MULTIPLE SCLEROSIS

World-Leading Researcher’s Push for Prevention and Cure

THE GIFT OF JOY

Remembering Andrew MacEachern

BREACHING THE BLOOD-BRAIN BARRIER

Dalhousie professor investigates common source for multiple illnesses

REMEDY

MAGAZINE

GIRLS JUST WANNA HAVE FUNDING

The Cost of Underfunding Women in Medical Research

DALHOUSIE UNIVERSITY | FACULTY OF MEDICINE

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FOR HEALTH RESEARCH

REMEDY MAGAZINE

SPRING/SUMMER 2025

Dalhousie University operates in the unceded territories of the Mi'kmaw, Wolastoqey, and Peskotomuhkati Peoples. These sovereign nations hold inherent rights as the original peoples of these lands, and we each carry collective obligations under the Peace and Friendship Treaties. Section 35 of the Constitution Act, 1982 recognizes and affirms Aboriginal and Treaty rights in Canada.

We recognize that African Nova Scotians are a distinct people whose histories, legacies and contributions have enriched that part of Mi'kma'ki known as Nova Scotia for over 400 years.

Photo by Jaron Nix on Unsplash

DALHOUSIE UNIVERSITY | FACULTY OF MEDICINE

PLEASE SEND NEWS, STORY IDEAS, COMMENTS, AND/OR ADDRESS CHANGES TO:

Faculty of Medicine, Advancement
Dalhousie University
Chapter House | 98-5743 University Avenue
Halifax, NS B3H 4R2

medadvancement@dal.ca

EDITOR
Dayna Park

CONTRIBUTORS
Laura Eggertson
Dayna Park
Kate Rogers

PHOTOGRAPHY
Daniel Abriel
Nick Pearce
Chris Geworsky
Cody Turner

FEATURES & STORIES

A MESSAGE FROM THE DEAN

Dear donors and friends,

At Dalhousie University's Faculty of Medicine, we are committed to pushing the boundaries of health research and medical education—an effort the generosity of our donors makes possible. Your support fuels groundbreaking discoveries that change lives across the Maritimes and beyond.

In this issue of REMEDY, we highlight remarkable advancements taking place here at Dal in the areas of cancer research, medical neuroscience, and youth mental health, and more—each a testament to the power of philanthropy.

As you read through these stories, I hope you reflect on the power of philanthropy and the impact you have made on countless people, thanks to your giving.

On behalf of the Faculty of Medicine, I want to extend my deepest gratitude to our donors. Your generosity empowers our researchers, supports our students, and enables us to continue transforming health care. Thank you for being part of this journey.

Kindest regards,

David R Anderson

DR. DAVID ANDERSON
Dean, Faculty of Medicine

MESSAGE FROM DR. EILEEN DENOVAN-WRIGHT

Research is the foundation of medical breakthroughs, and at Dalhousie's Faculty of Medicine, we are privileged to witness extraordinary discoveries that have the potential to transform patient care.

Thanks to the generosity of our donors, our researchers are tackling some of the most pressing health challenges of our time.

This issue of REMEDY shines a light on pioneering work in a range of medical fields where our researchers are making a profound difference. Whether it's identifying new treatment pathways for cancer, advancing knowledge of neurological disorders, or developing interventions to support youth mental wellness, philanthropy fuels these efforts.

A perfect example of this is the Girls Just Wanna Have Funding campaign, which continues to demonstrate the power of community-driven fundraising. The success of this initiative is a reminder that when passionate individuals come together, real change happens.

To our donors: your support is not just an investment in research—it is an investment in innovation and better health outcomes for generations to come. Thank you for believing in the power of medical research and for making these discoveries possible.

With sincere appreciation,

EDenovan-Wright

DR. EILEEN DENOVAN-WRIGHT
Associate Dean Research, Faculty of Medicine

BREACHING THE BLOOD-BRAIN BARRIER:

DALHOUSIE PROFESSOR INVESTIGATES COMMON SOURCE FOR MULTIPLE ILLNESSES

By Laura Eggertson

A simple 9’ by 11’’ sheet of white paper containing a description of his mother’s story hangs by the door of Dr. Alon Friedman’s office at Dalhousie’s Faculty of Medicine.

Beneath it, the neurovascular researcher has pinned a black-and-white photograph of his paternal grandparents and his uncle Miklosh.

The picture is the last one taken before Nazis transported his grandparents and uncle to Auschwitz. They never returned.

His mother and maternal grandmother did survive the Second World War—thanks to their own bravery and the help of a stranger.

“The Holocaust was legal. Slavery was legal. Segregation was legal. The brave woman who cared for and hid my mother and grandmother in an attic in Hungary was a criminal. She broke the law by sheltering Jews.”

“Legality is not a guide for morality,” the paper in Dr. Friedman’s office reads.

Dr. Alon Friedman

The photograph and his mother’s survival story form the genesis of why Dr. Friedman—who holds the William Dennis Chair in Epilepsy Research at Dalhousie— studies brain-based diseases like epilepsy, and the role of blood-brain barrier leaks in diagnosis and treatment.

“The reason I started to work on the blood-brain barrier almost 30 years ago is the effect of stress on the brain,” he says. “Stress actually affects the vasculature system.”

The Dennis family generously established the William Dennis Chair in 2005 to honour the memory of William, who died unexpectedly at the age of 30 from complications relating to an epileptic seizure.

“The Dennis Chair is amazing,” says Dr. Friedman. “It really allows me to take our research discoveries forward into clinical trials, testing new treatments for the first time, and perhaps eventually a cure for epilepsy.”

PENETRATING THE BARRIER

The blood-brain barrier consists of a network of small blood vessels and tissue, tightly packed with cells, which keeps harmful substances from passing into the brain from the blood circulatory system. Dr. Friedman is investigating how factors as varied as stress, traumatic injuries, infections, high blood pressure or strokes can penetrate that barrier, allowing proteins to seep in.

Given the sustained stress his surviving family members endured during the Holocaust, Friedman’s interest in the physiological changes stress can produce in the brain arose from observing that intergenerational trauma.

As a child in Israel in the 1960s, Dr. Friedman did not have a name for the post-traumatic stress his parents were experiencing.

“I remember (my mother’s) nightmares, that I was awake in the night,” he says.

His parents never talked about what happened to them, or how their trauma affected them. He could see that the stress they had endured altered their perceptions, however. Their experiences, as well as what he observed in young soldiers when he served as a doctor with the Israeli Defence Forces, fuelled his decision to train as a neurosurgeon and then focus his talents as a researcher.

The blood-barrier leaks, Friedman says, can trigger a biological cascade that includes in inflammation and results in dementia, epilepsy, bipolar disorder, and a range of other illnesses medical researchers have long sought to decipher.

“In all of these conditions, we can identify a subgroup of patients with openings in the blood/brain barrier,” Dr. Friedman says.

The type of illness that results from the leak depends upon its size, duration, and location in the brain, he theorizes.

“The idea is the different neurological disorders have different symptoms not because it’s a different mechanism of disease, but because it’s a different area of the brain—the leaks affect different networks in the brain,” he says.

The hopeful implication of Dr. Friedman’s research is that there may be ways to repair the blood-brain barrier.

Establishing the status of an individual’s blood-brain barrier and pinpointing where in the brain any leaks are occurring, is a critical milestone in his research.

PINPOINTING LEAKS

So far, he and his colleagues at four other universities around the globe have used Magnetic Resonance Imaging (MRI) to scan the brains of 800 patients. Working with the Biomedical Translational Imaging Centre in Halifax, they’ve found and pinpointed leaks in the small blood vessels in the blood-brain barrier and mapped the affected areas in participants.

That new technique has effectively created a diagnostic biomarker, Friedman says.

Now that he can use imaging to see what areas in the brain these leaks affect, he and his colleagues can also test potential drug candidates to see how well they seal leaks in the blood-brain barrier and even reverse cognitive damage.

“We are looking for existing drugs that target this mechanism—we have a few,” he says.

He is hoping to secure enough funding to begin a clinical trial of one of the drugs, to see if it can repair the blood-brain barrier.

In the meantime, he is collaborating with colleagues to see if they can detect blood brain-barrier leakage by examining the retina. Using Artificial Intelligence to examine images of the retina, “we teach the machine what a leakage should look like and then tell us if there is leakage and decrease in blood flow,” Friedman says.

In people diagnosed with dementia, they will also see if they can correlate the signs of blood-brain barrier leakage in the eyes and what shows up on brain scans conducted with Magnetic Resonance Imaging.

Being able to scan the eyes rather than the brain holds promise as a much more accessible, affordable technology, Friedman says.

“If they have the leakage and it’s visible in the eye, it’s probably there in the brain. It’s another biomarker,” he adds.

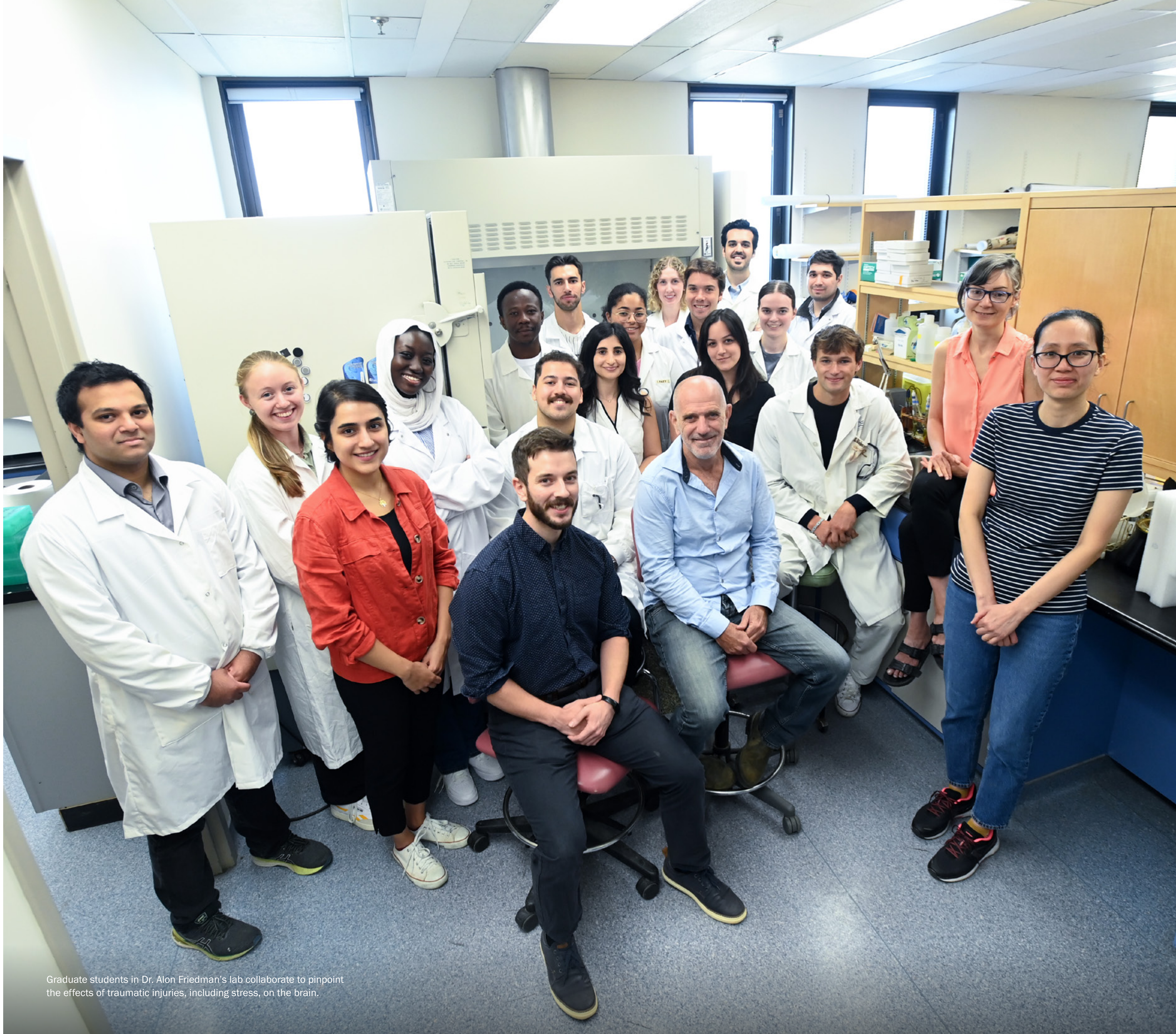
Not everyone with these illnesses has a leak in the blood-brain barrier, and the extent and duration of openings if the barrier also vary. That fact has led Dr. Friedman and his team to also study the way resilience affects the progression of many of these illnesses.

“We’re looking at mechanisms of susceptibility and resilience,” he says.

When he thinks of resilience, he often thinks of his mother, Eva. After the Second World War ended, she emigrated to Israel, changed her name to Rachel, met and married his father, and became a social worker. She died in 2023, at the age of 96.

“She was a very tough woman,” he says.

Dr. Friedman is the William Dennis Chair in Epilepsy Research at Dalhousie, a member of the Brain Repair Centre, a research Centre of Excellence that Dalhousie University, the Nova Scotia Health Authority and the IWK Health Centre founded to reverse illness and injuries to the brain and nervous system.



Graduate students in Dr. Alon Friedman’s lab collaborate to pinpoint the effects of traumatic injuries, including stress, on the brain.

GIRLS JUST WANNA HAVE FUNDING

THE COST OF UNDERFUNDING WOMEN IN MEDICAL RESEARCH

By Dayna Park

Across the globe, women in medical research are pushing the boundaries of discovery, yet they continue to face significant funding disparities.

Despite their groundbreaking contributions, female scientists receive smaller grants and fewer opportunities to lead major research initiatives compared to their male counterparts.

The consequence? A loss of critical innovations that could transform healthcare.

Dalhousie University's Faculty of Medicine is taking a stand with the Girls Just Wanna Have Funding campaign, a bold initiative launched in recognition of International Women's Day. This campaign is not just about raising money—it's about recognizing the untapped potential of women-led research and ensuring that groundbreaking medical advancements aren't lost due to systemic funding gaps.

THE FUNDING GAP: WHAT'S AT STAKE?

Research shows that female scientists often receive less funding despite producing high-impact research. A recent Canadian Institutes of Health Research (CIHR) study revealed that women applicants were awarded smaller grants than their male counterparts, limiting the scope and scale of their research projects.

The launch comes at a critical time when diversity, equity, and inclusion (DEI) initiatives in academia and beyond are facing renewed scrutiny and challenges, making it even more vital to ensure that women in research are not left behind.

"Women in medicine and science are leading groundbreaking research, but systemic funding disparities continue to prevent equitable access to training and resources," says Dr. Jeanette Boudreau, Associate Professor at Dalhousie's Faculty of Medicine and Scientific Director of the Beatrice Hunter Cancer Research Institute.

"EDIA initiatives aim to achieve parity, but the systematic biases and assumptions that allowed the disparities to establish in the first place persist," says Dr. Boudreau. "There is much more work to be done to achieve true equity. Through this initiative, we're not only raising awareness but also creating tangible opportunities for women in research to thrive."

The Girls Just Wanna Have Funding campaign features exclusive merchandise, including t-shirts, mugs, notebooks, and tote bags, with proceeds going directly to the newly established Women in Medical Research Fund. Faculty, students, and supporters are encouraged to wear the gear, share their stories on social media, and spark conversations about gender equity in research funding.

THE POWER OF EQUITY IN RESEARCH

The Girls Just Wanna Have Funding campaign aims to bridge this funding gap by establishing a new International Women's Day Research Fund. The initiative seeks to channel resources into female-led research projects, ensuring that women scientists have the financial backing needed to drive discoveries forward.

Proceeds from the campaign's merchandise will directly support this fund, empowering women researchers to continue their vital work.

AN INVESTMENT IN THE FUTURE OF MEDICINE

This campaign comes at a critical time when diversity, equity, and inclusion initiatives are facing setbacks. Ensuring that women in research receive the support they need is more important than ever. By purchasing merchandise, sharing the campaign on social media, or donating directly, supporters can help shape the future of healthcare and medical discovery.

Given that diverse research teams generate more innovative solutions and broader perspectives, the underfunding of women researchers means the world is missing out on potential life-saving discoveries.

"We know that diverse perspectives drive better science. When women struggle to secure funding, we all lose out on critical discoveries that could improve health outcomes," says Dr. Eileen Denovan-Wright, Associate Dean of Research with Dalhousie's Faculty of Medicine..

"This campaign is about changing that—by investing in female researchers, we're investing in the future of medicine."

Dalhousie University invites faculty, students, and community members to join the movement. Wear your support, spark conversations, and be a part of the solution. Because when women in research have funding, we all benefit.

¾ of cases where a disease afflicts primarily one gender, the funding pattern favours males, in that either the disease affects more women and is underfunded, or the disease affects more men and is overfunded.

Synthesised evidence from

55 STUDIES

from 14 countries found fewer awarded grants were led by

♀ **24%** than ♂ **76%**

Women are 9 per cent less likely than men to receive second grants to continue their research.

Failure to study medications and other interventions in a broad sampling of women has contributed to women experiencing adverse effects from medications at twice the rate of men.

The average grant award for women is	The average grant award for men is
$342K	**$659K**

“This campaign is about changing that—by investing in female researchers, we’re investing in the future of medicine.”

Dr. Eileen Denovan-Wright
Associate Dean of Research with
Dalhousie’s Faculty of Medicine.

HEATING UP THE FIGHT AGAINST CANCER

DAL RESEARCHER DEVELOPS TARGETED IMMUNE-BOOSTING THERAPY

By Laura Eggertson

An innovative new method of generating fever heat to kill cancer cells and trigger an immune response promises to become an effective and accessible way to destroy hard-to-treat tumours, says a Dalhousie researcher involved in pioneering the process.

Dr. Carman Giacomantonio, who holds the Gibran & Jamile Ramia Endowed Chair in Surgical Oncology Research, published a proof-of-concept study January 13, 2025 in *Frontiers in Immunology*. The peer-reviewed paper describes the process he developed in conjunction with Sona Nanotech Inc., a Halifax-based nanotechnology company for which he is now the Chief Medical Officer.

In the paper, Dr. Giacomantonio describes the way tumours from breast cancer and melanoma shrank after he and his team injected them directly with tiny gold nanoparticles and then used infrared light to heat the gold. The process, called Targeted Hyperthermia Therapy, generates fever-level heat of 42-48 degrees Celsius.

“Unlike ordinary cells, when you stress cancer cells at 45 degrees for a while, it triggers a cancer death cycle,” Dr. Giacomantonio says.

Stressing the tumours with hyperthermia then creates an immune response, triggering the body’s innate defence mechanism within 48 hours.

“It’s beautiful,” Dr. Giacomantonio says. “You can see the tumours melt. It is as rare as Halley’s comet that you see something work so effectively to wipe out tumours. And it’s just natural.”

When the research team followed up the hyperthermic therapy with an immunotherapy medication, such as interleukin-2, the cancerous tumours did not appear to regrow.

“We learned that if you cajole the immune system at the same time with immunotherapy, you can finish the attack and kill the tumour effectively,” he says.

The team carried out their studies using tumour cultures and genetically engineered animal (mouse) models. Although those models are not directly interchangeable to human, “there’s enough overlay that the principles should apply,” Dr. Giacomantonio says.

Although the cancers involved were a type of breast cancer that does not respond well to chemotherapy or radiotherapy, and melanoma, Dr. Giacomantonio and his team are also working with two kinds of colorectal cancer tumors and hope to soon move on to a pancreatic cancer model.

He believes this type of therapy has widespread potential to benefit many types of cancerous tumours, because of its ability to stimulate an immune response and enhance the benefits of immunotherapy.

“The name of the tumour is irrelevant, if we’re right,” Dr. Giacomantonio says.

Hyperthermia is an emerging way of treating cancer, which Dr. Giacomantonio has been using in his own practice. However, using hyperthermia to kill cancerous cells has been a fairly high-risk procedure performed in a hospital that requires isolating and heating the affected area of the body while cooling the rest of it, he says.

Using this targeted method of injecting tumours directly with non-toxic gold directly to produce heat makes the treatment safer and more accessible than injecting the gold intravenously into the entire bloodstream, Dr. Giacomantonio says.

“You can potentially do this anywhere. I could do this in my clinic, in Sydney, in Yarmouth.”

Sona Nanotechnology has patented a device called Sivalume which generates the light required to activate the gold particles and create the fever response.

The next step in moving this research from the bench to the bedside is a small clinical trial. Dr. Giacomantonio has applied to a local research ethics board to conduct the trial with 10 patients to evaluate the device and see if it generates an immune response.

Following the feasibility study, Dr. Giacomantonio and his team hope to conduct a multi-centre randomized clinical trial, for which they are seeking philanthropic and private-sector investors.

They also hope to conduct further research on the longevity of the immune response to this treatment.

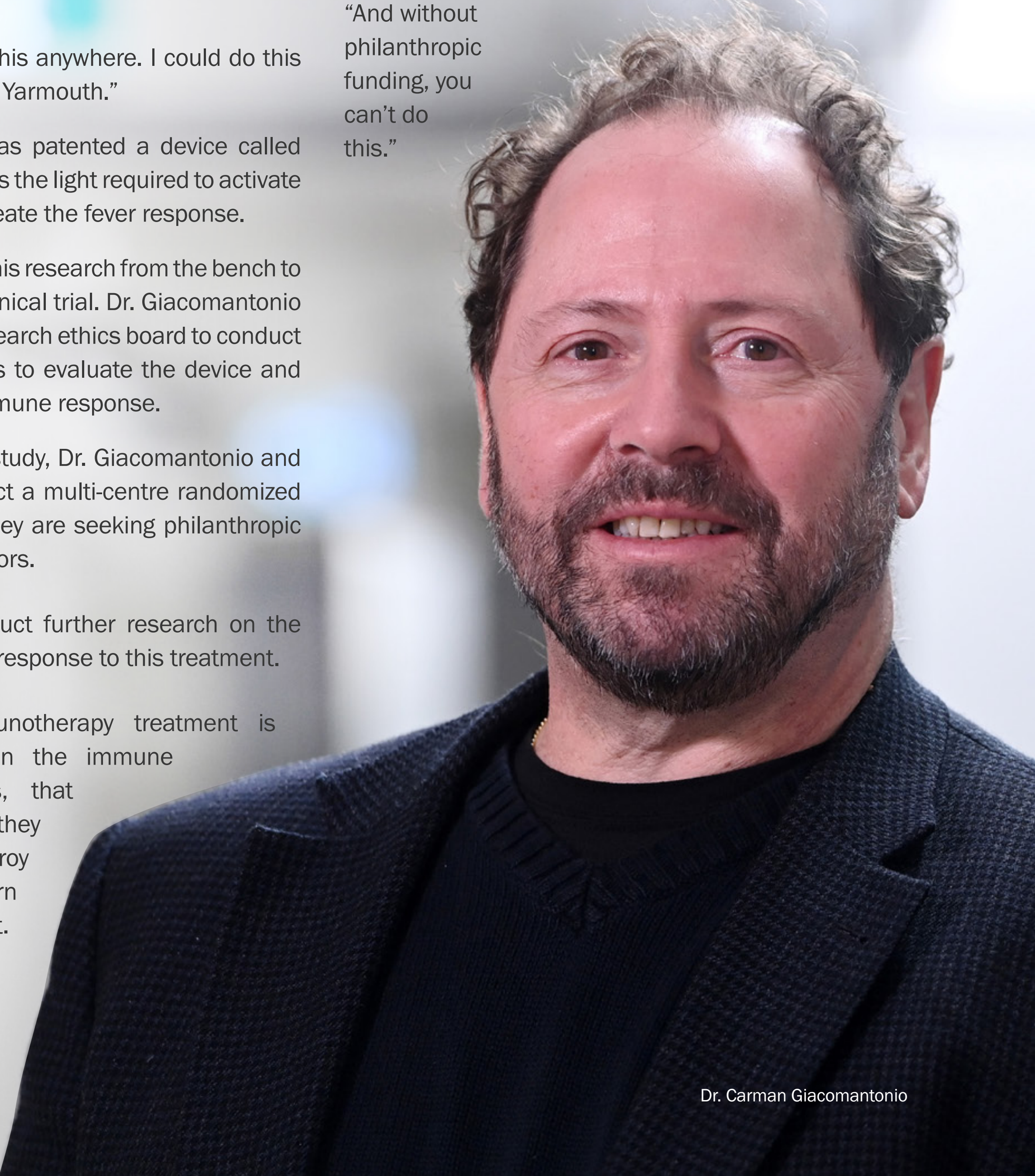
The goal of all immunotherapy treatment is to generate memory in the immune cells, such as T-cells, that are activated, so that they recognize and destroy cancer cells if they return following initial treatment.

“If I were going to wager, I’d say five years from now, this is the focus of the way cancer treatment is going to go,” Dr. Giacomantonio predicts. “There’s a lot of interest in this work right now.”

In addition to funding from Dalhousie, Dr. Giacomantonio’s research into using hyperthermia to trigger an immune response benefitted from philanthropic contributions from The Sidney Crosby Foundation, Dr. Mark Johnston, and through the Gibran and Jamile Ramia QEII Health Sciences Centre Chair in Surgical Oncology Research.

Philanthropic research is vital to advancing these new developments in cancer therapy, says Dr. Giacomantonio. “In the scientific world, to ask a good question, you have to have some money,” he says.

“And without philanthropic funding, you can’t do this.”



Dr. Carman Giacomantonio

INNOVATIONS DRIVING IMPROVEMENTS IN PRIMARY CARE

BREAKTHROUGH BREAKFAST

DALHOUSIE HOSTS BREAKTHROUGH BREAKFAST HIGHLIGHTING FAMILY MEDICINE RESEARCH

By Kate Rogers

In Canada, we have more family doctors per capita now than ever before, with Nova Scotia and New Brunswick consistently maintaining a slightly higher-than-average ratio. But if that's the case, why is it that many people in the province are without one?

That's a question Dr. Ruth Lavergne, Tier II Canada Research Chair in Primary Care, posed to a group of 130 at the Faculty of Medicine's first Breakthrough Breakfast of 2025, Improving Family Medicine through Research, on January 28.

Dr. David Anderson, dean of the Faculty of Medicine, hosted the event. In addition to Dr. Lavergne, it featured presentations from Dalhousie researchers Drs. Emily Gard Marshall, Mathew Grandy, and Kevin Pottie.

Dr. Marshall, who is a professor in Dalhousie's Department of Family Medicine Primary Care Research Unit, credits population growth, provider retirements, and an aging population for the high numbers of unattached patients.

"The consequences of being without a primary care provider are significant," said Dr. Marshall. "Our Unattached Patient (UP) study revealed that patients experience increased stress, gaps in care, and a lack of continuity in their medical treatment."

With primary care facing significant challenges, and increasing pressure on the healthcare system, government is investing heavily in recruiting and training more primary care professionals. This includes the development of the Cape Breton Medical Campus, a partnership between Dalhousie University and Cape Breton University, which is slated to welcome the first cohort of 30 students focusing on family medicine in August 2025.

As part of their efforts to lower the number of Nova Scotians on the waitlist, the government has introduced many solutions to support residents in need, including short-term access clinics, virtual care, and financial incentives to encourage family doctors to take on more patients.

Collaborations among governments, health authorities, universities, physicians, and community organizations are driving improvements—but for many, availability of care remains a growing challenge.

OVERCOMING ADMINISTRATIVE BURDENS

Despite the work Nova Scotia's Department of Health and Wellness and Doctors Nova Scotia have done to significantly reduce the administrative load over past few years, administrative tasks in primary care are still burdensome and overwhelming for some physicians and nurse practitioners. Although essential for proper information flow, the workload contributes to burnout and inefficiencies.

"Patients themselves face administrative challenges when navigating the health-care system," said Dr. Lavergne.

To address these challenges, she says we need well-equipped teams, including administrative staff to streamline workflows, proactive workforce planning to anticipate needs, and fit-for-purpose infrastructure, from clinic spaces to strong information systems.

Dr. Marshall's research revealed similar findings, and she notes the best strategy is to ensure existing healthcare professionals work to their full scope of practice.

"This means expanding roles such as physician assistants and increasing collaborative care models, where family physicians, nurse practitioners, dietitians, and pharmacists work together. Evidence from my studies supports the benefits of these models."

Dr. Lavergne and her team are exploring solutions to further reduce administrative burdens, implement new care models, develop innovative payment structures, and use data-driven workforce planning to improve efficiency and accessibility.

DATA-DRIVEN SOLUTIONS

She is not alone in tackling these challenges. Dr. Grandy, a family physician and director of the Maritime Family Practice Research Network (MaRNet-FP), is leveraging data to enhance prescribing practices, manage chronic diseases, and explore AI's role in primary care.

With electronic medical records (EMRs) now central to patient care, vast amounts of data are generated daily. Dr. Grandy is using this information to improve medication management and identify patients at risk of polypharmacy—a condition linked to higher rates of medication interactions, hospital visits, and increased healthcare costs.

"One of our key initiatives leverages EMR data to identify patients at risk due to polypharmacy and implement targeted interventions," said Dr. Grandy. "By leveraging real-world data, our project trains providers on deprescribing strategies and supports clinics with quality improvement coaching."

EQUITY-BASED APPROACHES IN PRIMARY CARE

Technology and data analytics offer significant potential to enhance patient capacity and improve care in family medicine, but they require collaboration among clinicians, researchers, and policymakers.

Dr. Pottie, Distinguished Professor and Research Chair in Family Medicine at Dalhousie, focuses much of his work on this very thing, with research covering health equity and digital transformation.

Using the example of semaglutide medication, more widely known as Ozempic, Dr. Pottie spoke about disparities in care.

Left to Right: Dr. Emily Gard Marshall, Dr. Kevin Pottie, Dr. Ruth Lavergne, and Dr. Mathew Grandy.

Despite the drug's promise for weight loss and reducing risks of stroke, heart disease, and even neurological conditions, its success depends on access to comprehensive lifestyle support—something he says many underserved communities lack.

"Indigenous populations, African Nova Scotians, newcomers, and low-income or rural residents can face barriers to care. Many of these individuals lack access to reliable health information, the medication itself, or culturally appropriate diet and exercise programs required to supplement it."

Health equity is not about giving everyone the same resources, Dr. Pottie says, it's about giving people what they need to succeed. Some populations require more targeted support to achieve the same health outcomes as others.

INNOVATION AND COLLABORATION

The challenges facing primary care in Nova Scotia, including increasing patient demand, administrative burdens, and disparities in access, require innovative, collaborative solutions.

Researchers at Dalhousie, including Drs. Lavergne, Marshall, Grandy, and Pottie, in partnership with Nova Scotia Health and the Nova Scotia Department of Health and Wellness, are at the forefront of addressing these issues, from improving workforce planning and care models to harnessing data and technology to enhance patient care.

Their collaborative work is helping to create more efficient, equitable, and sustainable primary care systems, which can ultimately improve health outcomes and access for all populations.

As Dr. Pottie emphasized when he made his closing remarks, "As we move forward, we can continue to work together to create sustainable, inclusive solutions that will improve the health and well-being of all Nova Scotians."

molly appeal
FOR HEALTH RESEARCH

MOLLY APPEAL FUNDS SCHOLARSHIPS, CRITICAL CANCER RESEARCH EQUIPMENT

By Laura Eggertson

Since 1979, when the Molly Appeal Fund was established, generous donors have been contributing to a pool of funding for medical research at Dalhousie University that has supported medical education, equipment, and research projects.

Molly Moore inspired the Faculty of Medicine's annual fundraising campaign when she made a $1-donation to the Dalhousie Medical Research Foundation. She believed that if everyone gave what they could afford, together, they could make a difference.

CAMPAIGN UPDATES

Below are some updates on recent campaigns:

In 2023, Molly donors raised money to help Dalhousie's Faculty of Medicine purchase the NanoZoomer S360. This slide scanner in Dalhousie's HistoCORE laboratory facility rapidly scans glass slides containing tissue samples taken from patients and converts them to digital data.

This "amazing" piece of equipment can scan 200 slides in the time it would take to process 20-40 slides previously, when researchers had to use a microscope and camera, says Dr. Graham Dellaire, a Dalhousie Distinguished Research Professor in the departments of Pathology, Biochemistry and Molecular Biology.

"Our researchers are already taking advantage of this capability to vastly accelerate their research on cancer," says Dr. Dellaire.

Previously, researchers had to collaborate with hospitals to scan and digitize their slides—a practice COVID19 made virtually impossible because of the high diagnostic burden the pandemic placed on labs.

"Now, the new scanner can digitize entire tissues, rather than the fraction of each tissue researchers stored previously, because the time it took to digitize entire tissue using the old technology was too long to make it practical," says Lynn Thomas, the manager of the HistoCORE facility.

MORE ACCURATE ANALYSES

Being able to scan entire tissues results in more comprehensive and accurate analyses of tumours, helping researchers better understand the way cancer develops, grows, and spreads.

The digital records the new scanner creates are easier to store and more reliable, turning a temporary resource into a more permanent digital archive.

Having digital records is also helping Dr. Dellaire and his colleagues consult and collaborate more effectively with others all over the world, because multiple experts in the field can now view the slides remotely.

"The Molly Appeal investment in the NanoZoomer 360 is providing new opportunities for teaching and collaboration between clinician scientists and pathologists banking the tumours and researchers at Dalhousie, nationally and internationally," say Dr. Dellaire and Ms. Thomas.

"Furthermore, the NanoZoomer S360 complements a suite of immunohistology equipment that forms the technology basis for future use of AI and machine-learning for diagnostics," says Dr. Dellaire.

"With the NanoZoomer S360, the future of cancer pathology looks very bright indeed."

In 2023, Molly donors supported graduate student scholarships. Those donations financed two-year scholarships for eight graduate students—scholarships worth $15,000 per year, or $30,000 for each student.

GRADUATE STUDENTS THANKFUL

One of those students is Raymond He, a third-year PhD student in the Department of Biochemistry and Molecular Biology.

Raymond is studying hydrophobins, a group of small proteins that help fungi grow and interact with their environment. His work concentrates on understanding the unique structure of hydrophobins and the way they can both repel water and allows water to spread.

Raymond believes he could harness the properties of hydrophobins to create a coating that repels viruses and bacteria, for use in medical implants and other surgical materials, or to protect hospital equipment and surfaces from bacteria and viruses.

"This scholarship makes the PhD program possible," says Raymond.

Raymond, an international student from a small city in southern China, does not receive any financial support from his family. Before getting this scholarship, he had to work several part-time jobs, such as tutoring, to support himself. Now he can spend more time in the lab.

"I might graduate earlier, and my professor will have results faster, so that's good for both of us," he says.

He is honoured to have support from Molly Appeal donors.

"I really thank you for giving me this scholarship to give me a chance to have my research progress," he says. "It's very good research, so the money you gave me is really likely to make something happen."

SUPPORTS DISCOVERY SCIENCE

Jessica Latimer also received a two-year Molly Appeal scholarship to help finance her Master's program. Working in Dr. John Archibald's lab in the Department of Biochemistry and Molecular Biology, Jessica studies the genes and genomes of micro-organisms—specifically, microscopic aquatic organisms called protists.

Jessica is interested in protists because they host a novel type of virus which doesn't affect humans but can supply clues to how viruses transfer and infect organisms.

"In 2023 we discovered this new type of virus, and by learning more about it, we're hoping to learn more about all of DNA virus evolution," she says.

Funding discovery science like the work she does is "incredibly important," says Jessica.

Unlike applied science, where researchers are clear about the relevance of their work, researchers involved in discovery science are pursuing knowledge without knowing where it could lead. There is less funding available for this science, which makes funding like the Molly Appeal crucial for pursuing work that may result in transformative, if unexpected, findings, Latimer says.

Last summer, Jessica spent her time collecting sediment in jars from beaches across Nova Scotia—a pursuit that gave her 18 new organisms and, potentially, new viruses, to study.

“Every time I think I know what’s going on, they remind me differently,” she says, speaking not just of protists but of what she enjoys about research.

“My questions keep changing – the ‘why’ and the ‘how’ keep evolving as we learn more.”

For Jessica, who hopes to switch into the PhD stream later this year, the scholarship the Molly Appeal funded has covered most of her tuition and part of her stipend as she works in the Archibald lab. The funding has also meant she doesn’t have to worry about finances or having to get a part-time job.

“It lets me focus on my research,” she says. “With my extra time, I’m now mentoring other students.”

Jessica is grateful to the Molly donors who have made this discovery science possible.

> **Who knows where it’s going to go?” she asks, glad that she doesn’t know the answer.**
>
> - JESSICA LATIMER

Dr. Paola Marcato uses the NanoZoomer S360 in her breast cancer research.

INNOVATIVE RESEARCHER, DAL GRAD BECOMES FIRST GILLIAN'S HOPE MSOLOGIST

By Laura Eggertson

When Dr. Ruth Ann Marrie entered medical school, no therapies existed to treat Multiple Sclerosis.

The chronic autoimmune disease, which interrupts the connection between the brain and body by destroying the protective coating around nerve fibres and the fibres themselves, affects up to 100,000 people in Canada.

"On a per capita basis, Canada has one of the highest prevalences in the world," says Dr. Marrie, who graduated from Dalhousie's medical school in 1996.

Today, as Dr. Marrie assumes the Multiple Sclerosis Clinical Research Chair at Dalhousie's Faculty of Medicine and becomes the university's first Gillian's Hope MSologist, there are more than 15 therapies available to help people with MS, including the first disease-modifying drugs.

On-going work to change the diagnostic criteria for the disease means people are getting their diagnoses more quickly, and researchers have identified more than 230 genes that contribute to the risk of MS.

Clinicians now also know that people's co-existing conditions are also critical to the way they experience MS, and how severe its effects can be.

That realization is due to Dr. Marrie, whose effect on the field of MSology—the study of MS—as been transformational.

Twenty years ago, when Dr. Marrie had finished her neuroimmunology training at the Cleveland Clinic, she was treating a patient at an MS clinic.

TERRIBLE FATIGUE

The man, who was about 50, had terrible fatigue.

"I was trying to sort out what drove that, because fatigue can be related to the MS or other factors," she remembers.

Looking at his chart reminded Dr. Marrie that her patient had severe emphysema, a lung disease that was likely worsening his fatigue. But there was almost no information in the literature surrounding MS about the impact of emphysema or any other co-existing conditions on patients, or any strategies around holistic treatment.

She wondered how many of the symptoms and variation in outcomes she was seeing in people with MS was related to the influence of their other conditions on MS. That question spawned Dr. Marrie's PhD dissertation and the next two decades of her work on the frequency and effects of co-existing conditions. Her research is paving the way for personalized medicine approaches that could stop disease progression or even prevent MS altogether.

Dr. Marrie's research showed that depression, diabetes, high blood pressure, heart disease and high cholesterol increase both the amount of disability people with MS experience at diagnosis, and the disease's progression, as well as shortening people's lifespans.

Her recent collaboration analysing 17 clinical trials in MS indicates that 25 percent of people have at least one other condition, another 11 percent had two other co-existing conditions, and six percent had three or four co-existing illnesses.

"It becomes a bigger and bigger issue as people age with their disease," she says. MS is also associated with higher rates of depression and anxiety disorders.

WARNING PHASE

Thanks to Dr. Marrie and her team, neurologists are now also recognizing that before people experience typical symptoms, they may have a five- to 10-year warning phase that consists of worsening mood, fatigue, pain, and other sensory symptoms.

"The opportunity that warning phase offers if we can fully characterize and pick it out, is to potentially intervene before people have a first typical symptom of MS," Dr. Marrie says. "We're in the early stages, but that is a very important finding."

The National Multiple Sclerosis Society recognized Dr. Marrie's impact in 2023, when the Society awarded her the Barancik Prize for Innovation in MS Research.

"Dr. Marrie brings her perspective as a neurologist to ask research questions that are very relevant to improving people's quality of life and providing answers that will increase our ability to stop and even prevent MS in the future," Dr. Bruce Bebo, the Society's Executive Vice-President of Research Programs, said when announcing the award.

"She is also incredibly generous and very effective as a volunteer who provides critical leadership to MS research initiatives on a global scale."

Dr. Marrie, who grew up in Halifax and earned her undergraduate as well as her medical degree at Dalhousie, returned to take up the Chair in September after spending 17 years at the University of Manitoba.

The Chair is supported through the Gillian's Hope Fund, which philanthropist Margot Spafford established in 2014 to honour her friend Gillian Morrow's decades-long journey with multiple sclerosis.

Becoming the Gillian's Hope MSologist will enable Dr. Marrie to pursue her research full-time, rather than splitting her research time and clinical practice.

In addition to developing her work on MS and co-existing conditions, Dr. Marrie wants to explore the role other factors, such as social determinants of health and aging, play in the variation of symptoms people with MS experience. Her findings could also help tailor treatments.

She's also passionate about informing people that smoking, childhood obesity, vitamin D deficiency, and the Epstein-Barr virus, which may also result in infectious mononucleosis, heighten people's risk of developing MS.

Through her work at Dalhousie, Dr. Marrie will collaborate with Nova Scotia Health and other research partners around the world to continue to explore the impact of MS, the factors that lead to the disease and its expression in individuals, and the improvements in health services required to better diagnose, treat, and prevent the disease.

She'll do it all from her new home in Chester, closer to her parents and extended family.

"It's good to be home," she says.

HONOURING A LEGACY OF GIVING

A SON'S TRIBUTE

By Dayna Park

Sadie MacLeod's life was one of resilience, generosity, and deep community connection. Born on a farm in rural Cape Breton in 1927 during the Great Depression, she learned the value of hard work and perseverance early. These qualities would define her nearly 100 years of life, shaping her into a beloved teacher, devoted volunteer, and dedicated philanthropist.

Sadie's journey into the workforce began during the final years of the Second World War. After finishing Grade 11, she attended the Normal School to become a teacher—one of many young women stepping into the classroom while men were off at war. At just 16 years old, she earned her first paycheck and bought something she had never owned before: a brand-new winter coat.

Teaching became Sadie's passion and lifeline. After the loss of her husband at age 21, she knew she had to provide for herself and her young son, Malcolm. With the support of her family, she pursued formal training and became a teacher in the local one-room schoolhouse. For 35 years—29 of them in Whycocomagh, NS—she taught generations of students, even teaching Malcolm for three of those years.

Although Sadie died in late 2024 at the age of 97, her commitment to giving lives on through Malcolm. His mother's example instilled in him a fundamental belief: "'No matter how difficult life is, if you're actively involved in your community, you can lead a happy and productive life'," he remembers her telling him.

Beyond the classroom, Sadie was a fixture in her community. Whether through church groups, crafting and sewing gifts for others, or volunteering at the Alderwood Home nursing facility in Baddeck, she dedicated much of her time to helping those around her.

She had a gift for conversation, making friends wherever she went. Malcolm describes Sadie's lawyer calling him to say she racked up a $2,500 bill because she chatted his ear off while discussing her will.

"She loved to chat," laughs Malcolm, who helped to cover the fees.

Through her volunteer work at Alderwood, she witnessed firsthand the devastating effects of dementia and Alzheimer's disease, experiences that moved her and shaped her philanthropic legacy.

Wanting to contribute to medical advancements that could lead to treatments and cures, Sadie learned about the Molly Appeal campaign and became a donor, showing her support for medical research.

Later, Sadie made the decision to make a legacy gift to the Dalhousie Medical Research Foundation (now part of Dalhousie's Faculty of Medicine). She created the Sadie MacLeod Fund upon her passing using her Registered Retirement Income Funds (RRIF).

To honour her legacy, Malcolm personally contributes to the fund each year, hoping he inherits the good genes that have allowed Sadie and many of her family members to live well into their 90s.

Malcolm, much like his mother, believes in looking forward rather than back. An active volunteer, he serves on the board of governors for local organizations, participates in his church community, and regularly attends local events and concerts.

Sadie MacLeod was a mother, a grandmother to two, a great-grandmother to five, a teacher, and a community leader. She loved to read, sew, and travel the world. Her story speaks to the power of generosity—not just in financial giving, but in kindness, time, and spirit.

Through Malcolm's tribute, her legacy will continue to make a difference for generations to come.

To learn more about how you can leave your own legacy, contact Carol Murray at

carol.murray@dal.ca or 902.233.8767


Sadie MacLeod

NEW SUN LIFE CHAIR IN YOUTH MENTAL HEALTH

PUTS YOUTH VOICES AT THE CENTRE OF RESEARCH

By Laura Eggertson

When Dr. Lori Wozney thinks about youth who need mental health support, she considers not only the time it takes for them to get the help they need, but also the quality of the help they get.

As the new holder of the Sun Life Chair in Youth Mental Health at Dalhousie University, Wozney will spend the next five years working with clinicians and youth with lived experience to discover what mental health programs and supports best meet their needs.

She and her team will also translate her research findings for clinicians, communities, and policymakers, to improve services—and outcomes—for youth.

“One of the challenges right now is the need is so high, in terms of the numbers of youth who are feeling distressed and overwhelmed and trying to access care,” says Wozney, who stepped into her new role on October 15, 2024.

Across Canada, for example, 4.75-million youth contacted the Kids Help Line seeking assistance in 2023—a dramatic increase from the 1.9-million youth who reached out in 2019, before the pandemic.

Even before the pandemic, children and youth in Nova Scotia were struggling with mental wellness. A third of children and youth under 19 reported feeling sad and hopeless every day for two weeks or more, to such an extent it affected their daily activities, according to One Chance to Be a Child, a 2022 report by Dalhousie’s Healthy Populations Institute.

Close to a third of children and youth in the province—31 percent—reported feeling low or depressed for a week or more.

In 2001, the Reaching Out Committee, a group of concerned community members who had been personally affected, met with Dalhousie representatives to establish the Chair. Their goal was to advance research pertaining to youth mental health and mental illness, and to improve outcomes for youth in the region.

Photo by Nicolas Lobos on Unsplash

Sun Life Canada, which has been investing in youth mental health programs and community-led programs to support at-risk and marginalized communities across the country for decades, joined the efforts as the lead partner.

The first chairholder, Dr. Stan Kutcher, held the position for 10 years and had significant impact on mental health literacy in schools.

Having youth with lived experience co-lead research projects to determine where they feel safest seeking help, what kind of resources they need, and how best to leverage technology is critical to designing successful evidence-based programs, Wozney believes.

Stacie Smith is one of those young people who joined one of Wozney's research projects, which concerned the role of goal setting in mental health. Smith graduated from Dalhousie in 2020 with her undergraduate degree in Kinesiology and is now a master's student in curriculum studies at Mount Saint Vincent University.

In her mid-20s, she reached out for help to the provincial helpline after being diagnosed with major depressive disorder. But the intake worker she spoke with denied her request for individual therapy through the public healthcare system.

"By the end of a very lengthy intake call, I was told I wasn't eligible for one-on-one counselling," Smith remembers. "They didn't tell me why."

YOUTH NEED INTEGRATED SERVICES

Instead, the intake provider offered Smith group therapy—not an option the young woman, who had struggled with anxiety and depression throughout her life, believed was right for her.

Smith had no private health insurance and was only able to afford a few counselling sessions. Once she ran out of money, she could no longer see the therapist who was helping her.

"I was really discouraged," she says.

Smith's experience is the reason Wozney involved her as a Community Advisor to work on research projects, including her work on how to design integrated youth services to support the mental health needs of diverse youth.

That research will inform Nova Scotia's plans to set up eight integrated hubs to serve youth across the province, where they can receive mental health, addictions, and other services, from employment and training to housing supports, all in one place.

The central hub model is critical because youth don't want to have to re-tell their stories to different people, which can re-traumatize them. Wozney's earlier research suggests youth also want holistic approaches to mental health that reflect the complexity of their entire lives, rather than treating mental health in isolation, she says.

Youth are also seeking care that is culturally safe, equitable, and inclusive, she emphasizes.

KEEP YOUTH CONNECTED

Wozney's approach is to undertake participatory research to learn "how we do this in a way that honours and reflects your diversity as a person, and how we personalize care, so you are getting the care you need."

Above all, she wants to ensure services keep youth connected to people who let them know they value them. As Smith's experience illustrated, if youth don't feel that from the first time they reach out for help, they may lose any sense of hope for recovery, Wozney says.

"Youth don't want to be a number, they don't want to experience a bureaucratic process with a lot of confusing hoops to jump through," Wozney says. "They want to feel cared for and empowered."

The Sun Life Chair will give Wozney the ability to pursue promising lines of research and will allow her to build cross-disciplinary teams with colleagues in community health and epidemiology,


Sun Life Chair Dr. Lori Wozney | Photo by Emily Jewer, MJ Photographics

There are big questions to grapple with, she says, around whether evolving technology is actually leading to better care experiences and outcomes for youth.

"We want youth to feel more connection and care, not less, so how do we make sure the way we apply technology is improving youth hopefulness, their recovery, and their ability to navigate things?" she asks. "More technology isn't necessarily the answer."

The Chair will allow Wozney to pursue long-term national and international partnerships and to spend time ensuring the knowledge she gains can help transform mental health practice through knowledge translation.

Wozney is particularly excited about being able to work more closely with youth because she finds their directness and willingness to speak openly about their experiences of recovery inspiring.

That collaboration "has fuelled my sense of moral obligation for amplifying what they need and using research as a way to spread hope that something better is possible," she says.

Drew Burchell, a research co-ordinator who works with Wozney, says placing youth voices at the centre of her research about the value of Integrated Youth Services is a principle in which Wozney is deeply invested.

"That's the kind of work Lori cares most about," Burchell says. "She lives her values in all of her work."

PEDALLING TOWARDS BREAKTHROUGHS

HOW THE BIG RIDE FUELS CANCER RESEARCH

By Dayna Park

Jorge Pinzon Mejia and Daniel Medina-Luna

Every pedal stroke of The Big Ride is a step toward progress in cancer research. The Big Ride is a fundraising event organized by GIVETOLIVE, a nonprofit dedicated to inspiring people to challenge themselves physically while raising money for cancer research.

Participants cycle long distances all over the world and ride for hundreds of kilometers on this tough but inspiring journey.

Funds raised through The Big Ride help the Beatrice Hunter Cancer Research Institute (BHCRI) provide critical financial support to graduate students working on innovative cancer research. By alleviating financial stress, this funding enables young researchers to focus on the exciting studies that have the potential to improve cancer treatments and outcomes.

For graduate and post-graduate students Jorge Pinzon Mejia and Daniel Medina-Luna at Dalhousie University's Faculty of Medicine, the funding they received through The Big Ride has been transformative—both professionally and personally.

FUELING INNOVATION THROUGH COMMUNITY GENEROSITY

Atlantic Canada faces some of the highest colorectal cancer rates in the country, particularly in Newfoundland and Labrador. For Jorge Pinzon Mejia, tackling this urgent health challenge is both a professional and deeply personal mission.

"My grandfather passed away from stage 4 metastatic colorectal cancer," he shares. "I hope my research will help families avoid the loss and missed experiences that cancer took from me."

Jorge's work focuses on the immune system's response to colorectal cancer, specifically how immunotherapy can be made more effective for patients with microsatellite stable (MSS) tumors. Unlike microsatellite instable (MSI) tumors, which respond well to immunotherapy, MSS tumors remain resistant. His goal? To expand immunotherapy treatment options and improve outcomes for more patients.

For Daniel Medina-Luna, the fight against cancer lies in harnessing the power of Natural Killer (NK) cells—a promising tool in developing cancer vaccines.

"NK cells have the potential to recognize and destroy cancer cells before they grow into tumors," he explains. "If we can train them to 'remember' cancer cells, we could create a vaccine that prevents cancer from taking hold in the first place."

Now a postdoctoral researcher at Dalhousie, Daniel is also exploring how to incorporate immunotherapy into patient treatment plans. Immunotherapies cause much fewer side effects caused by cancer therapies like radiation, and Daniel hopes to make them more accessible to patients—whether their cancer type is MSS or MSI.

A LIFE-CHANGING INVESTMENT IN RESEARCH

Both Jorge and Daniel received their first research funding from The Big Ride, through BHCRI's support for graduate and post-graduate students. The impact of this funding extends beyond financial relief—it provides young researchers with stability, mentorship, and a sense of belonging in Atlantic Canada's cancer research community.

"Receiving this funding was a huge relief," says Jorge. "It allowed me to focus on my research rather than worry about how to pay rent."

For Daniel, it opened doors to collaboration and long-term career prospects. "It's helped me establish my research, build important networks here in Nova Scotia, and contribute more meaningfully to the field."

Dr. Jeanette Boudreau, Associate Professor in the Departments of Pathology, and Microbiology and Immunology at Dalhousie and the Scientific Director of BHCRI, believes GIVETOLIVE's The Big Ride plays a critical role in developing the next generation of cancer researchers.

"GIVETOLIVE is an amazing organization that really leverages community engagement for the betterment of its participants and the community," says Dr. Boudreau. "BHCRI, as one of the benefactors, is turning the generous contributions from The Big Ride into training programs for learners in Atlantic Canada."

Dr. Boudreau acknowledges that BHCRI relies on the generosity of GIVETOLIVE to help support graduate, undergraduate and post-doctoral fellows as they complete their cancer research and build important networks and connections they will keep throughout their careers.

"At BHCRI, we are proud to support the community of people living with and beyond cancer, trainees, and researchers as we move together toward a vision of a better future, with better access to care and fewer side effects for patients with cancer," says Dr. Boudreau.

INSPIRED TO GIVE BACK

Beyond the lab, both Jorge and Daniel are both cyclists in their spare time who admire the dedication of Big Ride participants.

"The riders are incredible—not just for their physical endurance but for the impact they create," says Jorge. "One day, I hope to join them and give back the same opportunity I received."

For Daniel, the ride mirrors the challenges of research itself—demanding, exhausting, yet immensely rewarding.

"Whether it's the last five kilometers of the ride or long hours in the lab, every effort and every dollar raised counts toward advancing cancer research," he says.

RIDING TOWARD A CURE

Through The Big Ride and the generosity of its supporters, researchers like Jorge and Daniel are turning passion into progress, pushing the boundaries of cancer treatment, and offering hope to countless patients and families.

And perhaps, in next year's Big Ride, two new riders will take their place in the pack—cycling not just for the challenge, but for the future of cancer research.

THE GIFT OF JOY

REMEMBERING ANDREW MACEACHERN

By Dayna Park

When Andrew MacEachern's name comes up in conversation, his sisters don't speak of hardship. Instead, they recall joy. They remember his laughter, his boundless kindness, and his uncanny ability to bring people together.

"If you looked up 'joy' in the dictionary, you'd see his picture," says Andrew's older sister, Donna, her voice filled with warmth, her eyes filled with tears. "He was a joyful, joyful person."

A BLESSING, NOT A BURDEN

Andrew, who died on June 3, 2023, was the first Nova Scotian to win a Special Olympics medal for Canada. He earned a silver medal in backstroke as part of the first Canadian team to compete at the 1983 International Special Olympic Games.

For 35 years, Andrew also worked at the Victoria General Hospital in the stores department, greeting patients and visitors with a special dose of Cape Breton charm.

Andrew, whose family has deep roots in Judique, N.S., was the heart of that family, his sisters say, teaching them patience, kindness, and the true meaning of unconditional love. His father, William MacEachern, a former Nova Scotia Health Minister, once said in an interview, "Andrew was the best thing that ever happened to our family." It was a sentiment his entire family shared.

Despite having Down syndrome and standing just 4'9", Andrew believed he could do anything.

"Andrew was a remarkable person who never saw barriers—only possibilities," says Donna.

Even when confronting an obstacle, Andrew remained positive. When he decided he wanted to learn how to drive, his father pointed out the practical challenge: his feet didn't reach the pedals. Rather than seeing this as a setback, Andrew simply asked, 'Well, when my feet reach the pedals, can I learn how to drive?'

His father assured him he could, but in the end, Andrew never did. When his sister later asked if he still wanted to learn, he laughed and said, "No, I like having my sisters drive me around."

"He always had a way of turning challenges into something positive," Donna remembers with a laugh.

A NEW REALITY

When Andrew was 50, Dr. Kenneth Rockwood diagnosed him with Alzheimer's disease. Andrew lived to be 62.

As the disease progressed, it took pieces of Andrew away, bit by bit, although Donna says they enjoyed laughter and fun along the way.

The hope that Andrew's life might contribute to Alzheimer's research is the reason Andrew's sisters have established a fund in his name at Dalhousie's Faculty of Medicine. In addition, both Donna and Catriona MacEachern have arranged to include Andrew's fund in their estate plans, deepening his legacy.

"Research is the key," Donna emphasizes. "We want to support the kind of work that leads to real change—better treatments, better care, and one day, hopefully, a cure."

Even with Alzheimer's, Andrew's spirit continued to shine in the small moments of joy he shared with those around him. His life was filled with his work at the Victoria General, time with friends and family, parties, and travel. He loved swimming, exploring new places around the world, and—as a true Cape Bretoner—striking up conversations with people who began as strangers, but left as friends.

"When he'd arrive at work, he would find out who was admitted from Cape Breton overnight, then make a stop by their room to visit," says Donna. 'I'm Andrew and my father is Bill MacEachern,' he would say—the typical island greeting.

NO LIMITS

One of Andrew's early dreams was to play hockey like his brother, but weak ankles made skating difficult. Instead of feeling discouraged, he looked for an alternative and found his passion in swimming. In the water, there were no limitations. Neither his height, mobility issues, nor physical differences mattered.

He swam for the Halifax Trojans Aquatic Club for 29 years and for Special Olympics for nearly 50 years. It became his happy place, a space where he could push past any obstacle.

Despite his individual accomplishments, what Andrew loved most was being part of a team. His favourite event was the relay, even though participants did not receive medals. When asked why he preferred relays, he responded "Because it's a team—I want to be with my team."

At the end of every competition, Andrew did not tally his own medals; instead, he counted how many his entire team had won.

SUPPORTING REAL CHANGE

Dr. Rockwood, who also treated Andrew after his Alzheimer's diagnosis, counted himself as one of Andrew's friends.

In addition to being the Senior Medical Director for the Frailty and Elder Care Network at Nova Scotia Health, Dr. Rockwood is a professor of Geriatric Medicine and Neurology and the Kathryn Allen Weldon Professor of Alzheimer Research at Dalhousie University.

"I am delighted to learn that there is a fund," says Dr. Rockwood. "Let's aim to have it become a shining legacy to Andrew, who was a true pioneer."

Dr. Rockwood has spent decades in the crusade to find ways to prevent, treat, and cure dementia and other age and frailty-related illnesses as a clinical researcher, meaning he conducts research and treats patients in a clinical setting. Because of this, he sees the impacts of research firsthand, driving his passion for this crucial work.

"It was a great privilege to have been involved in Andrew's care," Dr. Rockwood says. "I learned a lot from him, including a great many firsts. The most notable was how well he responded to treatment, and how he was able to work for some years after his diagnosis. Most of all though, he showed me the characteristic friendliness and engagement of so many people who live with Down syndrome."

HEARTBREAK AND HOPE

Donna and her sister's decision to give back is not just about honouring their beloved brother—it is about hope. Hope that families in the future will not have to endure the same heartbreak. Hope that one day, Alzheimer's will no longer steal away people we love.

Andrew's legacy is one of love. Through this fund, his kindness, his joy, and his unwavering spirit will live on—guiding the way toward a future where Alzheimer's and dementia do not destroy memories and the people who hold them.

For those who wish to join Andrew's family in making a difference, contributions to the fund can help advance critical Alzheimer's research at Dalhousie. Because, as Andrew's story reminds us, love endures—and through philanthropy, so does hope.

Andrew MacEachern's family

To learn more about estate planning and legacy giving, please contact Carol Murray at carol.murray@dal.ca

To make a gift to the Andrew MacEachern Alzheimer's Fund, visit giving.dal.ca/Andrew.

THE MISSING PIECE

DALHOUSIE PHD STUDENT EXPLORES ENZYME'S ROLE IN WOMEN'S HEART HEALTH

By Laura Eggertson

When Anu Jose began reading research papers for her master's program at Dalhousie Medicine New Brunswick, she realized a fact that struck her as unjust: scientists have traditionally conducted animal and human research on the male of the species.

"For some reason, they just ignored research with females," she says.

As recently as 2009, for example, an article in *Nature* surveyed 2000 animal studies and found a male bias in 8 out of 10 biological disciplines, particularly neuroscience, pharmacy, and physiology.

Traditionally, researchers often referenced potential hormonal fluctuations in women and female animals as the reason they did not study them—a factor subsequent research has dismissed.

This underrepresentation of women, in both animal models and human studies, can result in poorer health outcomes for women.

That's why Jose, now in her second year of a PhD program at DMNB, decided to focus on research that could improve women's health.

She's studying the way the metabolism affects disease progress, focusing on an enzyme called Lipid Phosphate Phosphatase 3, or LPP3. This enzyme regulates lipid metabolism in ways that benefit women's heart health.

"This enzyme is the key to restoring cell function—as well as to reducing lipid levels, especially in females," Jose says.

Lipids—including cholesterol or triglycerides—are fatty compounds in the membranes of cells that help with storing energy, making hormones, and absorbing vitamins. If a person's lipid levels are too high, they can obstruct blood flow through the arteries.

In the case of heart health, a buildup of lipids in artery walls impairs cardiovascular function, increasing the risk of heart disease and stroke.

HIGH LIPID LEVELS DAMAGE HEART

Jose's research concentrates on obesity-related cardiomyopathy, or damage to the heart muscle because of excessive lipid levels. This condition is associated with high levels of lysophosphatidic acid, or LPA, a bioactive lipid.

In a paper recently published in the *American Journal of Physiology*, Jose and her colleague, supervised by Dr. Petra Kinesberger, demonstrated the role LPP3 and two other enzymes play in reducing the levels of LPA and improving metabolic and cardiac function.

They tested their theory by adding and deleting LPP3 in mouse models genetically altered to have elevated levels of the lipid associated with obesity-induced cardiomyopathy.

"What we have identified so far…is that these increased levels of LPP3 were able to lower the lysophosphatidic acid [lipid] levels," Jose says.

Anu Jose

"Interestingly, we observed a protective effect in female mice but not really in male mice. Despite being on a high-fat diet, the females did not gain as much weight or show the same degree of metabolic dysfunction.

The research strikes a particular chord in Jose because of her own family history of diabetes and cardiovascular disease.

"Having seen so many people affected by these conditions, I wanted to contribute to finding potential solutions through research," she says. "This could be part of the solution, especially for improving women's metabolic health," she says.

KEY TO POTENTIAL THERAPY

In the remaining two years of her PhD, Jose will be trying to identify the molecular and signalling pathways involved in this process, to determine exactly how and why these increased levels of LPP3 reduce the potentially dangerous lipid levels.

She theorizes that LPP3 helps cells burn energy faster—but now she wants to prove that.

Ultimately, Jose's research highlights the potential of using LPP3 as a potential therapy or drug target to lower lipid levels in women, reducing their risk of heart disease, and particularly obesity-related cardiomyopathy.

"This enzyme is the key to restoring cell function—as well as reducing lipid levels, especially in females," she says. "If we know the mechanism involved, developing targeted therapies becomes much more feasible."

Jose is determined to validate her theory that LPP3 helps cells boost the way they metabolize energy.

"LPP3 could pave the way for new treatments in cardiovascular medicine," she says.

As she conducts her research, Jose is thankful for the support she's received through the Harry and Imogen Miller Scholarship and the Dalhousie Medicine Scholarship, which she has received twice.

"These scholarships have been instrumental in advancing my research by providing the resources necessary for me to conduct complex experiments," she says.

Philanthropic funding is crucial if medical researchers are to make groundbreaking discoveries that lead to life-saving treatments, she adds.

"Without this financial support, many promising projects—like mine—would face significant barriers, delaying progress in addressing critical health challenges like metabolic and cardiovascular diseases."

> **"These scholarships have been instrumental in advancing my research by providing the resources necessary for me to conduct complex experiments."**
>
> - ANU JOSE

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In 1997, I was in a serious accident. The injuries to my leg were so severe I was told I was facing a full amputation.

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By leaving a gift in your will, like I have, to Dalhousie's Faculty of Medicine, you're affecting the lives of your loved ones and your community for decades to come.

CAROL MURRAY
Carol.murray@dal.ca
902-233-8767

If you have questions or want to talk about where you'd like your gift directed, please reach out to me. I understand the difference you want to make, and I would love to chat with you about realizing your wishes to leave a lasting legacy through health research. **Reach out anytime!**

ADDRESS
5743 University Avenue, Suite 98
PO Box 15000
Halifax, NS B3H 4R2