

Visit [globeandmail.com/adv/researchandinnovation2016](http://globeandmail.com/adv/researchandinnovation2016)

UNIVERSITY HEALTH NETWORK

# Two towers over two decades: the evolution of Toronto's biomedical research landscape

Over the last two decades, Canada's leadership in many aspects of biomedical research has progressed significantly, and the evolution is exemplified by the impressive growth of the University Health Network (UHN) research community in downtown Toronto.

Since its creation in 1997, UHN has worked in partnership with the Canada Foundation for Innovation (CFI), the Ontario government, and its foundations and donors to advance its medical research strengths. The organization has been ranked number one among Canada's top 40 research hospitals for several years. Additionally, many of its scientists are internationally recognized for advances across a spectrum of diseases and disciplines, including immunology, cancer, rehab medicine, cardiac science and brain research.

Two major milestones in UHN's growth include the design, construction and launch of two research towers that are equipped with the latest high-end laboratory facilities and research equipment.

In 2005, UHN opened the Princess Margaret Cancer Research Tower (PM-CRT), a \$400-million, 15-storey structure located in the heart of the Toronto Discovery District. PM-CRT houses the Princess Margaret Cancer Centre over 10 research floors, one of the top-five cancer research centres in the world. The PM-CRT also hosts the McEwen Centre for Regenerative Medicine and programs from the Toronto General Research Institute and Techna.

The Krembil Discovery Tower was launched in 2013. This \$165-million, nine-storey extension of the Toronto Western Hospital is populated by research teams investigating new diagnostic tools and treatments in many of the major disease areas affecting the aging population, including stroke, dementia, arthritis and vision. Krembil researchers have many joint programs with UHN's fifth research institute, Toronto Rehabilitation Insti-



The University Health Network's leading-edge research infrastructure enables world-class research, helps to attract and retain top talent, and enhances discovery and innovation. SUPPLIED

tute, which has also benefited from significant CFI funding.

Together, the two towers have added over 550,000 square feet of state-of-the-art dedicated research space to UHN – equivalent to more than six-and-a-half FIFA-regulation soccer fields.

"When we sought funds to sup-

port these projects, we recognized that if we wanted to retain and recruit world-class scientists, we had to offer world-class facilities," says Robert Bell, who was CEO and president of UHN from 2005 to 2014, and is currently Ontario's deputy minister of health and long-term care.

For example, he points to the value

of the more than \$40-million in CFI grants for infrastructure and specialized equipment in the Krembil Discovery Tower.

"Those investments set us up to conduct modern neuroscience research and allowed us to attract top scientists with incredible visions of opportunity," Dr. Bell says. "Crucially,

the researchers we have brought in to both towers are translational scientists – who want to work in centres attached to hospitals and see their discoveries translated into new treatments and improved patient care."

"Of the 130 scientists working in the two research towers, 68 of them were not at UHN before the towers were built," says Christopher Paige, who was UHN's executive vice-president of science and research from 1997 until earlier this year. He continues as a senior scientist in cancer research at UHN.

"These facilities have enabled us to attract superb scientists at the top of their fields, such as Don Weaver, who is making novel compounds for treatment of Alzheimer's disease, and Valerie Wallace, who is pushing the envelope on regenerative medicine for diseases of the retina," says Dr. Paige.

The leading-edge research infrastructure has also enabled UHN to retain its top scientists in the face of growing global competition for the "best and the brightest," he adds.

Among the state-of-the-art technology that has supported research advances is that of the STARR Innovation Centre (cellular and preclinical imaging) and the Advanced Optical Microscopy Facility – the largest of its kind in Canada.

The PM-CRT and Krembil Discovery Tower were also built using innovative approaches to lab benching, which promote flexibility and teamwork.

"Research changes over time, and our design allows us to take space configured for one kind of research and convert it easily to another kind," says Dr. Paige.

"We also have an open lab concept, instead of traditional enclosed lab spaces with small groups of people working in silos. When you have 30 or more scientists working in a space without walls, they can interact with each other more and that further enhances discovery and innovation."

YORK UNIVERSITY

## Creating a community of research excellence

Ellen Bialystok is a superstar. The York University researcher studies the effects of experience on cognitive function and brain organization across the lifespan, with particular emphasis on bilingualism. Her findings point to a lifelong "bilingual advantage," which could offset or delay symptoms of age-related brain deterioration, such as dementia and Alzheimer's disease.

Dr. Bialystok's work has received wide attention from both within and beyond the research community, and this year, she was named an Officer of the Order of Canada.

At York, she holds the Walter Gordon York Research Chair of Lifespan Cognitive Development, an appoint-



Dr. Ellen Bialystok is part of the York Research Chairs program that acknowledges research excellence within the university community. SUPPLIED

ment conferred through the York Research Chairs program. These chairs, created exclusively for York University faculty members, acknowledge research excellence within the university community, says Mark Roseman, director of Strategic and Institutional Research Initiatives at York University.

York's vice-president, Research & Innovation Dr. Robert Hache adds "York's researchers are among some of the world's leading scholars and experts. We are proud to have established the York Research Chairs program, an initiative that will help to further build, support and intensify world-renowned research taking place at the university."

The program is modelled on the Canada Research Chairs (CRC) program, explains Dr. Roseman, and York recipients are on the same level as CRC chairholders. "We expect them to meet the same standards of excellence," he says. "And we have the same rigorous selection and peer review process. We also provide a comparable level of support and recognition."

The calibre of research conducted by chairholders like Dr. Bialystok and Nantel Bergeron, whose work furthers the understanding of complex algorithms in computer science and mathematics and provides insights into the super-symmetry of nature, speaks for itself. And receiving this

high level of recognition from within the university raises the profile of the researchers. It can also help to attract talent and funding, says Dr. Roseman.

Yet the honour also comes with expectations. "We encourage our chairholders to undertake leadership activities to further accelerate their discipline," he explains. "They are expected to nurture up-and-coming researchers, for example, or lead collaborative efforts within their field."

In addition to celebrating research excellence, the program brings together experts from various faculties and disciplines – creating a "powerful multidisciplinary community of accomplished researchers," says Dr. Roseman. "They are all superstars."

## We're able to think big because you did

Together, we're making new discoveries and delivering global solutions to complex ocean challenges. CFI's investment in the Ocean Tracking Network (OTN) has helped make Dalhousie a hub of ocean expertise. By using electronic tags to track over 140 species around the world, OTN researchers are taking a closer look at marine life than ever before. This research will change how scientists and world leaders understand and manage pressing global concerns such as fisheries management in the face of climate change. OTN is just one of the ways Canadian scientists are using CFI funded equipment to give us a deeper understanding of our ocean and its sustainable management.



DAL.CA

