



Health Science Inquiry

Interview by Rhalea Thomas

## Spotlight On Careers

Dr. Marie Pierre Faure

Dr. Marie Pierre Faure is the Deputy director of the InstituteTransMedTech (iTMT), Living Lab. The iTMT was created by five founding institutions (Polytechnique Montréal, Université de Montréal, CHU SainteJustine, CHUM and the Jewish General Hospital) with funding from a \$35.6M grant awarded in 2016 by the Canada First Research Excellence Fund (CFREF) and \$60M in contributions from industry key partners. The iTMT is housed in Polytechnique Montréal and works in a novel method termed “the living lab” to select, fund and carry out translational medical research. The living lab is the cornerstone of the iTMT Institute. Dr. Faure was recruited to build the team and manage the projects of the living lab. She describes a living lab as “a methodology where we put together all the experts around the table to answer questions or work together on projects for any innovation in the healthcare field.” In this method of working a group consisting of patients, industry partners, clinicians and academic researchers are all brought together around the table to decide on what are the top priorities for health care. For each project a team with representatives from these categories are brought together and collaborations are formed and defined between industry partners, clinicians and basic researchers. The goal is to create diagnostic, treatment and healthcare solutions most important to the patients, that can move seamlessly from the research stage and be easily implemented into the clinic and continue to be improved by user feedback.

Dr. Faure obtained her PhD in neuroscience from McGill University. She has over 25 years of experience bridging the gap between knowledge and expertise, working toward the innovation of novel healthcare solutions. The living lab group works collectively with researchers, engineers, students, physicians, caregivers, industries, policy-makers, governments and patients, with the goal of designing, developing and implementing innovative technological solutions into the healthcare system, improved disease diagnosis, treatments and healthcare delivery. The iTMT is focused on three main priority groups, which were determined to pose the greatest health risks to Canadians: cancer, cardiovascular illnesses and musculoskeletal disorders.

### **1. Can you outline the path you took to become the manager of the iTMT Living Lab?**

I started my studies in France, where I completed a Medical engineering degree, focusing on imaging in biology. I crossed the ocean and came to Quebec to work at the Jewish General Hospital (Lady Davis Institute) and finish my PhD thesis at McGill University under the supervision of Dr. Alain Beaudet. After completing my graduate studies, I started a biotech company. From there, I worked at three different biotech companies over 20 years. I realized I wanted to work using the Living Lab method (popular in France) and decided to start another company, called C4Care Living Lab. My company became the first Living lab in Montréal, Canada. In 2014, C4Care Living Lab was certified by [the official regulatory group that recognizes and gives accreditation to Living labs], the European organization of Living Lab (ENoLL). As the founder and president of C4Care, my objectives were to find a method for early detection of skin cancer and to follow the patient care journey from the pharmacy to the first line at the medical clinic and through treatments and cancer care. To meet these objectives, we combined convergent technologies to create SkinCheck4LIFE ecosystem; this work was recently published. When Polytechnique received the grant from the Canada First Research Excellence Fund to create the Institute TransMedTech (iTMT), they made me an offer I couldn't refuse: to establish the Living lab approach as part of the iTMT.

### **2. Can you describe your position at the TransMedTech Institute and one of your current projects?**

I only started at Polytechnique seven months ago. My first task was to set up the team for the Living Lab. So far, I have recruited about 10 people that create a guiding council. We put out a call for medical technology projects as well as excellence awards for graduate students, postdoctoral fellows and professionals. I organize and manage the group that determines which projects are selected for support by iTMT. The group consists of researchers, patients, clinicians, industry representatives from a consortium including Polytechnique, Montréal University, CHUM and Jewish General Hospital. The funding all comes from the government rather than industry. The current projects and excellence award winners can all be found on our website. (<http://www.polymtl.ca/transmedtech/en/competition-results>). We select the initiatives that our group determines have the highest needs to achieve innovations corresponding to iTMT

mission, like the ones that serve the patients that really need help. A current project we are really excited about is working on a way to detect brain tumors early on and to distinguish the difference between a tumor and normal tissue in order to identify the boundary of the tumor within the brain tissue. This project is in collaboration with the Montreal Neurological Institute and we are already making a lot of progress. We have over 30 ongoing research projects. My role is to put together the teams working on each project, get the right experts all together in one room, with the patients and industry partners so that all aspects of the problems are considered. In this way, real solutions can be found and developed. For our industry partners, we try to bring them early in the process and they get to establish intellectual property early to ensure our technologies can be implemented immediately for patients.

### **3. Do you find any friction between people from different experiences and backgrounds trying to work together**

If you are a nice person, you like to put people together and you have a sense of humor, you will find working with a varied group of people very stimulating. In the varied group, you get many new ideas and many ways of working, at the end you will come to a consensus of what would be best for the patients. This is what everyone is working towards. All the people in the team are experts in their fields, the expertise is selected around the medical needs. In the first group meeting, people are a little bit shy. After the second meeting, everyone knows each other and sees the advantages of working in this method. Everyone learns surprising things about the way the others work: perhaps a basic researcher learns something about how a surgery is being done and the surgeon has an idea about something that could be tested in the research lab. Everyone stays in their field of expertise, but collaborate together and a synergy is formed. This collaboration forms quickly and this is what is so stimulating about this way of working.

### **4. What are your favourite and least favourite parts of your position?**

I am person who likes to have every day different from the last. In this position every day is different, I am moving all the time. Each day there are more projects, more researchers, more collaborations. I really enjoy it, when I'm asked how do I see my job, I say "it's not a job, it's a gift". When building your own team, you end up working with people you have a good fit with, even the human resources management are not difficult. It's different from team where you come into a group that already has a way of working. I was able to select my team and I love the people I work with. Each person in the team depends on each other and is made better by the team. At the same time, each person can also work on their own as expert in their field.

### **5 . Do you have any advice for current masters and doctoral students?**

Think what your field will be like in 3-5 years from now. It's not the same as 20 years ago, where you choose a field and you will be there for life. You will no longer spend your whole career in one field. Now you need to be more flexible and open minded. Technology is evolving every day, students need to open their eyes and ears. Realize that if you have a Master's degree today, it is not an end point it's just the beginning of your career. Keep learning new skills in what you enjoy. You want to choose the field and skills that you are passionate about to have a job that you will like. Many students don't know what they want to do next, it's important to expose yourself to different areas. At Polytechnique we expose students to academics, to industry researchers and entrepreneurs to open their mind to different pathways. You may start in academia, switch to industry and then realize you want to be an entrepreneur: life is not a straight line. You need to keep your mind open to opportunities and to what will make you happy and motivated to go to work and study every day in a constantly changing world.

### **6. What do you see coming up in the next 5 years for health research.**

Integration, integration, integration of new healthcare approaches taking into account the patient as part of his own healthcare system. Currently, excellent centers give you the leading experts in the field. Top scientists are already working in the way of a living lab, collaborating and working with many partners. Living labs are now starting to put a label on these collaborations and making them more effective. The projects are becoming more efficient and taking into account everyone's perspective to move quickly from the lab to the bedside. Translating innovation from different disciplines and sectors will give us a better chance to answer user needs. I think in five years the medical field will be more personalized and integrate many more technologies. Hopefully, we keep patients alive with a good quality of life for longer. Using the aggregation and integration of knowledge, we will not be working in isolation anymore, working as a community will become the norm moving forward. I have been on many committees in Montréal, this is the first time I have seen so much energy and desire to work together. The quality of companies and research have never been better. People are ready to work together, we are really in a movement. To survive as a key university and excellency center, you have to open the walls and incorporate the way the world is going right now. Everything is going faster than ever before and students need to be exposed to this world.