



Alberta

Dr Nicolas Jacquelot – University of Calgary

Finding novel ways to eradicate cancer and improve survival

A team led by Dr Nicolas Jacquelot is exploring how different types of white blood cells can work together to kill cancer cells and improve outcomes for people with cancer.

Current treatments targeting a specific type of white blood cells have shown promise in cancer therapy. But while they work well for some people with cancer, they don't eradicate tumours in others and can lead to untreatable relapses in some cases.

With funding from the Canadian Cancer Society, a team of scientists, a clinician and a patient representative led by Dr Nicolas Jacquelot is building on their past work in identifying an immune cell type that can defend against cancer. By exploring how different white blood cells can work together to kill cancer cells, the team hopes to find alternative targets and treatments that give people with cancer a better chance for survival.

If successful, this project could lead to clinical trials and, ultimately, new combination treatments to improve outcomes for people with cancer.

British Columbia

Dr Leandro Venturutti – BC Cancer

Preventing lymphoma spread to help improve survival

A team led by Dr Leandro Venturutti is working to prevent lymphoma spread for people at risk of developing an aggressive form of the disease.

The most common types of lymphoma in adults develop in the lymph nodes. When these tumours are detected and treated in their early stages, most people can be fully cured. But for one third of the people with lymphoma, their tumours spread throughout the body and grow in critical organs such as the kidneys, lungs and even the brain. When this happens, treatment is less effective, resulting in lower chances of survival.

With funding from the Canadian Cancer Society, a team led by Dr Leandro Venturutti is studying samples routinely collected from people with lymphoma as part of their diagnosis.



Building on a discovery around a component in lymphoma cells that may allow the cancer to spread, the researchers will work to determine if spread can be anticipated and, more importantly, prevented by using drugs that target this component specifically.

If successful, the project could set the stage to predict which people with lymphoma are at risk of developing an aggressive form of the disease, preventing the spread of tumours and saving lives.

Dr Simon Wisnovsky – University of British Columbia

Developing novel immunotherapy drugs for people with cancer

A team led by Dr Simon Wisnovsky is working to help generate new immunotherapy drugs that can restore proper immune function and cure otherwise devastating cancers.

Cells in our immune system have ways of “tasting” sugars that are attached to the surfaces of other cells. Some sugars taste good, signaling everything is healthy and normal. Others, such as those attached to bacteria, taste bad, triggering our immune system to activate and try to protect us from disease. Normally, our immune system has ways of detecting and destroying cancer cells before they begin growing uncontrollably. However, sometimes cancer cells can increase their production of specific sugars that trick the immune system into overlooking them.

With funding from the Canadian Cancer Society, a team led by Dr Simon Wisnovsky is trying to better understand how our immune cells interact with specific sugars that are present on the surface of acute myeloid leukemia cells. The information will enable researchers to better understand and predict how certain carbohydrates will impact the activity of our immune system.

If successful, the project could generate valuable resources for the tumour immunology research community as well as identify and validate new immunotherapy drugs to more effectively treat people affected by cancer.

Dr Amanda Wurz – University of the Fraser Valley

Promoting physical activity to improve survival for young people with cancer

A team led by Dr Amanda Wurz is conducting a physical activity intervention trial to enhance the health and wellbeing of children and adolescents undergoing treatment for cancer.



Physical activity is safe and beneficial. For children and adolescents undergoing cancer treatment, it can help them mitigate symptoms and reduce their risk of secondary cancers and illness.

With funding from the Canadian Cancer Society, a team led by Dr Amanda Wurz is adapting and implementing a supervised, one-on-one online physical activity intervention program that they previously created with doctors, nurses, physiotherapists as well as children with cancer and their families. The program is already being studied in Alberta and the team is looking to do the same in British Columbia and Ontario with children and adolescents between 5 and 18 years old.

Participants will work with a trained physical activity professional 3 times per week for 12 weeks. If successful, the project could contribute vital evidence to support physical activity in real-world settings, promoting health and reducing the burden of disease among children and adolescents with cancer.

Manitoba

Dr Joel Pearson – University of Manitoba

Identifying mechanisms underlying lung cancer development and progression

A team led by Dr Joel Pearson will improve our understanding of how people develop a specific type of lung cancer, how it progresses and how we can better treat people with this type of cancer.

Lung cancer is the leading cause of cancer death in Canada. One of the 2 major types of lung cancer, small-cell lung cancer (SCLC), has the worst outcomes, with people with the disease surviving less than one year after diagnosis on average. Unfortunately, there are very few treatment options for people with this type of cancer, and the available therapies and survival rates have not improved in decades.

With funding from the Canadian Cancer Society, Dr Joel Pearson and his team are working to advance our understanding of how people develop SCLC, how it progresses and how we can better treat people living with lung cancer. The project will investigate why some lung cancers mutate and form resistance to some of the currently available treatments.

If successful, this project could identify new and improved treatments for lung cancer so that people living with this devastating disease will have longer lives and better outcomes.



Dr Tara Horrill – University of Manitoba

Improving access to treatment for all people affected by lung cancer

A team led by Dr Tara Horrill aims to better understand the barriers to accessing timely cancer treatment for people with lung cancer experiencing socioeconomic disadvantage.

Being able to access high-quality cancer treatment in a timely way increases people's chances of survival. Yet, those who are socioeconomically disadvantaged (i.e., living in poverty) have difficulty accessing treatment because they are often not referred to a cancer specialist after diagnosis, are unable to access cancer treatment on time or are offered lower-quality treatments.

With funding from the Canadian Cancer Society, a team led by Dr Tara Horrill is studying the challenges and barriers faced by this population when accessing timely and quality cancer treatment, particularly for lung cancer. The team will listen to the experiences of people with cancer, talk to healthcare providers, study medical records and look at strategies used elsewhere to improve access to cancer treatment for similar groups.

If successful, this project could help create more equitable and effective policies and services for people with lung cancer to access the treatment they need.

Nova Scotia

Dr Arlinda Ruco – St. Francis Xavier University

Addressing colorectal cancer screening disparities in Nova Scotia

A team led by Dr Arlinda Ruco is working to identify whether certain groups may be less likely to participate in colorectal cancer screening to co-design potential interventions to improve uptake.

Atlantic provinces have some of the highest numbers of new cases and deaths from colon cancer. Despite the availability of provincial cancer screening programs, many individuals eligible for screening do not participate even though screening can reduce mortality by preventing the disease or catching it early.



With funding from the Canadian Cancer Society, a team led by Dr Arlinda Ruco will first use data from the Nova Scotia Colon Cancer Prevention Program (NSCCPP) to identify whether certain groups of people (e.g. those with low income or living in rural areas) may be less likely to participate in screening. Based on these results, researchers will then bring together groups of patient partners/potential screening participants, primary care providers and NSCCPP staff to identify barriers and enablers to screening and co-design potential interventions to improve screening uptake. To share results, the team will hold a one-day workshop with the public and community members, providers, program staff and other researchers from Atlantic Canada.

This project is aligned with the Health Equity Framework for Nova Scotia and, if successful, it will encourage uptake in cancer screening to reduce the burden on and improve outcomes for people with cancer and their families.

Ontario

Dr Federico Gaiti – Princess Margaret Cancer Centre

Intercepting lymphoma earlier, before it happens

A team led by Dr Federico Gaiti is working to identify lymphoma precursors for early detection of the cancer, which could strengthen prevention strategies for those people with a predisposition to it.

Finding cancer early is critical for improving health outcomes and increasing survival rates. In the case of lymphoma – a type of blood cancer that impairs the lymphatic system, the body's site of immune cell production and storage – the precursor cells leading to malignant tumours are not well-understood, which complicates the ability to detect the cancer early.

Funded by the Canadian Cancer Society, a team led by Dr Federico Gaiti is expanding upon their prior research to pinpoint specific mutations indicative of lymphoma in individuals who are either healthy or at a higher risk for the cancer, such as those with autoimmune disorders. Employing cutting-edge methods, the researchers are studying the cells at a very detailed level, analyzing genetic and environmental factors to pinpoint and characterize precursor cells that could be used to detect lymphoma before it happens.

If successful, this project could significantly advance doctors' ability to detect lymphoma at an early stage, improving the chance of successful treatment and outcomes for individuals at increased risk of developing this cancer.



Dr Danielle Rodin – Princess Margaret Cancer Centre

Finding more efficient radiation treatments for breast cancer recurrence

A team led by Dr Danielle Rodin is evaluating the efficacy and possible side effects of an accelerated radiation regimen as a potential new treatment for breast cancer recurrence.

Most women affected by breast cancer are treated with breast-conserving surgery to remove the tumour, followed by radiation to reduce the risk of recurrence. Unfortunately, some women will experience recurrence of the cancer in the previously treated breast. These recurrences have historically been treated by removing the whole breast or a second breast-conserving surgery followed by 3 to 5 weeks of radiation. These treatments can negatively impact mental health and quality of life or lead to harmful side effects that could impact the skin, breast, ribs, heart and lungs.

With funding from the Canadian Cancer Society, Dr Danielle Rodin and her team are studying the efficacy and possible side effects of an accelerated 1-week partial breast radiation regimen that is targeted to the area of recurrence for women undergoing second breast-conserving surgery. This project is a collaboration with cancer centres across Canada and internationally to generate critical evidence regarding a treatment that allows breast preservation for women with recurrent breast cancer. Such an approach could improve access to radiation and preserve quality of life and body image following treatment, lowering costs for both patients and health systems.

If successful, this work could lead to identifying a safe and effective treatment approach for cancer recurrence that allows women to preserve their breasts and leads to better cancer outcomes.

Dr Gilla Shapiro – Princess Margaret Cancer Centre

Evaluating the barriers to HPV vaccination in Canada

A team led by Dr Gilla Shapiro is studying why some children receive the HPV vaccine while others miss out to inform the design of interventions to increase vaccination and prevent HPV-related cancers.

Human papillomavirus (HPV) vaccination is a safe and effective cancer prevention strategy. Although offered for free in schools across Canada, HPV vaccines remain underused, especially during the COVID-19 pandemic. Greater understanding of what drives HPV vaccine uptake is needed.



To improve HPV vaccine coverage in Canada, it is important to understand why people decide to accept or reject vaccinations. With funding from the Canadian Cancer Society, Dr Gilla Shapiro is leading a team to test new tools to understand why some parents/guardians approve of HPV vaccinations for their children, while others don't. Using new quantitative and qualitative tools, the team will examine parents/guardians' attitudes, knowledge, beliefs and behaviours in relation to the HPV vaccine. They will then invite some of these parents for an interview to provide their in-depth views and experience of HPV vaccination over time.

If successful, this work could inform the design of interventions to increase HPV vaccination in Canadians to prevent HPV-related cancers.

Dr Jenna Smith-Turchyn – McMaster University

Implementing physical activity to improve quality of life for people with cancer

A team led by Dr Jenna Smith-Turchyn is conducting a multi-centre trial to support well-being and minimize burden during treatment for people with cancer.

While benefits of regular physical activity during and after cancer treatment are well known, less than 30% of people with cancer meet current recommendations to be physically active. Not only that, but their activity levels often decline significantly during treatment, and they are not offered physical activity services within cancer centres across Ontario.

With funding from the Canadian Cancer Society, a team led by Dr Jenna Smith-Turchyn is building on previous work around a novel institution-based exercise and self-management strategy in Ontario. The team – which includes experts in rehabilitation, oncology, research methodology as well as people with cancer and caregivers – is conducting a multi-centre trial to evaluate the effectiveness of the strategy. Their goal is to make physical activity services available to all people with cancer during treatment.

If successful, the project could close the gap between evidence and clinical practice, preventing complications and decreasing the burden on people with cancer and the healthcare system.

Dr Sebastien Talbot – Queen's University

Preventing immune system exhaustion as a way to stop tumour growth



A team led by Dr Sebastien Talbot is working to boost immunosurveillance and improve chances of survival for people with cancer.

The immune system inherently identifies and eliminates abnormal cells, including cancer cells. However, under this immune pressure, cancer can evolve to evade this detection, allowing tumour cells to continue growing unchecked. When cancer adapts in this way, it gains the ability to sustain its growth despite the immune system's efforts.

With funding from the Canadian Cancer Society, a team led by Dr Sebastien Talbot is building on past work to study the interaction between the nervous and immune systems. The researchers will examine how pain sensors control tumours' ability to resist therapy and then develop strategies to prevent immune exhaustion and enhance anti-tumour immunity.

If successful, the study could generate new biological insights and therapies, boosting immunosurveillance and improving chances of survival for people with cancer.

Dr Brooke Wilson – Kingston Health Sciences Centre

Improving quality of life for people with advanced gastrointestinal cancers

A team led by Dr Brooke Wilson is helping people with metastatic cancer make informed decisions about their care by assessing the value of treatments prescribed after initial options have failed.

People with metastatic cancer cycle through several treatment options before their disease becomes resistant to treatment and supportive care is pursued. Usually, treatments with the greatest evidence for success are prescribed first. But when they fail to work, other treatments are prescribed even though they are more expensive and toxic and frequently offer less benefit.

With funding from the Canadian Cancer Society, a team led by Dr Brooke Wilson is working to provide a comprehensive analysis of the uptake, benefits, toxicities and economic costs of these so-called "later-line" treatments for people with advanced colorectal, esophageal and pancreaticobiliary cancer.

The researchers are partnering with patients, patient advocates and patient advocacy groups to ensure that the knowledge generated from this study is appropriately translated and integrated within the context of the patient perspective. If successful, the findings could inform daily clinical discussions with people affected by advanced gastrointestinal cancers to help them make informed decisions regarding their care and improve quality of life.



Prince Edward Island

Dr J Patrick Murphy – University of Prince Edward Island

Designing new therapies for breast cancer by studying cellular nutrients

A team led by Dr J Patrick Murphy is identifying new therapies for breast cancer by studying how certain cellular nutrients affect cancer growth.

Despite recent advances in breast cancer therapies, new approaches are still needed to find effective treatments and to save more lives. One avenue of exploration is understanding how cellular nutrients affect cancer progression. In previous research, Dr J Patrick Murphy has identified several molecules that may limit breast cancer growth but have never been explored in approaches to treat breast cancer.

With funding from the Canadian Cancer Society, Dr Murphy has formed a team, including patient partners, that will work to understand if the production of these molecules may be enhanced in cancer cells to create new therapies for breast cancer. This work may allow researchers to reimagine how current drugs that target these molecules could be used to decrease tumour growth and preserve the anti-tumour immune responses.

If successful, this project could also reveal new biology and inspire new drugs to increase survival for people with breast and other cancers.

Quebec

Dr Geneviève Deblois – Université de Montréal

Finding better ways to treat triple-negative breast cancer

A team led by Dr Geneviève Deblois is working to uncover new ways to stop triple-negative breast cancer from progressing.

Triple-negative breast cancer (TNBC) is known for being hard to treat. It often becomes resistant to chemotherapy, making it more likely to come back and spread. This is mainly because TNBC cells can switch on different parts of their genes to stay alive and grow when under stress from chemotherapy or a lack of essential nutrients or oxygen.



With funding from the Canadian Cancer Society, a team led by Dr Geneviève Deblois is building on their past discovery of TNBC cells' "hidden ability" to change their behaviours in hostile conditions. The researchers are using advanced techniques to study how these cells can adapt and find new ways to survive when others can't.

If successful, this project could lead to the development of new treatment strategies to prevent the cancer from growing and spreading, helping people with TNBC live longer and healthier lives.

Saskatchewan

Dr Angelica Lang – University of Saskatchewan

Improving post-treatment dysfunction for breast cancer survivors

A team led by Dr Angelica Lang will investigate how different types of breast cancer treatments and reconstruction procedures affect arm and shoulder movement to inform decision-making for people living with and beyond breast cancer.

Breast cancer is the most common cancer among women in Canada. Although breast cancer survival rates are high when diagnosed and treated early, some women experience shoulder or arm limitations after routine treatment. Breast reconstruction may have added negative effects on upper limb motion, and people living with and beyond breast cancer need more evidence before making decisions.

With funding from the Canadian Cancer Society, Dr Angelica Lang is leading a team, which includes patient partners, to explore how breast reconstruction influences shoulder and arm function. The team will assess upper limb motion after surgery to remove the breast and 3 types of reconstruction procedures. They will also explore the effects of other treatment factors, like radiation, on abilities during work-related and daily activities.

If successful, this project could provide critical information needed to increase awareness of post-treatment dysfunction to guide decision-making and inform post-surgical rehabilitation interventions for breast cancer survivors.