Focus on Faculty #26
William Foulkes

Dr. William Foulkes is a Professor of Oncology, Human Genetics and Medicine at McGill and a staff physician in the Departments of Medical Genetics at both the McGill University Health Centre and the Jewish General Hospital. He obtained his medical degree from the University of London in 1984, followed by training in Adult Medicine in London (M.R.C.P., 1987), which involved five years of work in adult medicine at hospitals in and around London. He decided to pursue a career in oncology, but his PhD on the molecular genetics of ovarian carcinoma led him more in the direction of the emerging field of cancer genetics.

After his PhD, Dr. Foulkes had considered a post-doctoral fellowship in neural stem cells at the NIH, but ultimately decided to come to Montreal to work with Dr. Steven Narod, ostensibly to try to find *BRCA1*. Another reason was that Montreal seemed a much more interesting place to live than did Bethesda. Unfortunately for him, soon after he arrived *BRCA1* was isolated, so he decided to work on head and neck cancer with Dr. Eduardo Franco and others, showing that inherited factors could be important even in a tumour which one traditionally thinks of as being environmental in nature.

Dr. Foulkes did eventually work on *BRCA1*, and was one of the first groups to show that *BRCA1*-related breast cancers were often basal-like. Later, he identified pathogenic mutations in *PALB2*, another breast cancer susceptibility gene, and showed that founder mutations in Quebec exist in this and many other cancer susceptibility genes. *PALB2* has emerged as the "third" breast cancer gene. Thus, a three-year post-doc turned into a faculty position and eventually an academic career.

Much of his work has resulted from interactions in the clinic, and this has led to some notable publications, illustrating the continuing value of clinician-scientists. In two different studies, he identified two distinct Mendelian causes of multiple primary tumours (*BUB1B* and *NTHL1*), and another led to identification of *PALB2* as a breast cancer susceptibility gene. A fourth study showed that *DICER1* mutations were an important cause of adolescent-onset multinodular goiter. Indeed,

since 2009 he has focused more attention on pediatric and young adult-onset tumours, particularly those related to *DICER1* mutations. He recently established a Canadian website www.DICER1syndrome.ca which will provide relevant information on the syndrome for patients and clinicians in Canada and beyond.

Outside of medicine and science, Dr Foulkes enjoys lying on the sofa in the sun while reading a book, listening to music and sipping a cup of coffee. No doubt this happens less often than he would like, but he is trying hard to correct this. Visiting the Montreal International Jazz Festival as often as possible is another area he is working on.

We asked Dr. Foulkes to list a few of his articles whose work he is particularly proud of or enjoyed the most. He chose one paper per decade at McGill which in some way are representative and illustrative of his broad involvement in the growing field of the inherited susceptibility to cancer:

Foulkes WD, Brunet JS, Sieh W, Black MJ, Shenouda G, Narod SA. Familial risks of squamous cell carcinoma of the head and neck: retrospective case-control study. BMJ. 1996; 313(7059):716-21. PMID: 8819440

Foulkes WD, Stefansson IM, Chappuis PO, Bégin LR, Goffin JR, Wong N, Trudel M, Akslen LA. Germline BRCA1 mutations and a basal epithelial phenotype in breast cancer. J Natl Cancer Inst. 2003;95(19):1482-5. PMID: 14519755

Witkowski L, Carrot-Zhang J, Albrecht S, Fahiminiya S, Hamel N, Tomiak E, Grynspan D, Saloustros E, Nadaf J, Rivera B, Gilpin C, Castellsagué E, Silva-Smith R, Plourde F, Wu M, Saskin A, Arseneault M, Karabakhtsian RG, Reilly EA, Ueland FR, Margiolaki A, Pavlakis K, Castellino SM, Lamovec J, Mackay HJ, Roth LM, Ulbright TM, Bender TA, Georgoulias V, Longy M, Berchuck A, Tischkowitz M, Nagel I, Siebert R, Stewart CJ, Arseneau J, McCluggage WG, Clarke BA, Riazalhosseini Y, Hasselblatt M, Majewski J, **Foulkes WD**. Germline and somatic SMARCA4 mutations characterize small cell carcinoma of the ovary, hypercalcemic type. Nat Genet. 2014; 46(5):438-43. doi: 10.1038/ng.2931. PMID: 24658002