UNIVERSITY OF CALGARY

Arnie Charbonneau Cancer Institute

Alberta Health Services

REPORT TO THE COMMUNITY ON

CANCER RESEARCH

IN CALGARY AND SOUTHERN ALBERTA

2022 COMMUNITY REPORT

A joint report by the Arnie Charbonneau Cancer Institute, the Tom Baker Cancer Centre and Cancer Care Alberta

Calgary, Alberta | January 31, 2023

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Our Researchers Have Dedicated Their Lives to Conducting Research to Reduce the Burden of Cancer on Patients, Families and Societies.

From the lab to the real word, researchers and clinicians are working together to make Calgary and Southern Alberta a destination for cancer care, discovery and hope.

Nearly half of all Canadians will face a cancer diagnosis in their lifetime, but for many, what would have been a death sentence only a decade ago is now a manageable condition with proven treatments, thanks to amazing advancements in cancer research and translation from the bench to the bedside.

Now, more than ever, innovative and adaptive thinking coupled with precise and proven tools are available to treat patients with cancer and give them not only longer lives, but also better long-term quality of life.

Cancer Research in Calgary and Southern Alberta

At a Glance...

Our researchers and clinicians are **providing solutions, comfort and hope** to individuals and their families as they face a cancer diagnosis.

Cancer research in Calgary is innovative, collaborative and exciting. With an entrepreneurial spirit, our researchers are **big thinkers** who have dedicated their lives to achieving a cancer-free tomorrow.

Our research aims to transform the **patient experience** with a focus on treating the entire individual, not just the disease, through excellence in psychosocial oncology, supportive care and survivorship.

We are working to **reduce the burden of cancer for generations to come** with research and big data analytics tailored specifically to cancer prevention, screening and early detection.

We are home to more than **200 of the best and brightest** cancer scientists, clinical researchers, nurses, engineers, psychologists and kinesiologists.

We are training the **future generation of cancer researchers** in everything from discovery science to translational research to clinical care.

The new Calgary Cancer Centre, Canada's **largest comprehensive cancer centre**, will power the joint efforts of research and clinical teams to deliver even more world class care.

A MESSAGE FROM CANCER RESEARCH LEADERSHIP

Cancer Research → Clinical Oncology → Cancer Care

Jennifer A. Chan, MD

Director, Arnie Charbonneau Cancer Institute
Oncologic Pathologist
Associate Professor, Department of Pathology & Laboratory Medicine, University of Calgary

Don Morris, MD, PhD

Medical Director, Tom Baker Cancer Centre
Lead, Calgary Cancer Project
Medical Oncologist
Professor and Head, Department of Oncology, University of Calgary

Paula Robson, PhD

Scientific Director, Cancer Care Alberta and Cancer SCN
Adjunct Professor, Department of Agricultural, Food and Nutritional Science and The School of Public Health, University of Alberta

Dear Cancer Research Community and Friends,

This past year has brought tremendous growth for cancer research in Calgary, and we are so excited about all of the successes our dedicated community of cancer advocates, patients, researchers, educators, and many partners have had—from the new discoveries, interventions, and innovations we've made, to the official handover of the Calgary Cancer Centre, to an unprecedented level of philanthropic giving for cancer through the OWN.CANCER campaign.

We come away feeling immense gratitude, hope and excitement for what will come over the next 12 months as we prepare to open the doors of the new Calgary Cancer Centre to our patients and community, and as we begin to launch some exciting new and expanded research initiatives made possible through generous community giving.

This success and excitement belongs to all of us—every patient and family member touched by cancer, every clinician and care provider, every donor, every researcher, every trainee, every fundraising partner, every institutional partner...every ONE of us. Through the cancer partnership between Alberta Health Services and the University of Calgary, we will use every opportunity we are given to achieve our vision of meeting the cancer challenge—through the research we conduct, the education and training we deliver, and the service we provide to the community of Calgary and Southern Alberta.

As always, we are grateful to all of the champions and supporters we have in our corner. We are here because of you and your dedication to a future less burdened by cancer. These efforts will undoubtedly expand our impact and ability to deliver research that improves the well-being of patients with cancer in Calgary and beyond.

With best wishes,

Jen, Don, and Paula

Cancer Research Set to Reach New Heights

Alberta Health Services Officially Takes Possession of the Calgary Cancer Centre, set to open in 2024

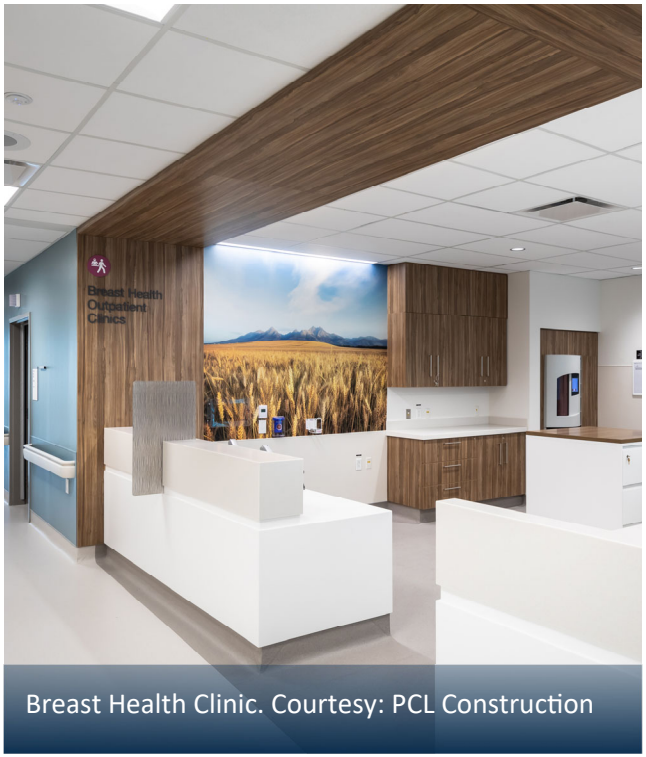
With the building now complete, the final milestone remaining is to open the doors to the public in early 2024. Over the next year, work will quickly commence to operationalize the building, from ensuring the necessary medical and research equipment is installed and commissioned for safe and effective operation, to preparing the current clinical and research workforce to work in the building. As Dr. Don Morris puts it, we want to ensure that it is “safe, warm and welcoming, and the best cancer centre.”

Research of all types will take place in this building, from the discovery of cancer origins and key mechanisms of resistance and progression, to exploring how to assess cancer risk and prevent it from occurring, to identifying new diagnostic and therapeutic targets, testing new therapies and treatment interventions, tracking patient-reported outcomes and designing appropriate interventions, and studying how to optimize the cancer system.

The Alberta Government handed over the new Calgary Cancer Centre to Alberta Health Services on December 9, 2022.

Radiation Therapy treatment room. Courtesy: PCL Construction

Inner courtyard. Courtesy: PCL Construction



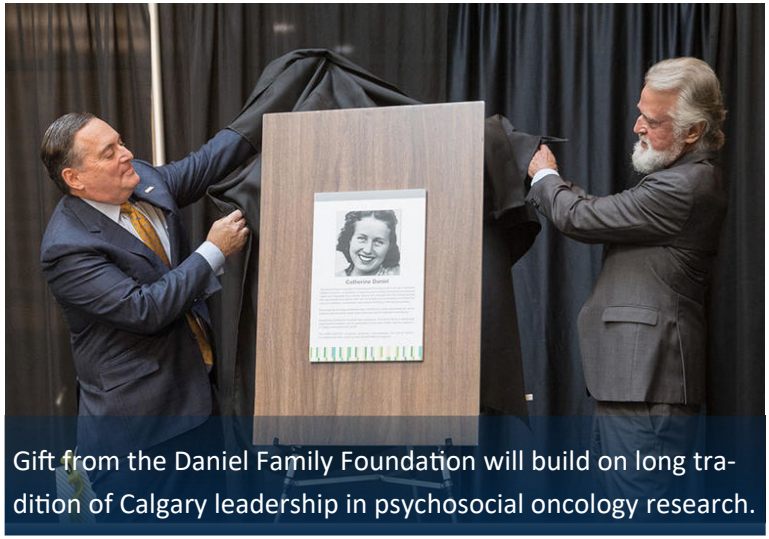
Breast Health Clinic. Courtesy: PCL Construction

Philanthropic Giving for Cancer Research in Calgary Reaches Unprecedented Level in 2022

Institute programs and members received $17 million in new commitments through the OWN.CANCER campaign in 2022.

Several new gifts from our generous community have been pledged in support of research on:

- Psychosocial Oncology, including a new Research Chair;
- Precision experimental therapeutics for cancer;
- Cancer immunotherapy and designer cell therapy;
- Cancer education and trainee development;
- Translational and molecular oncology;
- Cancer outcomes research; and
- Disease specific research, including gifts to lung cancer, hematologic malignancies, breast cancer, head and neck cancers, sarcomas, brain tumours, and myeloma.

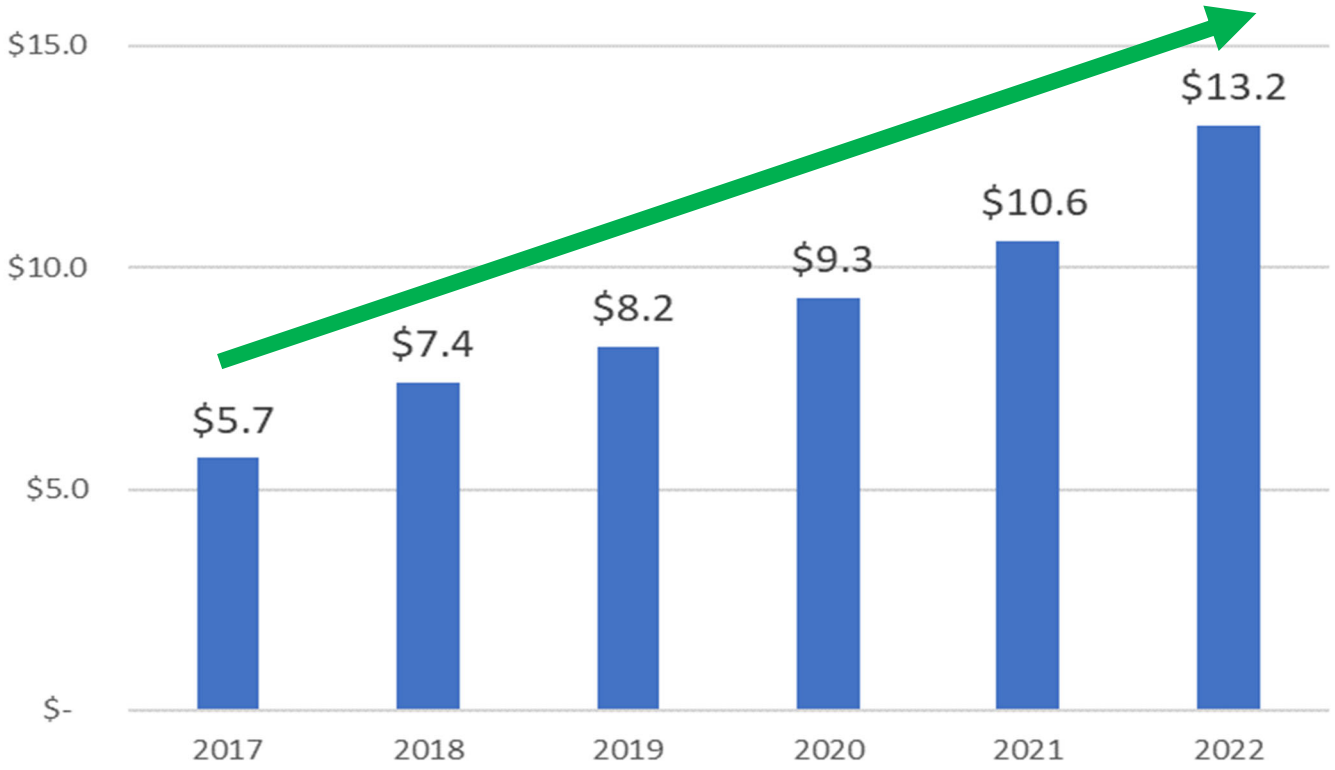


Gift from the Daniel Family Foundation will build on long tradition of Calgary leadership in psychosocial oncology research.

OWN.CANCER

Tri-Council Funding for Cancer Research Received by the University of Calgary from the Federal Government Hits Another All-Time High in 2022

Members of the Institute received a total of **$13.2M** in federal funding from Tri-Council Research Grants. This represents a steady increase in federal funding by more than 2.3-fold since 2017.



Federal Tri-Council funding refers to competitive grants awarded by the Canadian Institutes of Health Research, Natural Sciences and Engineering Research Council, and Social Sciences and Humanities Research Council.

This graph includes funding received by the University of Calgary only and does not include funding for projects held at other institutions for which Charbonneau Members may be co-investigators or collaborators.

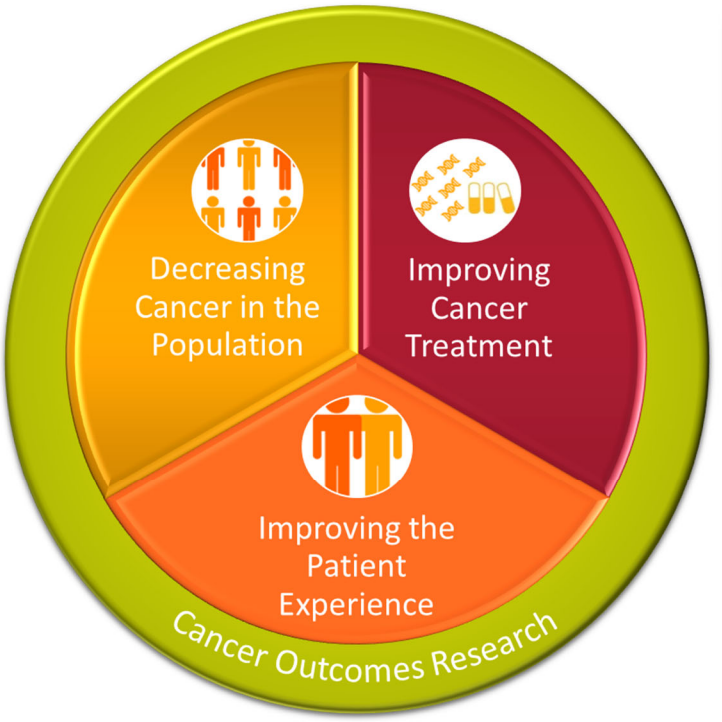
Cancer Research in Calgary and Southern Alberta

What We Do...

The Arnie Charbonneau Cancer Institute brings together scientists, physicians and other clinical experts to integrate research and care across disciplines – from understanding and preventing cancer, to transforming its detection and treatment, to improving life with and after cancer. The Charbonneau Cancer Institute is a partnership between Alberta Health Services and the University of Calgary.

Our researchers focus on all aspects of the cancer challenge, from research to decrease cancer in the population, to research to improve cancer treatment and improve the patient experience, to research to improve the way the health system delivers cancer care and maximize good outcomes for patients.

Below are examples of the kinds of questions we are seeking to answer within these major themes.



What biological mechanisms drive cancer?

How can we create more effective therapeutics?

How can we improve treatment with technology?

How do we improve cancer care delivery?

How do we optimize cancer outcomes?

How do we provide care that is cost-effective?

Can we improve patient psychosocial well-being?

How can we improve survivors' well-being?

How can we improve care for patients through to end-of-life?

How does genome stability impact cancer risk?

Can we improve cancer screening/detection?

How can we prevent and/or reduce cancer risk?

Uncovering New Mechanisms by which Metabolic and Dietary Alterations Impact Cancer Growth

Dr Savraj Grewal is a Professor with the Department of Biochemistry and Molecular Biology

Cancer is caused by genetic mutations leading to uncontrolled cell growth. The genes and processes that control growth are remarkably similar across different species. For example, in humans and fruit flies, similar genes regulate growth, and the deregulation of many of these genes contributes to cancer development.

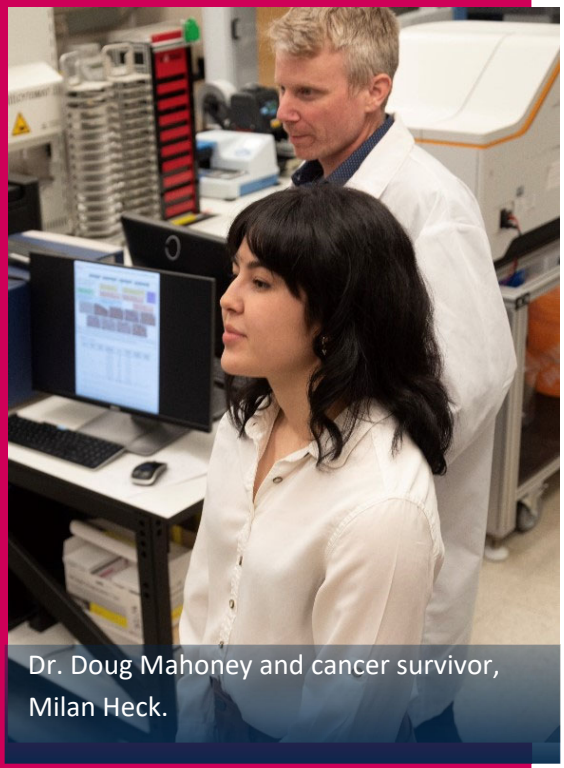
Dr. Savraj Grewal and his research team in the Grewal Lab use the fruit fly as a simple yet powerful genetic system to study the genes and processes that control cancer growth.

His team discovered that changes in the metabolism of fat cells allow them to stimulate the growth of other cells in the fly through certain types of hormones known to play a role in tumour development. Their work also showed that dietary nutrients control the metabolism of fat cells, explaining how body growth can be influenced by changes in nutrition.

This work sheds light on how altered metabolism in fat cells can affect body growth and provides clues to how changes in metabolism may explain why cancers arise or how they sustain their growth.

Improving Treatment

Engineering Personalized Therapy Using the Immune System



Dr. Doug Mahoney and cancer survivor, Milan Heck.

ACTION Initiative 2022 Research Retreat

Setting the Stage for First Single-Patient Trial of CAR T Cell Treatment in Calgary

Led by Scientific Director, Dr. Douglas Mahoney, and Clinical Director, Dr. Mona Shafey, the Alberta Cellular Therapy and Immune Oncology Research Initiative (ACTION) is paving the way for next generation therapies for cancers using immune cells that are engineered to recognize and kill cancer. Launched in 202, the program has studied nearly a dozen experimental therapies with several in preclinical development. The first is nearing testing in the clinic.

Several years ago, a patient diagnosed with a rare cancer underwent numerous surgeries, with little chance of complete cure. Working with the patient, the ACTION team identified a protein on the surface of the patient's cancer cells that could be used to develop a targeted therapy. The team created a novel chimeric antigen receptor (CAR) T-cell therapy that targets the protein and found that it cures the patient's tumours, including metastasis to the lung and brain, in pre-clinical studies.

Motivated by this discovery, the team applied for and successfully obtained funding from the Alberta Cancer Foundation and Bio-CanRx to support the development of this therapy. In 2022, they established key partnerships with manufacturing facilities in Ottawa and Vancouver to produce and validate the treatment. Next, the team plans to launch a patient study in early 2023, followed by a clinical trial for other patients across Canada.

New Hope Through Vaccines for Children with Rare Cancers

Dr. Aru Narendran is committed to driving change in childhood cancer outcomes. From the bench to the beside, working as a clinician scientist, he has worked tirelessly and with compassion to understand the unique needs of every patient and family he meets. Over the years, his work has continued to evolve, and through collaborative work with researchers globally, advancements in technology, and trust from his patient partners, he has greatly expanded the research to bring to clinical trial new therapies, including several anti-cancer vaccines, offering hope to children with rare and recurring cancers.

Dr. Aru Narendran receiving the Queen Elizabeth II'S Platinum Jubilee Medal. Credit: Don Molyneaux.

His work and impact hasn't gone unnoticed. This year, Dr. Narendran was recognized and awarded with The Queen Elizabeth II'S Platinum Jubilee Medal. Created to mark the 70th anniversary of Her Majesty's Accession to the Throne, the prestigious honour celebrates outstanding Canadians. As a trusted partner in the program, the Kids Cancer Care Foundation of Alberta was invited to choose five individuals who have made outstanding contributions to the field of pediatric oncology.

"It's very hard to tell a parent, 'I'm sorry, I don't have any treatment for your child… That is what drives all of us. We want to get to a point that we will say 'we will take care of your child.'"

"I envision a day where drugs discovered and made in Calgary or in Alberta will be used across the world, to a very large number of patients and children, as well as adults who are affected by cancer."

Improving Treatment

The New Calgary Cancer Centre will Offer Access to the World's Most Advanced Radiation Therapy

The addition of new MR Linac technology will allow continued delivery of improved patient outcomes. This state of the art technology combines radiation and high-resolution MRI to precisely target tumours while avoiding radiation to healthy tissue around the tumour.

Radiation oncologists, medical physicists and other researchers in Calgary are interested in expanding the impact of this precision technology across the province by identifying patients most likely to benefit. Two groups of patients for which they are interested in studying this therapy further and potentially expanding treatment are patients with breast cancer and patients with certain types of skin cancer. Expanding access to this technology and increasing the ability to administer this treatment will all us to study new approaches to deliver precise radiotherapy and ultimately deliver on our promise of providing the best cancer outcomes possible.

New magnetic resonance machine being installed at the new Calgary Cancer Centre on September 22. Photo Credit: AHS

MR Linac technology can be used to treat a wide range of cancers, from pancreatic, prostate, and breast tumours to managing incurable brain tumours.

Dr. Lisa Barbera , Division Head, Radiation Oncology, during an interview with Global Calgary. Photo Credit: Allie Miller

Multidisciplinary Collaboration: Use of Radiotherapy in Vascular Disease May Enhance Applications in Oncology

Cardiac ventricular tachycardia (VT) is a major cause of sudden cardiac death. Patients at high-risk for VT often receive an implantable cardioverter-defibrillator (ICD), medications or catheter ablation. However, not all patients respond to or can tolerate these treatments, which leaves limited options, from symptom management to seeking medical assistance in dying. Our radiation oncologists are helping to solve this problem and learning new ways to target radiation therapy more precisely in patients with cancer.

Stereotactic Arrhythmia Radioablation (STAR) is a novel radiation technique that non-invasively targets the ventricular scar where the VT originates. To successfully target the scar, multiple investigations are needed, including cardiac imaging, ECGs and prior treatment data. A multidisciplinary team of cardiologists, radiologists, radiation oncologists, radiation therapists and medical physicists is required to safely deliver the radiation.

Thanks to funding from the Libin Cardiovascular Institute, the STereotactic Arrhythmia Radioablation for Ventricular Tachycardia Management (STAR VTM) study will contribute to the limited published data on this technique. Two patients have already been treated in Calgary. This success is especially impressive in the context of the resource constraints and limitations during the pandemic.

Left to right: Dr. Vikas Kuriachan, Dr. Nicolas Ploquin, and Dr. Salman Faruqi

STAR VTM Team: Vikas Kuriachan, Stephen Wilton, Derek Chew, Satish R Raj (Cardiac Electrophysiology); Naeem Merchant and Bobby Heydari (Radiology); Muhammad (Salman) Faruqi, Jordan Stosky, Sangjune (Laurence) Lee (Radiation Oncology); Amy Bromley (Cardiac Pathology); Mary Runte (U. Lethbridge, Patient Reported Outcomes); Robert Rose (Cardiac Sciences); and Nicolas Ploquin, Alana Hudson, Kundan Thind (Medical Physics).

Improving the Patient Experience

Engaging Patients to develop a new Process for Timely Access to Supportive and Palliative Care for Lung Cancer

Often, patients with advanced cancers are suffering but are only referred to necessary supportive and palliative care services many months after their diagnosis. The Palliative Care Early and Systematic (PaCES) project team led by Dr. Aynharan Sinnarajah and Dr. Jessica Simon set out to change that.

Their "PaCES-Automatic" study co-designed improvements with people living with lung cancer and their clinicians in cancer, psychosocial oncology and palliative care. They developed a new process to offer supportive and palliative care consultation soon after patients first visit to an oncologist in Calgary. Now, palliative care nurse specialists telephone all patients with newly diagnosed stage 4 (advanced) lung cancer to describe and offer a home consultation. On testing, 93 per cent of patients reported the phone call was completely or somewhat acceptable and 80 per cent accepted the consultation. Grounded in patient experiences, this innovative study helped address many of the reasons why patients were getting late access to care. As a family member explained, "At first I was apprehensive when you said the word 'palliative' but I already feel so much better just receiving this phone call." People receiving supportive and palliative care consultations reported many benefits with boosting their confidence and emotional support, feeling informed about resources and better care coordination. In a patient's words, "That really made me feel good that yes, here we're going to get some actual concrete help." For more information visit: pacesproject.ca

Bridging the gap between treatment and mental well-being

Dr. Sara Beattie, Clinical, Health and Rehabilitation Psychologist and Adjunct Assistant Professor is a member of the hematology and hematopoietic cell transplant (HCT) psychosocial team.

The hematopoietic cell transplant (HCT) psychosocial team's research aims to gain a further understanding of the psychosocial experience of patients and caregivers facing blood cancers to improve psychosocial care delivery. Research initiatives on screening for distress across the HCT trajectory help identify individuals who may be most at risk for psychosocial concerns and who will benefit most from interventions. Supported by the Daniel Family Foundation, Drs. Beattie and team performed an environmental scan of Canadian Centres pre-transplant psychosocial assessments. Their findings demonstrated a lack of standardized approaches for psychosocial assessment and education. With this information, they developed, piloted and evaluated a pre-transplant education class designed to address common resource and emotional concerns for patients and caregivers preparing for transplant. Participants found information relating to finances and most helpful, followed by emotional support resources. This class is now offered as part of standard pre-HCT care in Calgary. These findings have been presented at national and international conferences, in peer-reviewed journals and at webinars for patients, caregivers and health care trainees.

Psychosocial clinician scientists also collaborate broadly across disciplines. Dr. Beattie is a co-investigator on grant-funded projects which will help further understand sexual distress in patients with Multiple Myeloma (PI Dr. Walker); assess early integration of palliative care in HCT (PI Reanne Booker); improve quality of life through self-administration of chemotherapy (PI Dr. Tay).

Improving the Patient Experience

Another Innovative Intervention Developed in Calgary: Supportive-Expressive Group (SEG) Intervention for Men

Celestina Martopullo, a psycho-oncology practitioner specializing in gastrointestinal cancers at the Tom Baker Cancer Centre and an Adjunct Lecturer in the Division of Psychosocial Oncology, has established an innovative, evidence-based gender sensitive supportive-expressive group (SEG) intervention for men with gastro-intestinal (GI) cancer. This is the only known professionally led, men only SEG psycho-intervention of its kind, world-wide. It has been running in Alberta since 2010. This SEG men's group contrasts the popular belief that, men, due to gender socialization, are averse to attending groups that emphasize emotional and existential exploration.

Celestina received a $43,000 patient-designated gift from a group member, which is supporting her research and program evaluation for the SEG. Additional support by the Daniel Family Leadership Chair in Psychosocial Oncology has supported two co-authored, published studies investigating reasons for group enrollment, and the group's longitudinal impact on health outcomes. In 2022, the *Journal of Psychosocial Oncology Research and Practice* accepted a third study exploring the Lived Experiences and Perceived Impact of SEG therapy on men with gastrointestinal cancers.

Launching the Collection of Patient Reported Outcomes to Enhance Symptom Management and Person-Centered Care

Over the last five years, Dr. Linda Watson and her team, the Applied Research & Patient Experience (AR&PE) portfolio at Cancer Care Alberta have been designing an integrated electronic strategy for collecting and utilizing electronic patient-reported outcomes (ePROs) in clinical practice. This initiative, with funding from the Canadian Partnership Against Cancer, went live on November 6, 2022, across all 17 provincial cancer centres, with the launch of the MySymptom Report within Connect Care.

This questionnaire assesses patient-reported outcome measures for 15 common symptoms, and includes a checklist for patients to identify concerns and issues in 5 domains of care. Patients with an active MyAHS Connect account can now complete the questionnaire online ahead of their clinic visit, and have their responses seamlessly integrated into their Connect Care chart. This information can be accessed by the care team.

The collection and utilization of ePROs will not only improve individual symptom management, access to supportive care resources and patient experience, but also support Cancer Care Alberta in understanding how ePRO information can inform quality improvement initiatives and health services research.

Decreasing Cancer in the Population

To mark both lung cancer and radon awareness month, our researchers released a multi-disciplinary study in November 2022 showing that radon exposure was significantly affected by both behaviour and socio-economic factors.

"The study found that people who act quickly to learn about, test for and reduce radioactive radon gas in their homes could reduce their lifetime exposure by as much as 40 per cent."

- Dr. Aaron Goodarzi, study co-author

"This work highlights a new health equity issue...at present, people who do not smoke but who are exposed to high levels radon would not qualify to be included in the lung cancer screening programs emerging across Canada . "

- Dr. Cheryl Peters, study co-author

Acting Quickly to Mitigate High Radon Levels Lowers Lung Cancer Risk

A new multi-disciplinary study, co-authored by Drs. Linda Carlson, Cheryl Peters and Aaron Goodarzi (pictured on the left) shows that people who act quickly to test for and mitigate radon gas in their homes are at a much lower risk of developing lung cancer, long-term.

In new work conducted by a collaborative team of Canadian psychologists, biologists and cancer experts, researchers found that our behaviour matters far more to lifetime exposure to cancer-causing radiation than previously believed. While some of these behavioural and lifestyle factors can be easily altered, others represent major challenges.

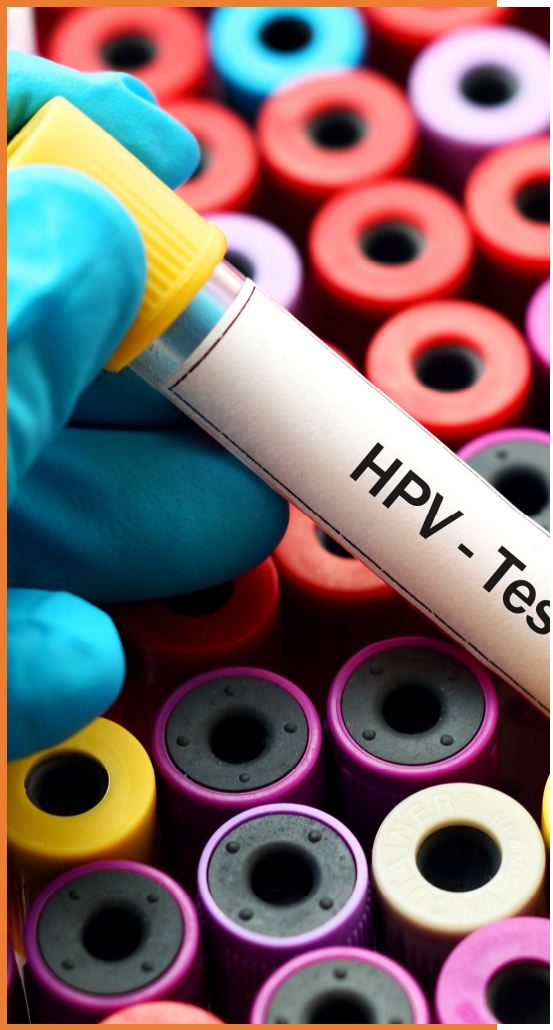
The study, published in the journal *Scientific Reports*, found that people who act quickly to learn about, test for and reduce exposure to radioactive radon gas in their homes could reduce their lifetime risk of lung cancer by as much as 40 per cent, compared to those who do not. In extreme cases, lifestyle behaviour could mean a difference of decades of exposure to radiation levels. Researchers found that some Canadians are absorbing more than Health Canada's recommended safe threshold of radiation to their lungs per year, just from the air of their own homes.

Researchers are working towards educating Canadians about the harmful effects of radon gas. By testing your home with one of our research-grade radon test kits and enrolling in our UCalgary research study, you are helping researchers from across Canada understand radon exposure and develop new ways to protect Canadians and their loved ones.

Decreasing Cancer in the Population

Research Alchemy: Test of Cure Pathway for Cancer

Dr Karen Kopciuk is a Research Scientist with Cancer Care Alberta (AHS) and an Adjunct Professor with the Division of Preventive Oncology (Department of Oncology) at the University of Calgary



The human papillomavirus (HPV) is the cause of most cervical cancer. Papanicolaou (Pap) tests used by cervical cancer screening programs find precancerous lesions before they turn into invasive cancers. People with an abnormal Pap test are seen in colposcopy clinics where any detected lesions are evaluated and treated. However, some lesions require frequent follow-up by colposcopists. When HPV testing is added to the treatment pathway, along with Pap tests and colposcopy assessments, it provides an indication of whether the individual is at high or low risk of recurrence. This 'test of cure (TOC)' approach reduces potential over treatment for people at low risk, and provides the appropriate follow-up for those at high risk. It also improves timely access to colposcopy clinics and is more cost effective; all without any increase in the risk of cervical cancer.

Grant funds from a Cancer Strategic Clinical Network/CancerControl Alberta Seed Grant awarded to Drs. Huiming Yang and Karen Kopciuk generated evidence necessary for Alberta to revise the treatment pathway to include HPV testing, which was formally implemented into practice in September 2022.

This is research alchemy: turning a $25,000 seed grant into hundreds of thousands in savings per year and providing personalized care.

Research Driving Standards for Physical Activity in Cancer

Christine Friedenreich receives 2022 Rosalind E. Franklin Award for Women in Science

Dr Christine Friedenreich is a Research Scientist with Cancer Care Alberta (AHS) and an Adjunct Professor and Division Head of Preventive Oncology (Department of Oncology) at the University of Calgary

Recognized for her research, Dr. Christine Friedenreich was the first Canadian to be honoured with the Rosalind E. Franklin Award for Women in Science. This US National Cancer Institute award was presented at the Intramural Scientific Retreat held at Hood College in Maryland on October 11, 2022, where she gave a lecture on her 30 years of research on the role of physical activity in cancer control.

Dr Rosalind E. Franklin, the award's namesake, was unrecognized during her lifetime for her seminal contributions to the discovery of the double helix structure of DNA. She died in 1958 of ovarian cancer before the Nobel Prize in Chemistry was awarded to Watson, Crick and Wilkins in 1962 for this discovery.

Dr Friedenreich's research has spanned the cancer continuum from prevention to survivorship, with more than 40 observational epidemiologic studies and randomized controlled trials contributed. She has developed physical activity guidelines for the US and the World Health Organization and served as a guest editor for the Canadian 24-hour movement guidelines.

Decreasing Cancer in the Population

Using Big Data to Meet the Cancer Challenge

New Canadian Cancer Statistics report reveals more than 1.5 million people in Canada are living with or beyond cancer

Working alongside the Canadian Cancer Statistics Advisory Committee, Dr. Lorraine Shack, Director of Cancer Advanced Analytics within Cancer Research & Analytics, Cancer Care Alberta, and Dr. Darren Brenner, an Assistant Professor with the Department of Oncology at the Cumming School of Medicine, led the important work presented in this report.

Using several datasets, the group analyzed incidence and mortality rates for 22 types of cancer dependant on sex and region. The findings determined that an estimated 233,900 new cancer cases and 85,100 cancer deaths are expected in Canada in 2022 with lung, breast and prostate cancer being the leading causes of death among Canadians.

This special report highlights the crucial role research has, and continues to play, in overall cancer care. Thanks in part to improvements in cancer detection, prevention, and more effective treatments, more Canadians are now living with or beyond cancer.

The report highlights the impact of cancer on society. It shines a light on how far we have come while also offering insight into how to address the growing need. As more Canadians are diagnosed with cancer and survive cancer, the report suggests that further research investments are needed. This includes improving detection, diagnosis and treatment methods to ensure those living with and past cancer enjoy a high quality of life.

The Pandemic Pivot: How Cancer Research Infrastructure is Serving the Health Research Community More Broadly

Alberta's Tomorrow Project completes COVID-19 survey and antibody testing study, leveraging major cancer research dataset

Alberta's Tomorrow Project, one of the largest health research platforms, was leveraged to collect COVID-19 data and conduct an antibody testing study to detect the presence of antibodies in blood. The results of this study provide indicators of immune response to the COVID-19 infection and enable assessments of spread of the infection in Alberta. In this study, detailed socio-economic, health and lifestyle information was also captured from participants during the pandemic which can be used to understand impacts on Albertans.

ATP has presented results on vaccination rates, antibody detections and behavioural, lifestyle, health and socio-economic changes among Albertans in support of public health efforts. Collecting biosamples and data from the same participants over time informs how individuals can be better supported during pandemic events, short- and long-term impacts to our health-care system, and impacts to individual mental and physical health when experiencing a global pandemic .

With so much still unknown about the disease, the data collected by ATP's studies will continue to be made available to researchers to help answer important questions around the direct and indirect effects of the pandemic on the health Albertans, as well as potential downstream impacts on cancer and other chronic disease outcomes.

ALBERTA'S TOMORROW PROJECT

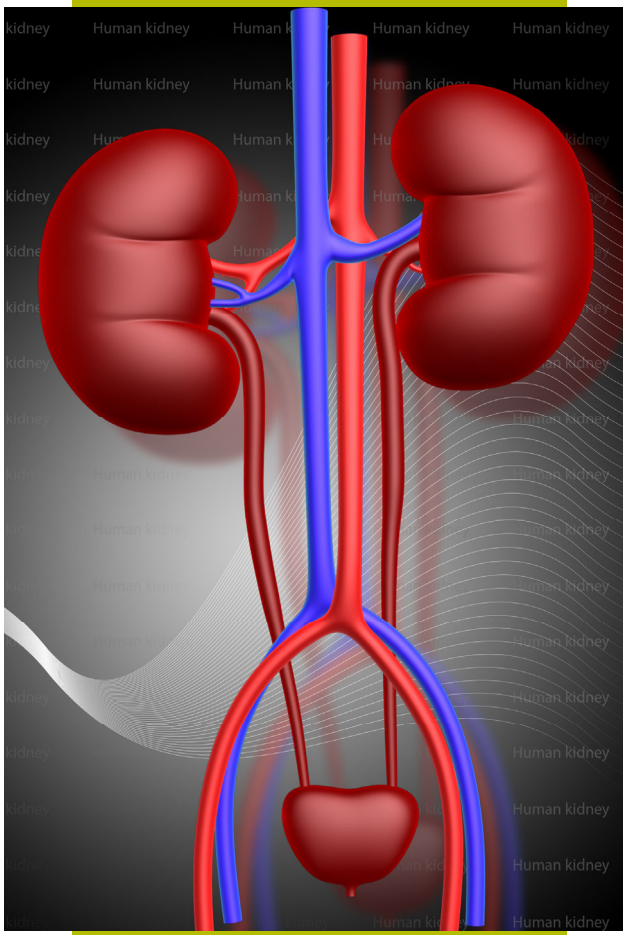
Inspiring Research for a Healthier Tomorrow

Driving Care Via Real World Evidence

Left to right: Vishal Navani MD (attending oncologist), Daniel Heng MD, Kosuke Takemura MD PHD, Connor Wells (IMDC Physician Coordinator) MD, Audrelie Lemelin MD, and Matthew Ernst MD

Calgary Oncologists Lead International Effort to Predict Best Response Treatment for Metastatic Kidney Cancer

The International Metastatic Renal Cell Carcinoma Database Consortium (IMDC) is housed at the Tom Baker Cancer Centre and contains data from more than 13,000 metastatic kidney cancer patients worldwide (IMDConline.com). This is the largest metastatic kidney cancer database in the world with patients treated with an array of immune and targeted therapies. "Our patients and donors fuel our drive to discover more about kidney cancer and inform treatment choices," says Dr. Daniel Heng. This year, they published manuscripts on treatment sequences after immunotherapy and radiation/targeted therapy synergies. They also reported on the substantial improvements in survival of patients amongst all prognostic groups with metastatic kidney cancer when treated with combination immunotherapy treatments compared to older single agent targeted therapy regimens. "This is big and we want to make it bigger."



The IMDC fellowship program brings trainees from around the world to do research with this data. In 2022, fellows such as Drs. Takemura (Japan), Ernst (Calgary), Lemelin (Quebec) and Navani (Australia) were involved in practice-informing research with real world evidence. Tissue specimens are collected for genomic analyses to find patients that respond better to one treatment versus another. Past fellows have graduated to become leading researchers and oncologists. "We have much to be proud of."

Driving Care Via Real World Evidence

Calgary Researchers Develop Method Using Real World Data to Determine Breast Cancer Recurrence-Free Survival

The new method was developed by a team led by Dr. Yuan Xu, an Assistant Professor with the Departments of Oncology, Surgery, and Community Health Sciences at the University of Calgary

The timing of cancer recurrence is often difficult for researchers to time accurately. Yet, this information is important for evaluating treatments in the real world, outside of a clinical trials setting. Knowing how different treatments affect the duration of recurrence-free survival can help care teams select which treatments are most likely to work in patients.

Importantly, this information must be readily available and accessible in order to be useful for care teams. Dr. Xu and his team evaluated routinely collected administrative data on patients to estimate the timing of recurrence. His estimations were based on three unique algorithms. He validated his findings using clinical data collected from the health record. Clinical data from the health record must be captured by a time- and labour-intensive chart review, which is not useful in the real world.

The algorithm developed by Dr. Xu and his team achieved high accuracy, with over 94 per cent sensitivity (meaning, if recurrence is present the algorithm will predict is over 94 per cent of the time) and was able to predict the timing of recurrence within three months in the majority (64.5 per cent) of patients. The recurrence algorithm performed similar to chat review data on a number of other statistical tests.

Dr. Xu's recurrence algorithm is potentially useful as a tool to analyze recurrence-free survival in patients with breast cancer. This work could lead to more timely decision-support tools for clinicians and care teams. Other Calgary collaborators who contributed to this work include Drs. May Lynn Quan, Sasha Lupichuk and Winson Cheung.

Advancing Survivorship: Calgary Investigator Leads International Guideline for Monitoring Outcomes in Pediatric Oncology

The international guideline was developed under the leadership of Dr. Fiona Schulte, a Clinical Psychologist at the Alberta Children's Hospital and a Member of the Division of Psychosocial Oncology at UCalgary

An international effort led by Dr. Fiona Schulte included investigators and experts from Canada, the United States, the United Kingdom, Belgium, the Netherlands, Denmark and Switzerland. The International Late Effects of Childhood Cancer Guideline Harmonization Group worked to develop recommendations for the surveillance of outcomes related to education and employment in survivors of cancers diagnosed before the age of 30 years. The guideline was informed by a systematic review of four existing guidelines and more than 80 articles from 17 countries.

The most common cancers in childhood, adolescence and young adulthood include central nervous system tumours, such as brain tumours, leukemia and other blood cancers, and sarcomas of the bone and connective tissue. Other tumours, such as testicular cancer, are also more common among this age group. Although survival has increased over time, the long-term effects of cancer and its treatment remain a challenge for patients and their families.

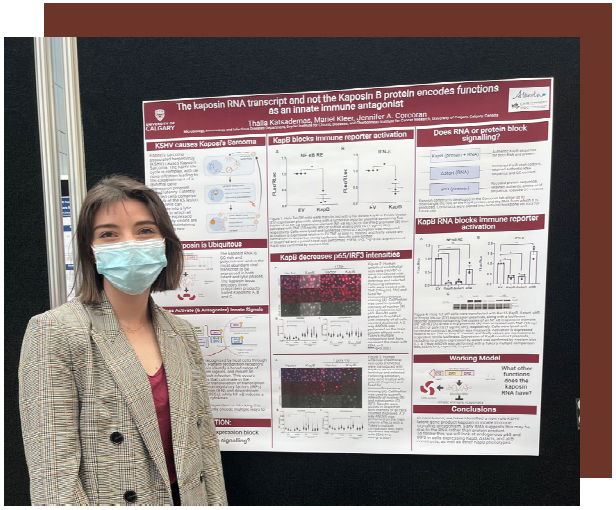
The group found that educational achievement employment was lower in survivors and risk factors included receiving a diagnosis of a primary central nervous system tumor and the presence of late effects from cancer and its treatment. The group concluded that health care teams should be aware of the risk and monitor for these challenges, and refer patients to specialists as needed. These recommendations are intended to ultimately minimize the burden of disease and treatment-related late adverse effects for pediatric and young adult cancer survivors.

Tomorrow's Cancer Research Leaders

Charbonneau Trainee Association Aims to Enhance the Experience of Postdoctoral Fellows and Graduate Students

The Charbonneau Trainee Association (CTA) is an organization of postdoctoral fellows and graduate students at the Arnie Charbonneau Cancer Institute. The purpose of the CTA is to improve the overall experience of trainees in Charbonneau labs and beyond. The focus of the group is to not only support academic achievements but also foster a sense of community within the institute and the greater community.

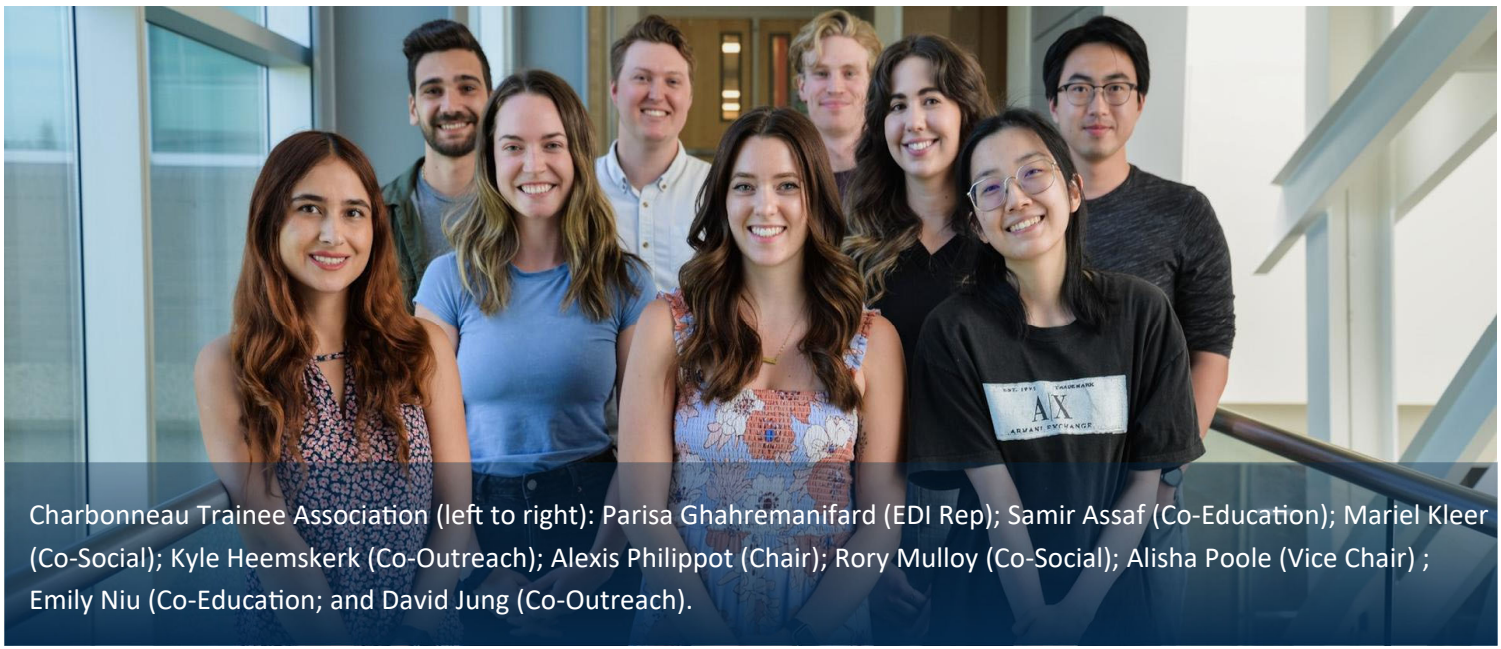
To accomplish this, the CTA hosts academic events that provide educational and networking opportunities, encourage trainees to become active members of the community through some of the Institute's outreach events, and foster relationships among trainees through social events.



"It's meaningful for me to contribute to potentially curing or helping people who have cancer, but it's also meaningful for me to contribute to science and be a part of this team of scientists all working towards a common goal."

- Mariel Kleer, PhD Candidate

"As a young scientist it is extremely inspiring to be around all of these people with so much experience. As a trainee you can expect to be mentored by some of the best in cancer research, you can expect to be challenged each and every day, and you can expect to be supported by your peers." - Alexis Philippot, MSc.



Charbonneau Trainee Association (left to right): Parisa Ghahremanifard (EDI Rep); Samir Assaf (Co-Education); Mariel Kleer (Co-Social); Kyle Heemskerk (Co-Outreach); Alexis Philippot (Chair); Rory Mulloy (Co-Social); Alisha Poole (Vice Chair) ; Emily Niu (Co-Education; and David Jung (Co-Outreach).

Sharing Early Career Growth and Success

Postdoctoral Fellow Explores the Relationship Between Chemotherapy, the Gut and Psychosocial Outcomes

Dr. Julie Deleemans is a Postdoctoral Research Fellow at the Charbonneau Cancer Institute and the University of Calgary Cumming School of Medicine in the Department of Oncology. She is also a survivor of stage IV laryngeal cancer and patient advocate. In 2021 she was awarded the Killam Doctoral Scholarship for her work on the Chemo-Gut Project, which looked at the impact of cancer treatments, particularly chemotherapy, on the gut microbiota, gastrointestinal (GI) and psychosocial symptoms in cancer survivors. She has published three papers based on this work, which found that survivors report persistent, moderate to severe GI symptoms lasting, on average, for 2.5 years post-treatment. It was also discovered that survivors ≤6 months post-treatment had significantly lower gut microbial alpha diversity compared to survivors >6 months post-treatment and healthy peers. These results were the first to show potential long-term imbalance of the gut microbiota after chemotherapy, and the associations between specific psychosocial symptoms and bacteria in cancer survivors. Julie will now explore the impact of a multi-strain probiotic on both GI and psychosocial symptoms as well as the gut microbiota, which is uniquely innovative as this has never previously been done with cancer survivors while using a comprehensive battery of outcomes.

The Killam Doctoral Scholarship is the most prestigious award available to graduate students at UCalgary.

Trainees Honoured with Prestigious National and International Awards

2022 Vanier Canada Graduate Scholarship

Michaela Patton, Clinical Psychology PhD candidate, Supervised by Dr. Fiona Schulte.

Patton is studying assessment and treatment of chronic pain in survivors of childhood cancer. She was recently awarded the prestigious national award for her work investigating the potential of an online pain management tool for children.

"Stigma can be a barrier for many people, including children, to entering therapy. Having a self-guided option gets around that issue and can be a nice introduction to therapy."

St. Jude's Childhood Cancer Survivor Study Career Development Award

Perri Tutelman, PhD, Supervised by Dr. Fiona Shulte

"I knew I wanted to pursue a career where I could work with kids and families who were encountering a life altering diagnosis….The psychosocial oncology division at UCalgary has built an incredible model with the unique integration of a clinical and scientific [approaches]."

Marathon of Hope Cancer Centres Network (MOHCCN) Clinician Scientist Award

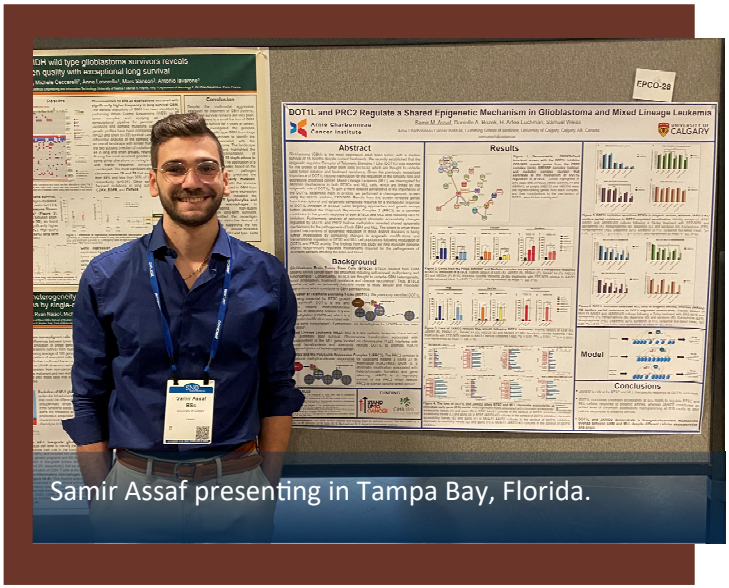
Ana Nikolic, PhD candidate, Supervised by Dr. Marco Gallo

Nikolic is the first recipient of the TFRI Marathon of Hope Clinician-Scientist Award. She is 1 of only 4 awardees across the country, selected from a highly competitive candidate pool.

Supporting the Best and Brightest

Trainee Funded Travel for Research Growth

The Arnie Charbonneau Cancer Institute is pleased to offer the Alex R. Cummings Trainee Travel Awards to eligible trainees who are presenting their research at an international or national conference or symposia. The aim of the award is to develop presentation skills among trainees and enhance networking opportunities.



Samir Assaf presenting in Tampa Bay, Florida.

From Montreal to Los Angeles, and Greece to Spain, the award supported a total of 31 trainees.

Jahanara Rajwani presenting in Halifax, Nova Scotia at the 34th Annual Canadian Society for Immunology Conference.

Recognizing Trainee Excellence

More than 25 national and international awards were presented to trainees in 2022.

Cumming School of Medicine Postdoctoral Scholarships

Robson DNA Scholar – Dr. Danny Laurent, Supervised by Dr. Susan Lees-Miller

Charbonneau Scholar – Dr. Tina Chen, Supervised by Dr. Marco Gallo

Charbonneau Scholar – Dr. Danyel Evseev, Supervised by Dr. Doug Mahoney

2022 Howard Research Excellence Awards

Dan Berger	Devin Van Elburg
Julia Daun	Julie Deleemans
Jesse Irvine	Kate Ding
Kayla Marritt	Manuel Ester
Paul Stewardson	Robert Basmadjian
Rory Mulloy	Mariel Kleer
Yaser Gamallat	Sharon Hou
Mathew Mazurek	Philip Ding
Michael Johnston	Dylan O'Sullivan

2022 Institute Directors Award

Mariel Kleer, PhD Candidate, Supervised by Dr. Jennifer Corcoran

2022 Rejeanne Taylor Research Award

Kyle Heemskerk, PhD Candidate, Supervised by Dr. Sam Weiss

Ritul Sharma, PhD Candidate, Supervised by Dr. Aru Narendran

Rory Mulloy conducting research in the Corcoran Lab.

Making an Impact in the Community

2022 marked a year of giving back...

...from bake sales benefitting those experience homelessness, to participating in and raising awareness for cancer research initiatives.

In addition to time spent in the lab, at the clinic, or buried deep in data studying complex problems about cancer, our trainees donated hundreds of hours and raised thousands of dollars to support local initiatives in Calgary.

Engaging, Educating, and Sharing

"It's extremely rewarding to do research at an institute that actively promotes sharing our findings with the public so that we can truly help those to whom it matters most. The feedback I receive from public audiences drives me to think bigger, so I can then make the largest possible impact on their lives."

- Kyle Heemskerk, MSc. student

Community Engagement

Building trust and fostering relationships between researchers, clinicians and the community through accessible community engagement

Community engagement is foundational to our success in enabling a future less burdened by cancer.

- **Integration of cancer research within Calgary and Southern Alberta is an important way to enhance the impact of our work, both by ensuring that we are creating value for the community and by communicating the value of new discoveries made by our members to the public, including patients and families touched by cancer.**
- **Integration of cancer research with the community ensures that we fulfill our role as an educator in a meaningful way, by creating opportunities to educate the public about the cancer topics for which they are most interested.**
- **Advocacy and philanthropy is a major driver of research initiatives, as evidenced by generous, transformative gifts from donors, charitable organizations and foundations. A strong connection to community is key to the ongoing success of our research programs.**

Cracking the Cancer Code

After a two year hiatus we safely re-introduced in-person events in the community. We were thrilled to launch *Cracking the Cancer Code* an immersive speaker series hosted in partnership with the Calgary Public Library.

From the lab to the real world, researchers right here in Calgary are dedicating their lives to limiting the impact of a cancer diagnosis for all patients and their loved ones. Now we're breaking down the barriers to making these ground-breaking discoveries. *Cracking the Cancer Code* is an engaging and immersive speaker series bringing researchers, clinicians, and the public together to talk about the future of cancer prevention, diagnosis, treatment and beyond.

Shining a light on some of our impactful stories

Sharing stories of hope, education and connection: Getting to Know Calgary's Cancer Researchers

By engaging in traditional and non-traditional media, researchers have been able to share research and tell their personal stories like never before.

Global Calgary @GlobalCalgary · Jun 16

Did you know the Tom Baker Cancer Centre has a #MolecularDetective 😎

In part 3 of @Global_Leslie's tour of the #TBCC, Leslie speaks with Neuropathologist & Arnie Charbonneau Cancer Institute Director Dr. Jennifer Chan about genetic testing.

#YYC @AHS_CancerCare

GLOBAL NEWS HOUR AT 6 EDMONTON

Alberta research team has promising treatment for rare cancer, thanks to rare gift

CBC

At-home cancer treatments mean fewer trips to hospital

It's a big relief." Dr. Jason Tay is leading the University of Calgary and Alberta He Services study involving 24 patients in Calgary and...

Alberta at Noon with Judy Aldous

Facing cancer

Play Episode 52:39 Share Episode

Every day thousands of Canadians are diagnosed with cancer. More people are surviving now than ever before - however cancer is still the leading cause of death in this country. What have you learned - as a patient or a caregiver - while facing cancer?

CALGARY HERALD

New Calgary Cancer Centre enters home stretch as building handed over to AHS

CBC

U of C study finds only one-third of households who identify elevated radon undergo mitigation

Radon is a radioactive, colourless, tasteless gas and can enter a building ... exceptionally high Canadian radon exposure," said Goodarzi.

calgary.ctvnews.ca

Calgary research team working to bring new hope for children and fam...

Cancer cells have a way of tricking our immune system into thinking they belong in our bodies, so local researchers are working toward ne...

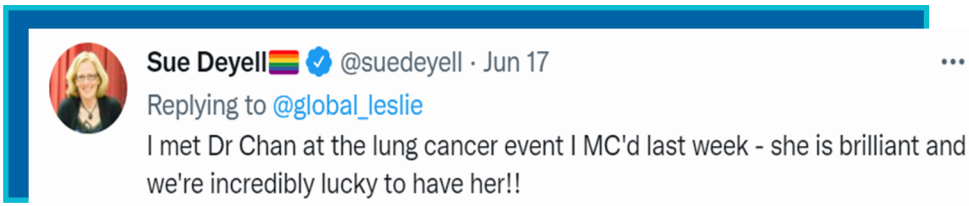
CALGARY HERALD

UCalgary's cancer institute receives $5M donation for psychosocial oncology research

'The psychosocial part of the of the work that's being done is so, so necessary, because it gives us permission to not only plan a future, but thrive in that future'

Through feedback online, it was evident that the public appreciated the opportunity for a behind-the-scenes look into cancer care and research in Calgary and the chance to hear about new and tailored approaches to treatment. Reflected in the comments left by social media users and viewers, it is clear that people valued learning about the resources available, the research being conducted, the advancements in technology, and the improvements to infrastructure—and importantly, how these may benefit patients, individuals or family members.

Many comments conveyed a sense of hope and pride with a better understanding of what cancer research is taking place in Calgary.



Over the year we have grown our organic communication interacting directly with individuals online. Over the last year we have seen significant increased traffic, with some channels increasing page views by more than 1,000 per cent year-over-year.

FOLLOW US!

Charbonneau's New Look and What it Means

This year, the Charbonneau Cancer Institute launched a new fresh look. Through extensive consultation with our health system partners, patient and community partners, and executive partners, and with the guidance of the branding team at UCalgary, a new visual identity came to life.

Arnie Charbonneau Cancer Institute

UNIVERSITY OF CALGARY

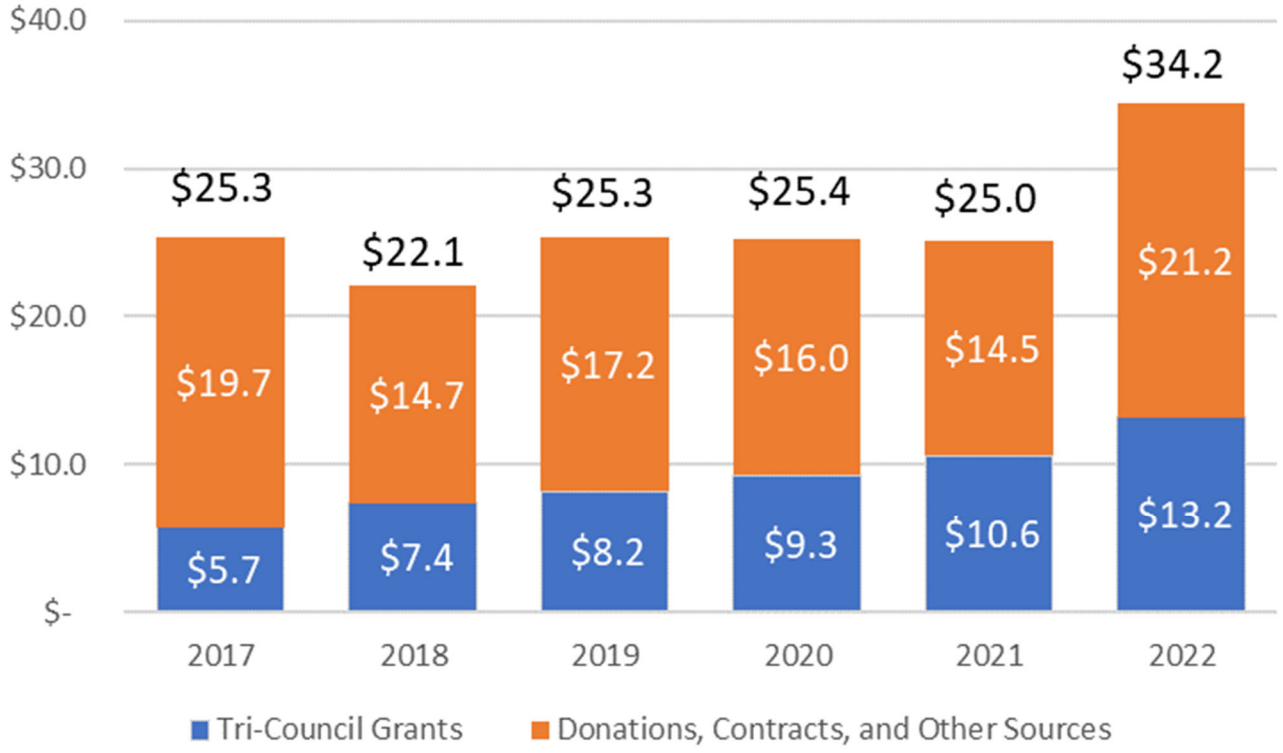
Alberta Health Services

In solidifying the Charbonneau's visual identity, the institute is able to become uniquely recognizable. The visual identity serves as an inclusive representation of not only what we do, but who we are.

Inspiration for the visual identity came from icons representing home, inclusivity, hope, discovery and the importance of research and scientific growth in addressing the burden of cancer in the community.

REVENUE FROM GRANTS AND DONATIONS

Total Funding from Grants, Donations, Contracts, and Other Sources Received by the University of Calgary for Cancer Research Reaches an All-Time High



Federal Tri-Council funding refers to competitive grants awarded by the Canadian Institutes of Health Research, Natural Sciences and Engineering Research Council, and Social Sciences and Humanities Research Council.

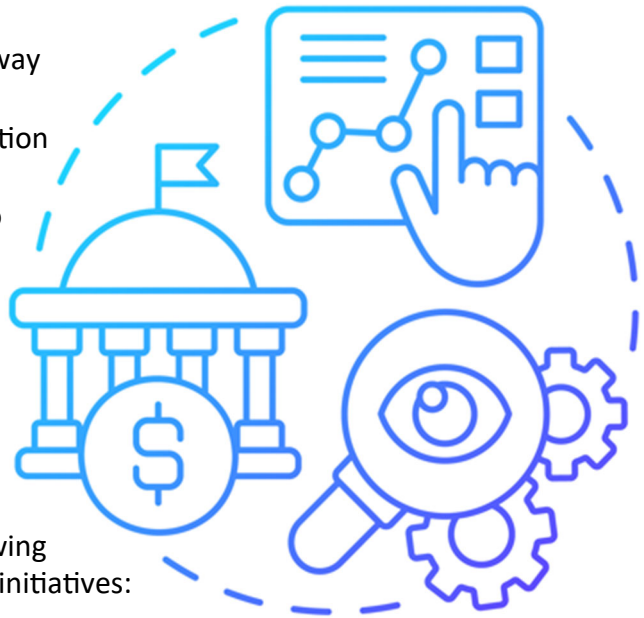
This graph includes funding received by the University of Calgary only and does not include funding for projects held at other institutions for which Charbonneau members may be co-investigators or collaborators.

Source: Office of Faculty Analytics, Cumming School of Medicine

Success in Federal Health Research Funding Continues for Charbonneau Researchers, from Discovery to Clinical Care

Our members were principal investigators on eleven new federally-funded grants from the Canadian Institutes of Health Research (CIHR) and the Natural Sciences and Engineering Research Council (NSERC) in 2022, amounting to approximately **$2.5M** in new federal grant funding over the next 4-5 years. These members included:

- **Marco Gallo:** "Recurrent 3D genome features in PFA ependymoma", funded by CIHR
- **Khara Sauro and Gregg Nelson:** "Optimizing surgical care: trends in Enhanced Recovery After Surgery (ERAS) guideline uptake and barriers to better evidence-based care", funded by CIHR
- **Nicole Culos-Reed:** "Exploring the effectiveness and implementation of the IMPACT intervention: A physical activity program for children and adolescents on treatment for cancer", funded by CIHR
- **Jennifer Corcoran:** "The Kaposi's sarcoma-associated herpesvirus (KSHV) kaposin locus promotes latency establishment after primary infection", funded by CIHR
- **Trafford Crump:** "Psychometric evaluation of a measure of care complexity in rheumatoid arthritis", funded by CIHR
- **Jennifer Corcoran:** "A mechanoresponsive signalling pathway disassembles processing bodies", funded by NSERC
- **Darren Derksen:** "New Synthetic Methods for the Preparation of Highly Functionalized Heterocycles", funded by NSERC
- **Belinda Heyne:** "Application of plasmonic nanoparticles to modulate organic photochemistry", funded by NSERC
- **Jonathan Lytton:** "Regulation of K-dependent Na/Ca-exchanger subtype 4, NCKX4", funded by NSERC
- **Derrick Rancourt:** "Cellular Reprogramming using Pluripotent Stem Cell Derived Exosomes
- **Karl Riabowol:** "Oxygen-Regulated Tissue Culturing for Accurate In Virto Cell Analyses", funded by NSERC



In addition, over **$5M** in federal funding was received by the following Institute members for their leadership in national cancer research initiatives:

- **Aaron Goodarzi:** "Cancer risks of Arsenic and Radon environmental Exposures (CARE)", funded by the Canadian Foundation for Innovation
- **Jennifer Chan:** Marathon of Hope Cancer Centres Network: Prairie Cancer Consortium, funded by Health Canada through the Terry Fox Research Institute

ACKNOWLEDGEMENTS

Charbonneau Strategic Advisory Board

Ms. Gail O'Brien (Chair)
As a Director of the Gairdner Foundation, Chair of Children First Canada, and past Trustee of SickKIds and Director of SickKids Foundation, Ms. O'Brien has devoted herself to the not-for-profit sector focusing on children, medicine, and arts from across Canada.

Mr. Marvin Romanow
Mr. Romanow is a Corporate Director, Executive in Residence at the Univ. of Saskatchewan, and past President and Chief Executive Officer of the oil and gas company, Nexen Inc.

Ms. Chanel Avarello
Ms. Avarello is a lawyer and supports charitable organizations that deal with cancer research and the reduction of gender-based violence.

Ms. Kate Fischer
Ms. Fischer brings more than 15 years of experience in Canada and abroad in governance, compliance, corporate law, and commercial law. Currently, she is the Director, Compliance for AltaGas Ltd., where she leads global compliance and supports ESG plans. She lends her time to many charitable and community initiatives.

Mr. Keith MacPhail
Mr. MacPhail is a director of NuVista Energy Ltd. and previously served as a director of Bonavista Energy Corp. He was appointed as a Member of the Order of Canada in 2019.

Mr. Kamil Umar
Mr. Umar is a business-minded lawyer focusing on commercial real estate. He began his legal career on Bay Street in Toronto, worked at a national firm in Calgary and then joined Bishop & McKenzie's Calgary office where he is currently a partner. When he's not practicing law, Kamil is passionate about mentorship and spending time with his family.

Mr. John Ross
Mr. Ross is the president and founder of ReportBack, a company dedicated to simplifying how we consume digital data for the purposes of taking action. Previous to his role at Report-Back, John founded Alberta Branded (a small retail clothing company). He graduated from St. Francis Xavier University and continues to broaden his horizons through online courses.

Ms. Heather Culbert (on leave)
Ms. Culbert co-chairs the OWN.CANCER campaign.

Mr. Arif Hirani
Mr. Hirani has 20 years in human-centric strategy and design. He's the Head of Client Engagement at Evans Hunt, a full service digital agency. Arif has lived in Calgary for 40 years, has a BComm from the UofC, and sat on the board of Calgary Pride from 2019 to 2021.

Mr. Paul Wright
Mr. Paul Wright is a Professional Engineer (Mechanical). Mr. Wright is originally from Gander, New-foundland and moved to Calgary in 1985. He has been an owner and director of a junior oil and gas company since 1991. Mr. Wright is also a licensed land agent in the Province of Alberta.

Dr. Don Morris
Medical Director, Tom Baker Cancer Centre; Head, Dept. of Oncology

Ms. Janelle Wakaruk
Associate Vice President (Development), UCalgary

Dr. Jennifer Chan (ex officio)
Director, Charbonneau Cancer Institute; Associate Professor, Pathology & Laboratory Medicine

Calgary Cancer Research Leadership Group

Facility Medical Director,
Tom Baker Cancer Centre (TBCC)
Dr. Don Morris

Executive Director, TBCC
Ms. Caroline Hatcher

Manager, TBCC
Ms. Rosemarie Farrell

Scientific Director,
Cancer Care Alberta, AHS
Dr. Paula Robson

Executive Director,
Cancer Research & Analytics, AHS
Ms. Amanda Davison

Institute Director,
Charbonneau Cancer Institute
Dr. Jennifer Chan

Associate Director, Strategy & Partnerships, Charbonneau Cancer Institute
Ms. Melissa Shea-Budgell

Charbonneau Steering Committee

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University of Calgary
Dr. William Ghali

Senior Associate Dean,
Cumming School of Medicine
Dr. Gerald Zamponi

Facility Medical Director,
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Dr. Don Morris

Associate Chief Medical Officer for the Strategic Clinical Networks
Dr. Braden Manns

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Cancer Care Alberta, AHS
Dr. Dean Ruether

Institute Director,
Charbonneau Cancer Institute
Dr. Jennifer Chan

Dean, Cumming School of Medicine
University of Calgary
Dr. Todd Anderson

Associate Calgary Zone Medical Director, AHS
Dr. Peter Jamieson

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Dr. Jennifer Chan

Research and Innovation:
Dr. Douglas Mahoney
Dr. Danny Heng

Community Engagement:
Dr. Aaron Goodarzi

Cancer Epidemiology:
Dr. Darren Brenner

Cancer Research & Analytics (CCA):
Ms. Amanda Davison

Communications:
Ms. Allie Miller

Basic and Translational Research:
Dr. Savraj Grewal

Faculty Mentorship & Peer Review:
Dr. Fiona Schulte
Dr. Savraj Grewal

Equity Diversity, and Inclusion:
Dr. Cheryl Peters
Dr. Savraj Grewal

Charbonneau Trainee Association:
Ms. Alexis Philippot

Infrastructure and Facilities:
Ms. Shilpa Salgia

Clinical and Population Research:
Dr. Corinne Doll

Education and Trainee Development:
Dr. Jennifer Corcoran
Dr. Gareth Williams

Precision Oncology Hub:
Dr. Paola Neri

Strategy and Partnerships:
Ms. Melissa Shea-Budgell

Education:
Ms. Carmen Coelho

Executive Support:
Ms. Lisa Willms

Charbonneau College of Peer Reviewers

We would like to acknowledge the following individuals for serving as internal peer reviewers for the Institute during 2022. Their commitment to the their peers and drive for excellence in research is driving our success in external grant funding.

Dr. Savraj Grewal (Co-Chair, Faculty Development and Research Mentorship Committee in 2022)

Dr. Fiona Schulte (Co-Chair, Faculty Development and Research Mentorship Committee in 2022)

Charbonneau Internal Peer Review Panelists:

Dr. Jennifer Corcoran
Dr. Gareth Williams
Dr. Marco Gallo
Dr. Wee Yong
Dr. Trafford Crump
Dr. Gloria Roldan-Urgoiti
Dr. Susan Lees-Miller
Dr. Aaron Goodarzi
Dr. Doug Mahoney
Dr. Paola Neri
Dr. Nimira Alimohamed
Dr. Sasha Lupichuk
Dr. Dave Schreimer
Dr. Frank Jirik
Dr. Karl Riabowol
Dr. Sarah Childs
Dr. Winson Cheung

Charbonneau Members

Amrein, Matthias
Anderson, Ronald
Arcellana-Panlilio, Mayi
Ayyaz, Arshad
Bahlis, Nizar
Balogh, Alexander
Barbera, Lisa
Bathe, Oliver
Beattie, Tara
Beaudry, Paul
Bhindi, Bimal
Billon, Pierre
Bismar, Tarek
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Bose, Pinaki
Brenn, Thomas
Brenner, Darren
Brown, Chris
Bultz, Barry
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Campbell, Tavis
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Chandarana, Shamir
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Cheung, Winson
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Chu, Pamela
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Crump, Trafford
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Cuthbert, Colleen
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de Koning, Jason
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Donnelly, Bryan
Dort, Joseph
Dowden, Scot
Duggan, Maire
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Ezeife, Doreen
Fear, Elise
Fidler-Benaoudia, Miranda
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Ghatage, Prafull
Golestani, Ali
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Jiminez-Zepeda, Victor
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Kerba, Marc
Khan, Faisal M.
Khan, Omar
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Kovalchuk, Olga
Kurien, Elizabeth
Kurz, Ebba
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Laing, Catherine
Larsen, Erik
Lategan, Johannes
Lau, Harold
Lee, Ki-Young
Lee, Sangjune Laurence
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Lim, Gerald
Ling, Chang-Chun
Liu, Hongwei
Logie, Natalie
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Lupichuk, Sasha
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Mahe, Etienne
Mahoney, Douglas
Mansoor, Adnan
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Matthews, Wayne
McDonough, Meghan
Mew, Daphne
Minoo, Parham
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Moorhead, Gregory
Morris, Don
Morrissy, Sorana
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Nation, Jill
Naugler, Christopher
Nelson, Gregg
Neri, Paola
Nezhad, Amir Sanati
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O'Sullivan, Dylan
Owen, Carolyn
Paschke, Ralf
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Peery, Harry
Pelletier, Guy
Peters, Cheryl
Ploquin, Nicolas
Poon, Man-Chiu
Prenner, Elmar
Quan, May Lynn
Rancourt, Derrick
Riabowol, Karl
Rinker, Kristina
Robbins, Stephen
Robinson, John W
Roldan Urgoiti, Gloria
Ruether, Dean
Sauro, Khara
Savoie, Lynn
Schriemer, David C
Schulte, Fiona
Senger, Donna
Shack, Lorraine
Shafey, Mona
Shemanko, Carrie
Shen-Tu Grace
Simon, Jessica
Sinclair, Shane
Sinha, Rishi
Sinnarajah, Aynharan
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Sutherland, Garnette
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Tang, Patricia
Tay, Jason
Tchistiakova, Ekaterina
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Temple-Oberle, Claire
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Trpkov, Kiril
Truong, Tony
Tsang, Roger
Vakil, Erik
Vallance, Jeff
Vogel, Hans
Walker, Lauren
Wang, Edwin
Watson, Linda
Weiss, Samuel
Wieser, Michael
Williams, Gareth
Wu, Jackson
Xu, Yuan
Yang, Hua
Yang, Lin
Yip, Stephen
Yong, V Wee
Zepeda, Victor
Zhang, Qingrun
Zheng, Xi-Long

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https://www.ahs.ca/cancer