot with solving problems and moving on whenever I face any challenges in my day-to-day life. I'm also very organized and I think that being organized and planning helps me in accomplishing tasks and keeping track of deadlines. Being organized makes it easier for me to prioritize tasks and be less stressed.

What piece of advice you will give to a younger version of you or the younger generation pursuing a research career?

The one piece of advice I would give my younger self and the young investigators would be "always believe in yourself". Perhaps, when we are talking about challenges, I can point to one challenge that I had during my first year in college. I was a bit overwhelmed by all the academic requirements and I am sure this is something that many people can relate to. At some point, I wanted to even drop college because I felt it was

too challenging and I was not capable of meeting the challenge. Thankfully, I had tremendous support and encouragement from my family and my husband. They all advised me to take small steps and set myself small goals and not to be discouraged by one failure. This is when I decided to change my approach and fight for my dreams. I advise other younger trainees to start in the field the same. The field of science may hold some challenges and frustrations. But when we face them, we should always remember all the success and the achievements we have already accomplished and not be blinded by one temporary obstacle. Keeping that in mind and always believing in yourself is what will motivate you to keep going and succeeding.

How do you deal with the setbacks in your research pursuit?

Unfortunately, setbacks are inevitable in science. I think that once you understand and acknowledge this, it is easier to overcome the setbacks. Usually, when I have a setback, I seek advice, and keep in mind Albert Einstein's famous quote: "We cannot solve our problems with the same thinking we used when we created them". Throughout my career, I learned that the solution is always around us, and we just need to look for it. Whether it's by searching online, in publications, or simply by approaching people and asking for advice. Sometimes, just taking a break from what you are doing, also helps to see things clearly and from a different angle.

What do you see as a major challenge for young scientists?

I think all scientists, not only young scientists, can relate to this - I think that the major challenge these days is the ability to secure external grant support and fund the lab.

It seems that there is a reduction in government funding programs that can support young scientists which is, to me, a major concern for long-term system stability. If a research lab is well funded, then the sky is the limit and it can help dramatically in achieving and discovering new horizons.

What are some activities or hobbies you enjoy outside of the lab?

OK, this is the fun part. The two main activities that I enjoy outside the lab are spending time with my family and reading. I enjoy nature a lot, and I find that spending the weekends exploring nature and traveling with my kids and my family is very relaxing and helps fill up my soul for the rest of the week. I also really enjoy reading all kinds of genres and books. I mostly read at night, before going to bed. Even reading a few pages helps me unwind and clear up my thoughts for the next day.

How do you balance your personal life with research? Do you have any tips for others?

This is very challenging, especially as a young scientist and a young mother. It is very important to plan everything and plan your day in a way that allows you to balance your personal life and research. I try to leave work to pick up my kids from school and daycare. When we arrive home, I spend the evening with them and put work and research aside. I think it is very important to fully dedicate those few hours to my family, to my kids. After my kids go to bed, I continue working for a few more hours to complete different tasks. Similarly, during the weekend, I try to dedicate my time to my family, but in the evenings, I keep completing some tasks that require my attention before the beginning of the week [Figure 2].



Figure 2. A scientist mom walking a tightrope to find balance (the image is decorative).

What are your academic goals?

Women's Heart Health is the main area of research that I'm focusing on in my new research program. Historically, most of the cardiovascular research focused on men, which contributed to the lack of critical information about the differences between women's and men's heart health and the pathogenesis of heart disease in women. Therefore, my long-term goal is to advance knowledge and awareness of Women's heart health, by performing cutting-edge research that would combine both basic science and clinical research. As a scientist and as a woman, I believe that by moving forward in this area of research, we will see better disease prevention, improved diagnosis, and enhanced treatment and rehabilitation for women with cardiac disease.

Do you suggest any books, podcasts, or any other forms of media as a great resource for learning particularly for younger people?

My favorite platform of media is TED talks. I enjoy the variety of topics and people that present their ideas through TED talks. I watched there many inspiring talks that opened my mind to look at things from different angles. I mostly enjoy the science-related talks. Some talks can help with preparation for a career as

a scientist, career development, and achieving academic goals. Lately, I also started using Twitter. I think this form of media is very useful for scientists since by following specific people or pages, you get exposed to the most recent and advanced developments in your area of research, which helps you to be up to date.

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