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PRECISION CARE BEGINS HERE

THE RI-MUHC'S LIQUID BIOPSY CENTRE

Recent as of August 1, 2022

PRECISION CARE THROUGH LIQUID BIOPSY

Every nine minutes in our province, a Quebecer or their family member is struck with the news of a harsh new reality: they have cancer. Cancer diagnoses have been increasing steadily for years, and **more than 61 Quebecers die from cancer every day**ⁱ. When cancer is diagnosed, there isn't a moment to spare.

Over the past decade, a technique called **liquid biopsy** has received tremendous attention for its potential to redefine cancer care: It is a **simple, non-invasive test** using blood, saliva, or other bodily fluids to detect cancer.

Physicians can use this test for early detection, to understand the unique characteristics of a patient's cancer, choose the treatment best suited for them, and monitor treatment response or early progression.

Further, liquid biopsies allow for **frequent, fast, and non-invasive monitoring** of cancer progression or remission over the time spectrum of clinical care.

The McGill University Health Centre is seeking **your support** to harness this new technology at our **Liquid Biopsy Centre** and to help end cancer. Help us raise **\$2.25 million to turn a dream into reality**.

Dream Big. End Cancer is a priority of the MUHC Foundation's \$200 million *Dream Big* Campaign.

[Click to donate to the Liquid Biopsy Centre.](#)

DREAM BIG. END CANCER.

We envision curing cancer through a precise and personalized approach. The Liquid Biopsy Centre will achieve its vision through three main components:

- **Biobanking research samples.**
Expanding our biobank of cancer biospecimens will enhance cancer research across the RI-MUHC.
- **Characterizing cancer cells and tumour profiles.**
Dynamically mapping tumour models as they evolve through cancer stages will allow more accurate mapping and optimize our ability for earlier detection.
- **Personalizing treatment.**
Investigating tumours grown from patients' liquid biopsies will enable us to learn about their cancer's genetic makeup and match patients with treatments best suited for them.

OUR LIQUID BIOPSY LEADERS

Founded in 2018 by [Dr. Richard Kremer](#), Academic Director of the McGill Division of Medical Biochemistry and [Dr. Catalin Mihalciou](#), Senior Research Scientist in the Cancer Research Program at the RI-MUHC, the Liquid Biopsy Centre is one of the few research cohorts of its kind in North Americaⁱⁱ.

In 2013, Dr. Kremer and Dr. Mihalciou [co-developed and patented](#) the cutting-edge liquid biopsy technique used at the RI-MUHC's Liquid Biopsy Centre. The technology was further refined through [grant support from a consortium at the CQDM](#), including AstraZeneca, Boehringer Ingelheim, GSK, Lilly, Merck, Pfizer, Business-Led Networks of Centres of Excellence (BL-NCE), and the Ministère de l'Économie et de l'Innovation (MEI).



Richard Kremer, MD, PhD, FRCPC

Dr. Kremer is an internationally recognized expert on assay development, vitamin D, bone health, calcium homeostasis, and skeletal complications of cancer. Dr. Kremer is a clinician-scientist formally trained in Endocrinology and Laboratory Medicine.



Catalin Mihalciou, MD, FRCPC

Dr. Mihalciou is an internationally recognized Medical Oncologist and clinical investigator. Dr. Mihalciou previously served as Director of the Clinical Research Program of Medical Oncology at the McGill University Health Centre and has been the Principal Investigator (PI) or Co-PI in dozens of clinical trials.

“Our goal is to integrate liquid biopsy as a standard facet of cancer care.”

SUPPORT THE LIQUID BIOPSY CENTRE

The Liquid Biopsy Centre is seeking **your support** to integrate liquid biopsy as a standard facet of precision cancer care: **\$2.25 million will turn a dream into reality.**

Donations will support the following:

- **Recruitment and retention of top talent** – Hiring a full-time Clinical Research Manager to oversee the centre's day-to-day operations will allow us to broaden our clinical and research services. In addition, expanding support for our specialized nurse will allow us to increase our capacity to collect biospecimens.
- **Equipment** – Purchasing the FDA-approved [CellSearch™ platform](#) will increase the centre's capacity to perform various liquid biopsies and allow for rapid monitoring of clinical parameters in patients' peripheral blood.
- **Infrastructure** – Renovations to accommodate the expansion of the current liquid biopsy platform, equipment, and maintenance.



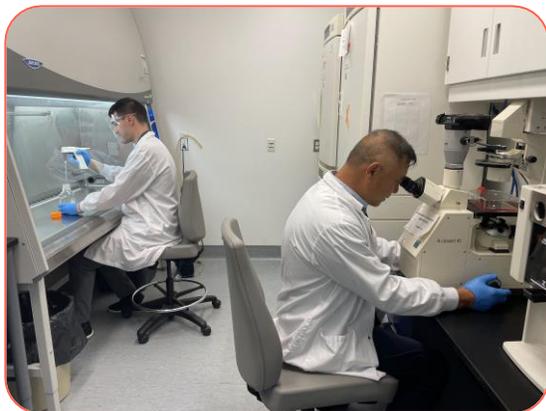
Purchasing a CellSearch™ platform will generate income through fee-for-service arrangements, contracts with private industry, and clinical trial services, solidifying the centre's ability to operate self-sufficiently.

PRECISION CARE FROM BENCH TO BEDSIDE

The Liquid Biopsy Centre investigates the most important questions in oncology through Basic and Clinical research arms.

Basic Research Arm

- Focuses on improving the Liquid Biopsy Centre's Research Platform.
- Characterizes circulating tumour cells (CTCs), bone cells, and immune cells from the bloodstream and other components detected through liquid biopsy.
- Offers researchers access to catalogues of bio-banked research samples.



Clinical Research Arm

- Emphasizes research translation from pre-clinical models to the eventual clinical care of the MUHC's patients.
- Rapidly detects circulating tumour cells (CTCs) in oncology patients to monitor disease progression and inform personalized therapeutic strategies.



The Liquid Biopsy Centre will enhance patient diagnostic and monitoring capabilities by empowering researchers in the lab to share and translate their work into clinical practice.

Ultimately, the Liquid Biopsy Centre's ground-breaking research will lead to faster, more cost-effective preventative and therapeutic strategies, and improved clinical care at the MUHC.

ADVANTAGES OF LIQUID BIOPSY

Accuracy

Traditional tumour biopsies are essential for cancer diagnosis but aren't perfect:

- They aren't always possible to perform.
- There are risks of complication.
- They provide small samples.
- They don't always give a clear picture of the cancer cells' heterogeneity and characteristics which physicians use to select the most effective treatment.

Further, cancers are composed of many different cells that can spread throughout the body, making it difficult for biopsy needles to collect the cells that inform physicians which treatment will be most effective.

With a liquid biopsy, physicians can isolate the cancer's cells, DNA, and other critical elements in blood, urine, or saliva and sequence them using specialized equipment. The result is a more precise understanding of each patient's cancer make-up, allowing physicians to select the treatment best suited to the patient.



Cost and Speed

Another advantage of liquid biopsy is its low cost—all it requires is a simple blood test or other fluid samples. Our rapid turnaround time for sample collection and analysis enhances precision care and increases patient convenience.



Monitoring

Cancer grows and changes over time, making it difficult to fight. Traditional tissue biopsies are rarely repeated during a patient's care because they are invasive, can require surgery, and are costly. Even a year from diagnosis, cancer may not have the same profile that the traditional biopsy initially revealed.

In contrast, liquid biopsies can be performed frequently, at a low cost, and can be used to monitor a patient's tumour burden and response to treatment in real-time. By closely monitoring a patient's response to treatment, physicians can provide patients with more precise treatment plans.

Eventually, physicians could use liquid biopsies to monitor patients in remission, catch cancer recurrence before a new tumour forms, and for patients with active cancer to help detect metastasis early, improving their prognosis.



PRECISION CARE BEGINS HERE

SUPPORT THE LIQUID BIOPSY CENTRE'S TRANSFORMATIVE WORK

Despite an increase in cancer cases in Quebec, the net 5-year survival rate has increased from 55% in the early 1990s to about 64% in 2021ⁱⁱⁱ. The significant inroads oncologists continue to make in cancer screening, diagnosis, and treatment are in no small part due to the work of doctors and researchers such as those at the [Liquid Biopsy Centre](#).

We need your support to integrate liquid biopsy as a standard facet of precision cancer care: the Liquid Biopsy Centre is seeking an investment of \$2.25 million to turn our dream into reality.

Join Dr. Kremer, Dr. Mihalciou, and the Liquid Biopsy Centre as they work to **end cancer** as a deadly disease. **Dream Big.**

[Click to donate to the Liquid Biopsy Centre.](#)

For more information, please contact:

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ⁱ [Statistics - Fondation québécoise du cancer \(fqc.qc.ca\)](#)

ⁱⁱ Other leading liquid biopsy centres include the [Liquid Biopsy Core](#) (Perelman, University of Pennsylvania), the [Liquid Biopsy Research Center](#) (University of San Diego), the [Liquid Biopsy Research Core](#) (Keck Medicine, University of South California), Memorial Sloan Kettering (New York), and the Princess Margaret Cancer Centre (Toronto).

ⁱⁱⁱ [Statistics - Fondation québécoise du cancer \(fqc.qc.ca\)](#)