Focus on Faculty #64
Patricia Tonin

I received my doctoral degree in molecular biology at the University of Toronto and moved to Montreal to pursue postdoctoral training in the field of cancer molecular biology at the Ludwig Institute for Cancer Research at the Royal Victoria Hospital. Within a year the Ludwig relocated to California and what seemed to momentarily derail my career also coincided with two events that changed my personal and professional life. The first was the birth of my daughter (affectionately known as "Peanut") who is a constant ray of sunshine in my life. The second, with a MRC Fellowship in hand, being able to complete my postdoctoral training in Dr. Steven Narod's new laboratory at the Montreal General Hospital Research Institute (MGH-RI) which resulted in my contribution to the discovery of BRCA1 (and then BRCA2), a major breast and ovarian cancer risk gene. With this discovery in hand and recognition from the Quebec Breast Cancer Foundation, I was offered the opportunity to start my academic career at McGill.

I joined the Department of Medicine (and then Human Genetics) at McGill in 1995 with my laboratory being based at the MGH-RI. My research has focused on investigating the contribution of BRCA1 and BRCA2 to familial and sporadic breast and ovarian cancers, particularly in the French Canadian population of Quebec. This research facilitated development of medical genetic tests useful in identifying women at risk for these cancers for the purposes of offering cancer management and risk reducing options**.** Collaborations and interactions with colleagues in Medical Genetics at the Montreal General Hospital and the Jewish General Hospital, as well as at the Centre de recherche du CHUM (CR-CHUM), were critical for providing access to clinical specimens for my research but also important in fully understanding the clinical attributes of cancer patients and challenges faced in their treatment and management. Long standing meaningful local research collaborators include: Drs. Anne-Marie Mes-Masson (CR-CHUM), Diane Provencher (CR-CHUM) and William Foulkes (McGill), and more recently Drs. Celia Greenwood (McGill), Jiannis Ragoussis (McGill) and Jean-Yves Masson (Université Laval).

Since moving to the MUHC Research Institute at the Glen Site in 2015, my research has returned to identifying new cancer predisposing genes as not all hereditary breast and ovarian cancers are due to mutations in BRCA1 and BRCA2, by taking advantage of the next generation sequencing technologies and bioinformatics methodologies.

As a strong proponent of mentoring the next generation of scientists and scholars, I have mentored over 30 graduate and undergraduate students. As Chair of the Science Curriculum Committee (Human Genetics) I have helped develop a new undergraduate independent study course for the purposes of exposing students to laboratory research early in their academic program. I have participated in outreach programs, hosting college (CEGEP) and high-school students in my laboratory and the Gene Researcher for a Week (secondary school outreach) program of the Canadian Gene Cure Foundation. I am grateful and fortunate to have been mentored by the late Professor Emeritus, Dr. Kenneth Morgan. I appreciate being nominated for and having received the 2012 and 2019 Human Genetics Teaching Awards in recognition of contributions in the teaching, supervision and mentorship of students.

During my career I have received research funding from a number of agencies and have published over 150 original peer-reviewed articles on the genetics of breast and ovarian cancer. I am most proud of earning the 2017 Karen Campbell Research Excellence Award from Ovarian Cancer Canada. Three notable publications that left a lingering impression early in my career and set the tone for what was to follow in my research laboratory are shown below.

During my spare time, I like to research my own family history (mixed European roots), take vacations with my husband (New York City is a favoured destination), and read the daily news.

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Oros, KK, Ghadirian, P, Greenwood, CMT, Perret, C, Shen, Z, Paredes, Y, Arcand, S.L, Mes-Masson, AM, Narod, SA, Foulkes, WD, Provencher, D, **Tonin, PN**. 2004. Significant proportion of breast and/or ovarian cancer families of French Canadian descent harbor 1 of 5 BRCA1 and BRCA2 mutations. Int J Cancer, 112:411-419