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Dr. Nicolas Gauthier

“Once we understand the disease better, we’re able to treat it better.”

– Dr. Nicolas Gauthier, clinical biochemist and Head of the Biochemistry Department



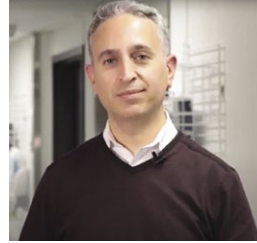
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Sacré-Cœur is growing

The opening of the modular units in November 2020 enabled the hospital to address the second and third waves of COVID-19, while resuming some activities that had been on pause.

Work on the modular units, valued at nearly \$45 million, officially began in early June and was completed in a record time of a few months. The new nephrology-gastrology, cardiology, pulmonology and neurology units have 96 individual acute care rooms. In the plans, attention was paid to certain details. For example, medical gases are built into the wall rather than having tanks in circulation on the floor.



Mr. Frédéric Abergel, CEO of the CIUSSS NÎM, presents the work for the construction of the new modular units in a short video.

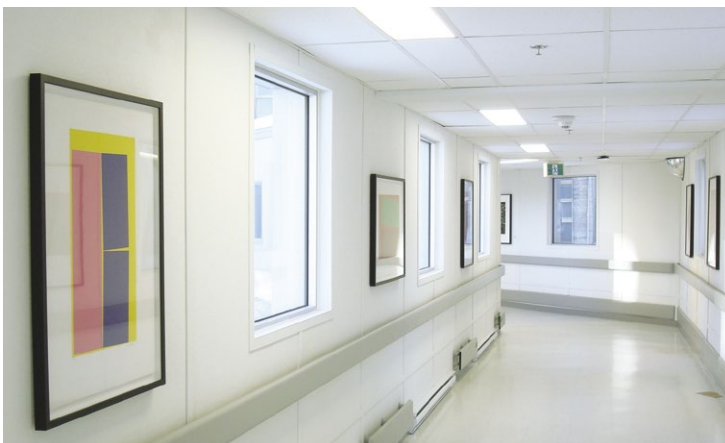
To watch the video, consult the site ciusssnordmtl.ca, "Installations" tab, then "Modernisation de nos installations" (video is only available in French).

This construction marks the beginning of a major transformation at Sacré-Cœur. Combined with the opening of the Integrated Trauma Centre, the Mother-Child Unit and the Endoscopy Unit in 2021, Sacré-Cœur is modernizing before it turns 100 years old in 2026.

Large hallways brightened up with works by renowned Quebec artists

To reach the Hospital's two new wings, our modular units as they are called, patients and staff must walk down long white hallways. To brighten up this environment, the Foundation's Visual Arts Committee installed 24 works of art on the two floors of this new sector.

These works were donated to us thanks to the generosity of two of our great accomplices since the beginning of the collection, the Art for Healing Foundation and the family of Sylvie Cataford and Simon Blais.



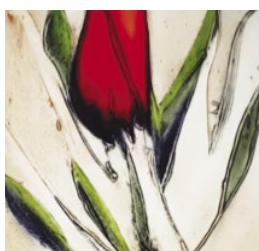
Works by Louis Comtois can be seen down this hallway.



On this photo, three works by Richard Bertrand.

As with the majority of the works in the collection, those recently installed were created on paper using various techniques. They are signed by renowned Quebec artists such as Jacques Hurtubise, Alfred Pellán, Richard Lacroix and Louis Comtois.

The Foundation's collection, created in 2012, currently includes more than 300 works installed in the various wings of the Montréal Sacré-Cœur Hospital and the Albert-Prévost Mental Health Hospital. These works are all offered to the Foundation by generous donors.



Volupté, a work by Richard Lacroix, which is found in the new wings.

To learn more about this collection, please contact:

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Nicolas Gauthier reconnects with his passion for research

BQC19 is not a secret code. Nor is it an obscure organization. It's short for the *Biobanque québécoise de la COVID-19*, Quebec's COVID-19 biobank. Dr. Nicolas Gauthier, clinical biochemist and researcher, is also Head of the Biochemistry Department. He represents the Montréal Sacré-Cœur Hospital, one of the twelve hospitals that supply this major national research project. The purpose of this Biobank is to collect high-quality biological samples and medical data from patients infected with COVID-19 and to make this information available to researchers across Canada and around the world.



Q: What is your background, your training?

R: I have been at Sacré-Cœur for four years and have been Head of the Biochemistry Department for two years. I did a two-year postdoctoral training. I then obtained my specialist certificate from the *Ordre des chimistes* in order to be officially a clinical biochemist. On average, you have to go through 12 to 14 years of university to get to that point.

Q: What is the role of a clinical biochemist?

R: My job is to make sure that the results that come out of the lab are quality results. This requires me to be aware of the progression of medicine, medication, potential interference, etc., to understand the impact of the patient's condition on the test results. It's a joint effort with the health care team and the medical team.

Q: With the arrival of COVID-19, what has changed in your day-to-day work?

R: Because we anticipated an increase in intubated patients, we quickly deployed many blood gas machines to be closer to the clinical teams, so directly in the hot zones so that the analysis could be done at the patient's bedside. It was a project that was put together, from the first idea to the end result, in two weeks (from the order, the evaluation of the devices to their use in the units). It was a support from the laboratory to the teams on the front line. My team has redoubled its efforts during the pandemic and I'm very proud of that.

Q: How long have you been doing research?

R: That's my background! I did ten years of research. It was a part of my life for all those years while I was in graduate school and working on my PhD. I worked specifically for ten years on a genetic disease that affects children around the world: the metabolic pathway of ketone body formation. We have discovered a medication to manage these patients during their metabolic crises.

I chose to come to Sacré-Cœur because of its university affiliation. The effort in the war against COVID came along, and there was an opportunity to participate in research projects. I applied for my research rights here and my research status at the Research Center. I got on board two research projects: the Biobanque project and the Health Care Worker Seroprevalence project.

Q: What is the Biobanque research project?

R: It is a provincial biobank. I am the principal investigator for the Sacré-Cœur branch. I'm involved in collaboration with Dr. Christine Arsenault, my colleague in microbiology, and Dr. Alex Cavayas, internist. It takes a concerted effort from many different areas to collect tissue and then share it with each other. The good news is that it opens a window for Sacré-Cœur researchers if they want to obtain samples or specimens from the Biobanque. It gives privileged access to this Biobanque. It's for the greater good.

Q: Who else is involved in this project?

R: We now have 201 patients recruited in the Biobanque in the Sacré-Cœur branch since the end of summer 2020. We're very proud. It's because of a whole team that we have such a result. It goes from the recruitment teams in the field to the nurses who participate. I have a whole team that stabilizes the tubes, does the manipulations to ensure that the samples sent to the Biobanque to be preserved are in good condition. I must also underline the work of the coordinator of this project, Virginie Williams, who does a really incredible job.

Q: What did the Foundation's \$30,000 grant do?

R: Usually, a project like this has been planned for years. The funding is attached. The ethics committees and all the documents have been done. Here, we were in an emergency context with the pandemic. The project was launched very quickly, before everything was finalized. It's nice to have the support of the Hospital Foundation, which believes in research and new projects.

My goal is to continue to participate in research, of course. This was just an opportunity for me to get my foot in the door. COVID-19 allowed me to meet other researchers, many research physicians on the floors, to talk about projects in which it would be relevant for the laboratory to be involved.

Q: You are also working on the seroprevalence study (see box) among health care workers, can you tell us a little more about that?

R: I was involved in the project with my colleague Dr. Jean-Michel Leduc, an infectious disease microbiologist. Ten hospital centres across Quebec participated. Volunteers were recruited from the staff members last summer, based on specific employee groups. We were able to get over 200 participants.

Q: What stands out about these two research projects?

R: With our seroprevalence project across Quebec, we have shown that we still have detectable **serology** (see box) in patients who developed COVID-19 six months ago. And as time goes by, articles are coming out confirming our observations and that now go even further than that.

As for the Biobanque, it is really early to have a result beyond any doubt. We are really at the stage of building the Biobanque. We must never forget that everything that has allowed the development of the RNA vaccine at this time, which is a new technology, that there is a lot of work and discoveries that have allowed us to arrive at something that today has a concrete impact on the lives of the world's population.

Research is not just about finding a drug. Research is about increasing the level of general knowledge. Once we understand the disease better, we're able to treat it better.

What is...?

Seroprevalence

It evaluates the number of people in a given population who have been exposed to a microorganism or to a vaccination and who develop specific antibodies at significant levels.

Serology

This is the study of serum and its contents, particularly specific antibodies that may be linked to the presence of certain pathogens (mainly bacteria and viruses). It is carried out in biomedical laboratories.

Biobanque québécoise de la COVID-19: Sacré-Cœur is actively involved



Dr. Nicolas Gauthier and the members of the Biobanque team at Sacré-Cœur : Dr. Christiane Arsenault, Dr. Alexandros Cavayas, Virginie Williams, PhD, Sabrina Franca, Sadia Daheb, Claudia Ménard, Kim Beauchesne, Julien-Charles Cyr, Cédric Bélanger.

In the wake of the initiatives put forward to find a solution to the pandemic, the *Fonds de recherche du Québec* and *Génome Québec* mandated, in March 2020, a group of researchers to set up the *Biobanque québécoise de la COVID-19* (BQC19). This large vault is filled with valuable samples and high-quality data from individuals infected with COVID-19, or as it is known in scientific terms, SARS-CoV-2.

Sacré-Cœur Hospital is very involved in this research project. Its Director of Research, Education and Innovation, Daniel Sinnett, is one of the 20 members of the BQC19 governance committee.

Our Foundation contributed \$30,000 to the seed money that allowed clinical biochemist and principal investigator, Dr. Nicolas Gauthier, to take part in this important research project and thus enrich this provincial biobank.

A national study on seroprevalence

A group of researchers, including two from Sacré-Cœur, clinical biochemist, Nicolas Gauthier, and microbiologist-infectiologist, Jean-Michel Leduc, conducted a national study for the *Institut nationale de santé publique du Québec*.

Sacré-Cœur employees and caregivers participated in the work of this group. A total of 2,056 health care workers from ten Quebec hospitals were recruited in the first wave of COVID-19 to conduct the study.

The study revealed that the vast majority (71%) of health care workers who tested positive for COVID-19 antibodies (positive serology) had already been diagnosed with COVID-19 in the past. This is particularly indicative of good case identification at participating hospitals.

A Canadian first in cardiology at Sacré-Cœur Hospital



The team took part in this Canadian first on March 26, 2021.

On March 26, Dr. Érik Schampaert, Chief of Cardiology, became the first person in Canada to use the OmniWire guide.

This innovative tool is said to reduce the risk of complications and maximize the chances of an optimal outcome for patients who require surgery for a blocked blood vessel. In addition, the duration of the procedure is decreased by five to ten minutes for each vessel worked on.

During an angioplasty, a hemodynamicist normally inserts a first guide (a very thin metal wire) into the artery to measure the pressure on the other side of the obstruction. They then have to remove that wire and insert another one to go fix the problem, then repeat the scenario until they are satisfied with the result.

“It’s a revolutionary technology. There’s less manipulation, so theoretically because you’re using the same guide, there’s less chance of complications of going in and out and in and out with several different guides. The procedure is faster,” said Dr. Érick Schampaert in an interview with *The Canadian Press* shortly after his procedure. Once the procedure is completed, the guide can take the pressure inside the artery to check if everything is back to normal.

At least three Canadian groups, including one in Montreal, were interested in being the first to use this tool in Canada. The other two would have withdrawn in favour of Sacré-Cœur, whose expertise in coronary physiology is well known.

Sacré-Cœur and Albert-Prévost will have access to innovative technologies

Last March, the *Centre intégré universitaire de santé et de services sociaux du Nord-de-l’Île-de-Montréal*, our “CIUSSS,” which Sacré-Cœur and Albert-Prévost are a part of, joined the Canadian and international network of Beachhead™ centers of excellence. It is the first CIUSSS to be designated a Beachhead™. Its network of five hospitals, eleven CHSLDs, six CLSCs and eighteen GMFs, among others, represents a major asset. The health professionals and physicians working in this network will be able to rely on technologies that allow them to maximize the potential of their skills and expertise.

The Beachhead™ designation is awarded by MEDTEQ+, an organization whose mission is to accelerate the development of innovative solutions, their validation and their integration into healthcare networks. “This collaboration will allow companies to gather evidence and improve their innovations, making them more adapted to the current needs and challenges of the sector: longevity of the population, isolation and mental health or telehealth,” said Diane Côté, CEO of MEDTEQ+, when announcing this designation.

TOGETHER, WE CAN DO MORE!



Richard Bourdages, a source of inspiration!

Mr. Richard Bourdages was introduced to the experts at Sacré-Cœur on October 5, 2019, following a serious motorcycle accident. His condition was so serious that he was transferred from a first hospital centre to Sacré Cœur Hospital, in the Trauma Department.

And despite everything, he is now up on his two feet thanks to his determination, his will and the extraordinary care he received from the doctors and the many teams at the Hospital who work true miracles every day. His life has been transformed!

Richard Bourdages is extremely grateful. So much so, that after barely recovering from this terrible accident, he started a

fundraising campaign. After one year, he has raised over \$3,390. He can be proud of this accomplishment.

Donations from people who have been treated at the hospital or their loved ones help to ensure that patients like Richard can return to their normal activities and quality of life.

Would you like to get involved too?

Whether you wish to collect donations on your birthday as a gift, organize a fundraiser or a benefit event (walk, run), do not hesitate to let us know by calling or emailing us. It will be a pleasure for us to accompany you.

For more information, contact us at 514 338-2303

Upcoming events



Pedal for Life! - June 12 to July 12

The Vélo Onco bike ride for the benefit of Sacré-Cœur's hemato-oncology department will be held this year in an adapted format! Take on the bike ride challenge when and where you like, **between June 12 and July 12**.

You can even use the usual routes in the MRC Deux-Montagnes.

Want to do even more for the cause? Collect donations from your friends and family! There will be a prize draw among the participants who collected the most funds.

Registration and information on our website: fondationhscm.org

COMING SOON:

**OMNIUM
GOLF 2021**

September 2021

**GALA
DES ÉMILIE**

November 2021



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Your generosity helps us *transform lives*

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- ♥ **By Cheque**
- ♥ **By Phone**

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