

Postdoctoral Fellowship in Computational Cancer Biology: Biomarkers, Tumor Heterogeneity and Tumor Microenvironment Projects @ Princess Margaret Cancer Centre (Toronto, Canada)

The Ailles Lab uses primary tumor tissues and patient-derived models of cancer to understand cancer biology and develop personalized approaches to cancer therapy. The Haibe-Kains Lab focuses on developing novel machine learning approaches for biomarker discovery from large pharmacogenomic data. We seek a postdoctoral fellow to participate in multiple projects to identify novel prognostic and predictive biomarkers, interactions between cancer cells and their microenvironment, and identification of novel therapeutic targets. Bioinformatic analysis and novel integrative approaches of multi-omic data sets, including RNA-seq, proteomics, whole-exome sequencing, ATAC-seq, and Cut'n'Run data sets, will be required. The candidate will be co-supervised by Drs. Laurie Ailles and Benjamin Haibe-Kains.

Required qualifications

Doctorate in computational biology, computer science, statistics, or applied mathematics. Published/submitted papers in cancer genomics and/or machine learning research. Experience with analysis of high-throughput omics data, such as next-generation sequencing and gene expression microarrays, in cancer research. Very strong expertise in programming and machine learning (R, C/C++, Python and Unix programming environments).

Preferred qualifications

Hands-on experience in high performance computing, especially for parallelizing code in C/C++ (openMP) and/or R in a cluster environment (e.g., Sun Grid Engine/Torque). Some background in biology/wet-lab research would be a plus.

How to apply

Submit a CV, a copy of your most relevant paper, and the names, email addresses, and phone numbers of three references to lailles@uhnresearch.ca. **All documents should be provided in PDF.**

Deadline

Applications must be submitted before Sept 15, 2019.

Team

Dr. Ailles' lab will host the candidate. Dr. Ailles has over 15 years of experience in stem cell and cancer biology. Areas of research include cancer stem cells, cancer-associated fibroblasts, clonal heterogeneity and epigenetics. Our research utilizes primary patient-derived cancer tissue specimens, as well as patient-derived primary cultures and xenografts. Diseases studied include head and neck squamous cell carcinoma, high-grade serous ovarian cancer and clear cell renal cell carcinoma. We have established a "living biobank" of patient-derived xenografts that can be used to assay cancer stem cells, evaluate drug responses and development of drug resistance, and to perform a wide range of novel, clinically relevant studies. We collaborate extensively with other labs, clinicians and clinician scientists. Future studies will include extensive genomic and proteomic profiling of patient tissues and patient-derived model systems. For an exhaustive list of publications, go to [Dr. Ailles' Google Scholar Profile](#).

The candidate will be co-supervised by Dr. Haibe-Kains, who has over 10 years of experience in computational analysis of genomic and transcriptomic data, in the context of translational research. He is the (co-)author of more than 150 peer-reviewed articles in top bioinformatics and clinical journals. For an exhaustive list of publications, go to [Dr. Haibe-Kains' Google Scholar Profile](#).

Princess Margaret Cancer Centre

The [Princess Margaret Cancer Centre](#) (PM) is one of the top 5 cancer centres in the world. PM is a teaching hospital within the [University Health Network](#) and affiliated with the [University of Toronto](#), with the largest cancer research program in Canada. This rich working environment provides ample opportunities for collaboration and scientific exchange with a large community of clinical, genomics, computational biology, and machine learning groups at the University of Toronto and associated institutions, such as the [Ontario Institute of Cancer Research](#), [Hospital for Sick Children](#) and [Donnelly Centre](#).