



The 2024 Cancer Research Conference in Atlantic Canada
Tuesday, November 5
McInnes Room, Dalhousie University
Connections and Collaborations: Fostering innovation in cancer care

8:30 – 9:00	Registration / Light Breakfast
9:00 – 9:10	Welcome
9:10 – 9:40	Jen Johnston Award for Excellence in Cancer Research – Dr. Stefan Heinze “Exercise oncology: Results from Nova Scotia and the path towards implementation” Presented annually to a trainee in the Cancer Research Training Program who has demonstrated excellence in research
9:40 – 10:45	Symposia 1 – Exercise Across the Cancer Continuum This symposium will highlight ongoing exercise oncology research and how the data from these trials is being used to inform policy development in cancer care. Presenters will discuss ongoing exercise-based clinical trials in various cancer populations, the importance of clinical champions and how they relate to trial success, and how evidence from the trials is being used to inform policy. A patient advocate will talk about how exercise has helped them in their cancer journey. Dr. Scott Grandy, Health & Human Performance, Dalhousie University Dr. Melanie Keats, Health & Human Performance, Dalhousie University Judith Purcell, Nova Scotia Cancer Care Program Patient Partner – To be announced
10:45 – 11:00	Break
11:00 – 12:05	Symposia 2 – Multi-faceted analysis of colorectal cancer in Atlantic Canada The Atlantic Cancer Consortium (ACC) was first established as part of a pilot program sponsored by the Terry Fox Research Institute. The overall goal of the ACC is to bring precision oncology to the Atlantic region in a comprehensive and meaningful manner. The ACC is now a member of the Marathon of Hope Cancer Centres Network, where we are planning to contribute over 1000 cases to the 15,000 cases collected nationwide. However, the first two years of the ACC were focused on establishing the infrastructure to support precision oncology including the formation of a consortium of biobanks across the region, increasing our bioinformatics capacity, and supporting training of the next generation of scientists. Forming meaningful connections across the Atlantic region was critical for the success of the ACC in obtaining membership in the Marathon of Hope

	Cancer Centres Network. In this symposium, we will highlight the work, from multiple pillars, on CRC initiated during the ACC pilot phase. In a highly collaborative manner, we have undertaken analysis of access to care for CRC in the Atlantic region. We have also performed a multi-omics analysis of CRC, which includes analysis of the genome, transcriptome, and microbiome. We have studied the immuno-landscape of the tumour using multi-parameter immunofluorescence. Lastly, we have explored the use of liquid biopsies for the detection and monitoring of CRC with a focus on extracellular vesicles. Here, we will describe these individual projects and highlight how the projects intersect to provide information not available through one approach. We will also highlight the effort and lessons learned in establishing this highly collaborative regional group and provide the perspective of our patient partner. Dr. Sherri Christian, Biochemistry, Memorial University – “Overview of the Marathon of Hope Atlantic Cancer Consortium” Dr. Kensuke Hirasawa, patient partner (CRC survivor) Dr. Robin Urquhart, Community Health & Epidemiology, Dalhousie University – “Access to CRC care” Dr. Akinola Alafiatayo, Biomedical Sciences, Memorial University – “Multi-omic analysis of CRC” Jorge Pinzon-Mejia, Dalhousie University – “The immune landscape of CRC” Dr. Stephen Lewis, Atlantic Cancer Research Institute – “Liquid biopsy for the detection of CRC”
12:05 – 1:30	Lunch
1:30 – 2:35	Symposia 3 – Biomarkers and Cancer Adult glioblastoma (GBM) is the most common high grade primary brain tumour and is invariably fatal. Despite surgery, radiation and chemotherapy, recurrence is inevitable, resulting in a two-year overall survival rate of 25%. Following treatment, progression is monitored via Magnetic Resonance Imaging (MRI). In a subset of patients, treatment/immune-induced changes can result in an apparent increase in residual tumour size on MRI in the absence of true tumour growth. This phenomenon, called pseudoprogression, results in delays in treatment decisions until subsequent imaging is obtained. Progress employing advanced imaging modalities have proven successful, however none can definitively diagnose pseudoprogression. Therefore, real-time, minimally invasive monitoring methods, such as Liquid Biopsy are urgently needed. Liquid biopsy is the sampling and analysis of biofluids, mainly plasma, from patients and includes multiple modalities such as analysis of circulating nucleic acids, circulating tumor cells and extracellular vesicles (EVs). EVs are membrane bound nanoparticles derived from all cells, including cancer cells. They contain molecular cargo (DNA, small RNA and Protein) derived from their parent cell and are known to act as mediators of cell-to-cell

	communication. By capturing plasma EVs from GBM patients and performing small RNA sequencing we have identified several small RNA that can diagnosis GBM and are indicative of tumor progression. Interestingly, we have also discovered a previously undescribed set of EV-transfer RNA fragments (EV-tRFs), which may have influence the tumor microenvironment. Lastly, there is limited data on how the immune system differs between pseudoprogression vs. true progression. Previous studies have conducted immune profiling in PBMCs at diagnosis, but few have analyzed longitudinal immune profiles using a comprehensive array of markers. We hypothesize that monitoring immune profile changes during treatment can differentiate pseudoprogression from true progression. We further hypothesize that integration of EV-sRNA signatures, immune profiles, and tissue Whole Genome and Transcriptome Sequencing (WGTS) will reveal distinct molecular and immunological signatures that can differentiate between patient outcomes. Dr. Jeremy Roy, Atlantic Cancer Research Institute Dr. Matthias Schmidt, Diagnostic Radiology, NS Health/Dalhousie Dr. Adrienne Weeks, Dept of Surgery, Nova Scotia Health/Dalhousie Dr. Lauren Westhaver, Dept of Surgery, Dalhousie Dr. Kathleen Attwood, Dept of Surgery, Dalhousie
2:35 – 3:40	Symposia 4 – Equity across the cancer continuum: Ensuring the best care and outcomes for all Cancer affects all segments of our population, yet we know that certain groups bear a disproportionate cancer burden compared to other groups due to their social, economic, and demographic circumstances. For example, we know that both sex (e.g., a person’s biology) and gender (e.g., a person’s gender role and identity) influence cancer incidence, treatment response, and prognosis. We know that where a person lives, their education level and their income are all associated with poorer access to care across the cancer control continuum and poorer outcomes. Related to race and culture, we know (from United States data) that Black women face much longer diagnostic delay for their cancer diagnosis than White women, and that racial disparities exist in terms of receipt of anti-cancer therapies and needed supports. We know that the psychosocial challenges faced by cancer survivors are exacerbated in populations with lower access to needed services and support because of their place of residence or income. In Atlantic Canada, we have amongst the highest age-standardized incidence rates of most cancers, and the highest age-standardized mortality rates, in Canada. There are many reasons for this, including an older population compared to the national average, genetics, and high rates of lifestyle (e.g., poor diet, physical inactivity) and environmental (e.g., radon and arsenic) risk factors. We also have unique circumstances that exacerbate the potential for inequities. For example, 40-54% of Atlantic

	Canadians live rurally, which is more than twice the national average. 13.5-16.5% of Atlantic Canadians are low-income (compared to the national average of 11.9%), with New Brunswick and Nova Scotia having the highest percentage of low-income persons in the country at 16.5%. A recent report highlights that nearly half (48%) of Atlantic Canadians are less than \$200 away from insolvency. The percentage of recent immigrants settling in Atlantic Canada has almost tripled in the past 15 years, with between one-third and one-half of all immigrants who live in our major cities (Moncton, Fredericton, Saint John, Halifax, and St. John's) having arrived between 2016 and 2021. Finally, 31% of Atlantic Canadians do not have a regular primary care provider, the highest percentage in the country. In short, all of these circumstances, and others, put many people who live in Atlantic Canada at higher risk of not accessing the services and supports needed to prevent cancer, detect cancer early, and manage their disease once diagnosed. Speakers: Dr. Robin Urquhart, Community Health & Epidemiology, Dalhousie University and Dr. Arlinda Ruco, Interdisciplinary Health, StFX "Inequities in access to cancer care across the continuum" Dr. Mohammad Hajizadeh, Health Administration, Dalhousie University "Socioeconomic inequalities in cancer incidence and mortality" Dr. David Busolo, Nursing, University of New Brunswick "Cancer screening in newcomer populations"
3:40 – 4:00	Break
4:00 – 5:05	Symposia 5 – Microbiome and Cancer This research symposium will highlight some of the local research being conducted on the human microbiome and cancer. Recent studies reveal that the microbiome, which encompasses the diverse population of microorganisms inhabiting our bodies, plays a crucial role in modulating immune responses, influencing inflammation, and impacting cancer progression. Presentations will include both pediatric and adult cohorts with a particular interest in leukemia and lung cancer using complex cell cultures, mouse animal models, and human clinical samples with cutting-edge genomics and bioinformatics. Opportunities and challenges of these interdisciplinary approaches will be discussed to help elucidate the potential of the human microbiome to revolutionize treatment strategies and improve patient outcomes. Speakers: Dr. Morgan Langille, Pharmacology, Dalhousie University Dr. Ketan Kulkarni, Pediatrics, IWK Health Centre/Dalhousie University

	Dr. Brendan Leung, Applied Oral Sciences, Dalhousie University
5:30 – 6:30	Reception/Networking
Sponsors: Terry Fox Research Institute Atlantic Node and Dalhousie Office of the VP Research & Innovation  	