

2022

# Research & Innovation

Annual Report



UNIVERSITY OF  
TORONTO

DEFY  
GRAVITY

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*Front and Back Cover Images:  
“Ring of Fire” by U of T graduate  
student Aaryn Montgomery-Song  
is a microscopic image of an  
intervertebral disc, which sits  
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“Few universities in the world can rival U of T’s internationally recognized strengths in research, innovation, and inclusive excellence.”

Professor Leah E. Cowen  
Vice-President,  
Research and Innovation, and Strategic Initiatives



# A Message from the Vice-President



## **In a year of exciting change and innovation, U of T maintained its position as the top university in Canada and one of the top public universities globally.**

We pioneered discoveries that improve life and advanced the world's collective knowledge by leveraging our globally recognized strengths in research, innovation, and inclusive excellence.

In 2022, U of T ranked 1st in Canada, 2nd among North American public universities, and 18th globally in the Times Higher Education World University Rankings. U of T publishes more scholarly articles than almost any other university and was recently named among the top five university-based business incubators in UBI Global's latest World Benchmark Study. This depth and breadth of excellence is reflected in the diverse and prestigious awards and honours our faculty receive annually.

Throughout the COVID-19 pandemic, the Division of the Vice-President, Research & Innovation (VPRI) acted swiftly to resource and enable our researchers as they made significant contributions to COVID-19 research. U of T continues to be well-positioned to tackle public health challenges and help grow Canada's health research infrastructure. In 2022, the VPRI Research Services Office was pivotal in securing \$35 million from the federal government to revitalize the Toronto High Containment Facility, equipped for the study of high-risk pathogens. The University will also lead the Canadian Hub for Health Intelligence and Innovation in Infectious Diseases (HI<sup>3</sup>), a powerful university, industry, and community network supporting a domestic pipeline for the development of vaccines and therapeutics targeting infectious threats.

With internationally recognized strengths across a wide range of disciplines, U of T boasts 21 world-class Institutional Strategic Initiatives (ISIs) spanning a variety of fields and faculties to enable future innovation. Two new ISIs that launched this past year showcase the breadth of the VPRI portfolio. Established through a generous \$20 million gift from the Larry and Judy Tanenbaum Family Foundation, the Tanenbaum Institute for Science in Sport is a global centre of excellence for high-performance sports science and medicine. And the newly established Institute for Pandemics brings together researchers and educators to address the complex, global public health challenges posed by pandemics.

The VPRI is always working to better support the research and innovation needs of our faculty and partners. In 2022, we coordinated the University's submissions to an unprecedented range of major funding opportunities, with the potential for

hundreds of millions of dollars in new investment in U of T's research ecosystem. We also hosted a series of community engagement working groups, resulting in a renewed commitment to supports for Social Science and Humanities research. In addition, the Indigenous Research Network and the Human Research Ethics Unit collaboratively developed a culturally and spiritually informed ethics review process for Indigenous research for the U of T Research Ethics Boards.

Community, industry, and global research partnerships are integral to innovation. One impressive example is the collaborative partnership forged in April between U of T and Moderna Inc., enabling us to work together to develop new tools to prevent and treat infectious diseases.

U of T's research enterprise and our local communities mutually benefit from research that has impact beyond academia. We recognize such research through the President's Impact Award (PIA). Achievements from the 2023 laureates include advancing anti-colonial thought in education and leading global social policy on gender and care work.

We are deeply committed to inclusive excellence. Throughout 2022, the VPRI implemented wide-ranging educational programming and consulted on a variety of initiatives to promote the implementation of Equity, Diversity & Inclusion (EDI) best practices. To date, 86% of the 49 recommendations from U of T's Working Group on Equity & Diversity in Research & Innovation have been implemented on an ongoing basis. We continue to monitor progress to ensure actions are maintained or improved and aim to fully address all recommendations by July 2023.

Finally, I want to applaud all that has been accomplished by the VPRI this past year. It is inspiring to see the dedication of the VPRI team as we diligently support the talent, creativity, and collaboration of the research and innovation community at U of T. Together, we will continue to work to strengthen research administration tools and resources, enabling world-class support for our world-class researchers across our tri-campus community.

Sincerely,

A handwritten signature in black ink, appearing to read 'Leah E. Cowen', written in a cursive style.

**Professor Leah E. Cowen**

Vice-President, Research and Innovation, and Strategic Initiatives

# Globally Recognized Leadership in Research & Innovation

**The remarkable leadership and impact of U of T researchers and innovators are reflected across a diverse set of global rankings.**

Our researchers and innovators secure funds from the federal and provincial governments, the not-for-profit sector, private sector partnerships, and research and philanthropic foundations. These funds allow them to generate the basic and applied knowledge and tools that are essential for addressing the most pressing issues confronting humanity.



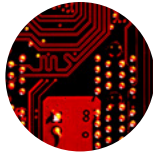
## The University of Toronto's Rankings and Impact

U of T holds

# 330

Canada Research Chairs (CRCs), more than any other Canadian university and 138 more than our nearest peer

*(Tri-Agency Institutional Programs Secretariat 2021–2022)*



## \$67 million

in funds from the Canada Foundation for Innovation (CFI) at U of T and affiliated institutions

*(VPRI Dashboards 2021–2022)*

## \$1.41 billion

in research funding to U of T and partner hospitals from national and international sources, including the federal and provincial governments, the not-for-profit sector, and private sector partnerships

*(VPRI Dashboards 2021–2022)*



## 16.4%

of the country's Tri-Agency funding

*(Open Canada 2021–2022)*

# #1

in Canada by global university rankings worldwide

*(Times Higher Education 2023, U.S. News 2022–2023, and 2022 ARWU)*



# #2

among North American public universities

*(Times Higher Education World University Rankings 2023)*

# #18

worldwide

*(U.S. News 2022–2023 Best Global Universities Rankings and Times Higher Education World University Rankings 2023)*

# #5

in the world for the number of articles that are among the most cited (top 10% most cited)

*(Clarivate Analytics InCites, 2017–2021)*



# #2

worldwide among globally ranked universities for social and environmental impact

*(QS Sustainability Rankings 2023)*

# #2

among North American universities for number of startups

*(AUTM 2021, limited to universities reported as single campuses)*

# Top 50

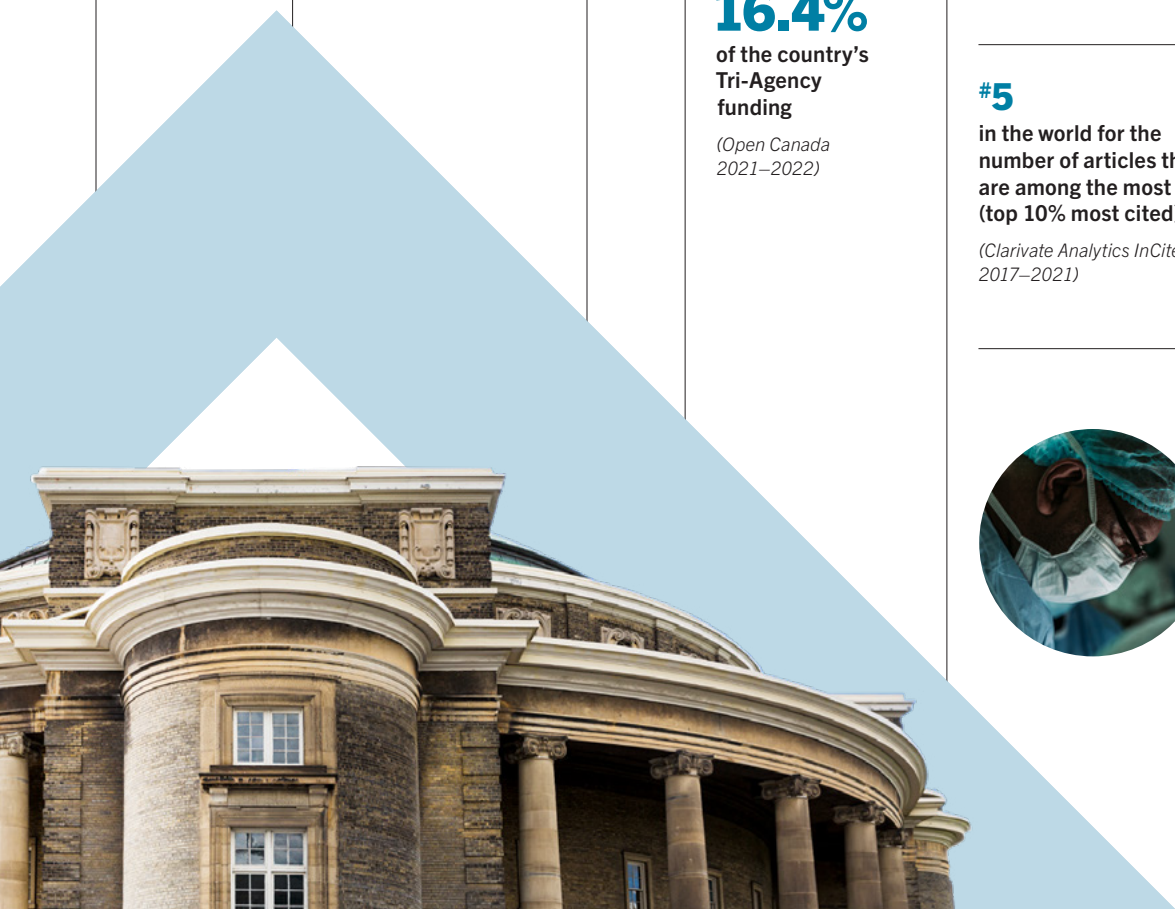
for 46 subject rankings, more than any other university in the world

*(QS World University Rankings by Subject 2022)*

# Top 5

university business incubators in the world

*(UBI Global's World Benchmark Study, 2021–2022)*



## Investing in the Future of U of T Research & Innovation

### \$35 million revitalization of the Toronto High Containment Facility

In November 2022, the University of Toronto received \$35 million in critical research infrastructure funding from the federal government to revitalize the Toronto High Containment Facility. The biomedical research facility enables researchers to safely study high-risk pathogens, such as SARS-CoV-2 and HIV, and hosts the largest Combined Containment Level 3 lab (C-CL3) in Ontario. This funding positions the facility to play a significant role in addressing future pandemic and health threats in Ontario and Canada.

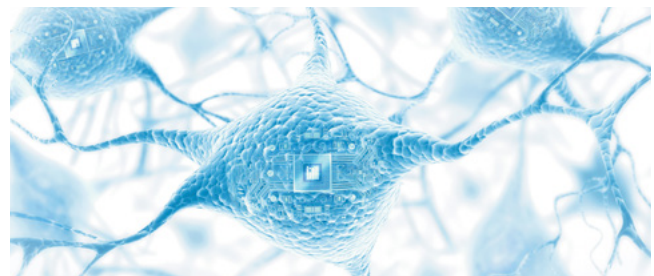
This investment from the Canada Foundation for Innovation's (CFI) Biosciences Research Infrastructure Fund (BRIF), is the largest CFI grant U of T has received to date and will support the University's plan to modernize the 20-year-old facility.



### Canadian Hub for Health Intelligence and Innovation in Infectious Diseases (HI<sup>3</sup>)

Led and anchored by the University of Toronto, HI<sup>3</sup> is a collaborative, multidisciplinary, and multi-sector coalition of over 80 partners, forming a powerful network to support a robust domestic pipeline of life-saving vaccines and therapeutics targeting existing and emerging infectious threats. HI<sup>3</sup> is one of five newly created hubs established with support from the [Canada Biomedical Research Fund \(CBRF\)](#), which is part of a larger investment in [Canada's Biomanufacturing and Life Sciences Strategy](#).

By linking the innovation engine and infrastructure of eight Ontario universities and six research hospitals with commercialization and manufacturing partners like Sanofi and the National Research Council of Canada, the HI<sup>3</sup> hub will enable the country to become more prepared, resilient, and independent when facing future health challenges.



### The Eric and Wendy Schmidt AI in Science Postdoctoral Program

With the goal of accelerating scientific research through the application of artificial intelligence, Schmidt Futures invested \$148 million in nine universities globally in October 2022, including the University of Toronto—the only Canadian university chosen for the program.

This investment launched the Eric and Wendy Schmidt AI in Science Postdoctoral Fellowship, a large-scale initiative supporting the work of early career scholars in engineering and the natural sciences, mathematics, chemistry or physics, to foster the uptake of leading-edge artificial intelligence tools in research. U of T will host 110 postdoctoral fellows throughout the six-year program.



### **\$200 million: U of T's Largest-Ever Grant**

U of T recently received the largest grant in the University's history, a \$200 million investment from the Canada First Research Excellence Fund (CFREF). To revolutionize scientific discovery, the University of Toronto's **Acceleration Consortium**, an Institutional Strategic Initiative, and its partners will develop self-driving labs (SDLs), which combine AI and automation to create a wide range of new materials and molecules for a fraction of the usual time and cost—from life-saving medications and biodegradable plastics to low-carbon cement and renewable energy.

Materials innovation is critical for a sustainable, healthy, and resilient society. The initiative will focus on three areas: Technology platforms to develop scalable SDLs, applications to discover and commercialize molecules and materials across a wide range of industries, and adoption to facilitate industry and public uptake of ethically designed technologies and materials in order to benefit all members of society and the planet.



### **Tackling the Seasonal Storage Challenges of Renewable Energy**

Canada has vast renewable energy capacity, yet remains deeply reliant on fossil fuels. A key barrier to the expansion of renewable sources is a lack of seasonal storage. U of T recently announced a \$24 million investment in CANSTOREnergy from the federal New Frontiers in Research Fund, which aims to re-envision Canadian energy systems.

CANSTOREnergy will enable a cross-Canada multidisciplinary team of experts to address the challenges of renewable energy seasonal storage. It will examine potential unintended consequences to the environment or social inequities by considering a diverse set of community perspectives at the outset. This initiative will integrate policy, community engagement, and ownership models to steer technological development.



# Equity, Diversity & Inclusion in Research & Innovation

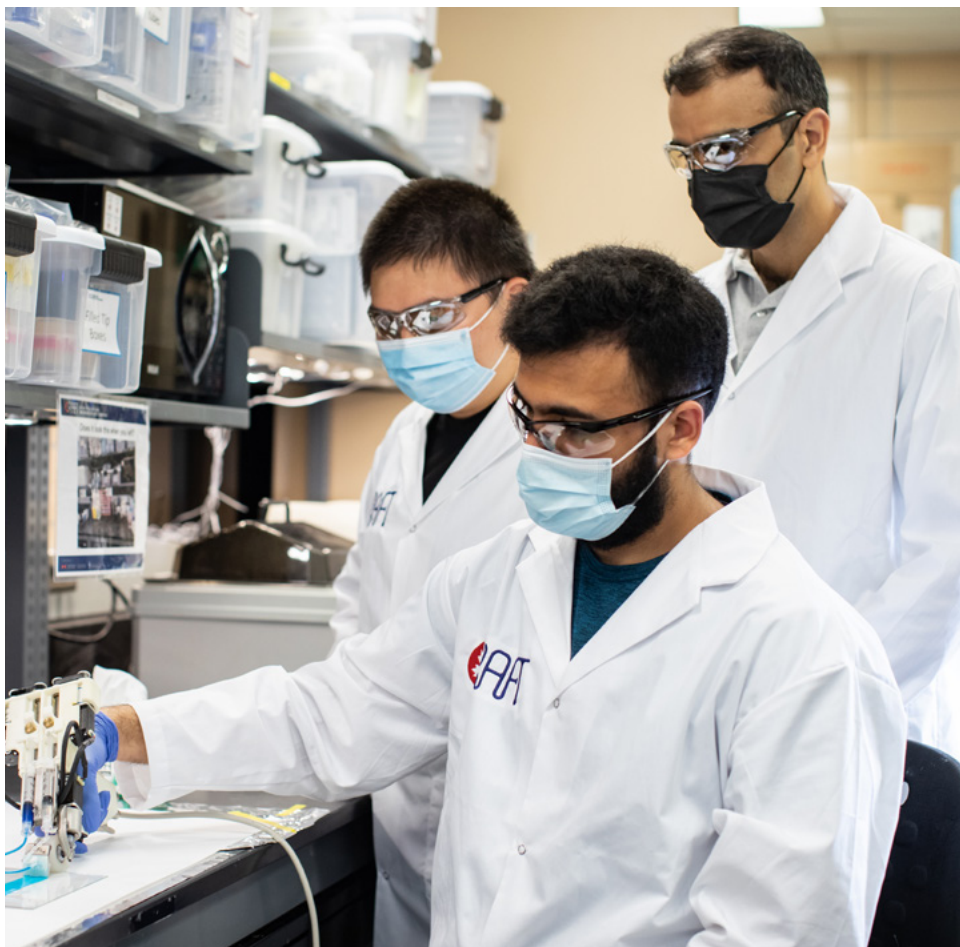
**U of T is committed to inclusive excellence in the pursuit of its academic mission.**

Through collaboration and strategic implementation of EDI commitments, the University of Toronto is building an equitable, inclusive, and diverse research and innovation ecosystem. We embrace inclusive excellence, as it maximizes our research and innovation impact.



### EDI Goals

The VPRI, in collaboration with academic divisions and other senior portfolios across the University, continues to implement the recommendations from U of T's Working Group on Equity & Diversity in Research & Innovation. To date, 86% of the recommendations have been implemented on an ongoing basis and we continue to monitor this progress to ensure actions are maintained or improved. Our goal is to fully address all the recommendations by July 2023.



### EDI Workshops, Training, and Presentations

To facilitate U of T's accomplishment of our EDI goals in Research and Innovation, the VPRI developed and implemented wide-ranging educational programming. Forty-nine workshops, training sessions, and presentations on Equity, Diversity, and Inclusion in Research and Innovation (EDIRI) have been delivered to the University's research and innovation community.

### Canada Research Chairs (CRC) Program

In order to increase the participation of underrepresented groups nationally in the CRC Program, institutions are required to progressively meet targets for the representation of four designated groups (women and gender minorities, Indigenous peoples, racialized minorities, and persons with disabilities) among their chair cohorts, leading up to a December 2029 deadline. Based on CRC Program data, in 2022, U of T surpassed its interim targets.

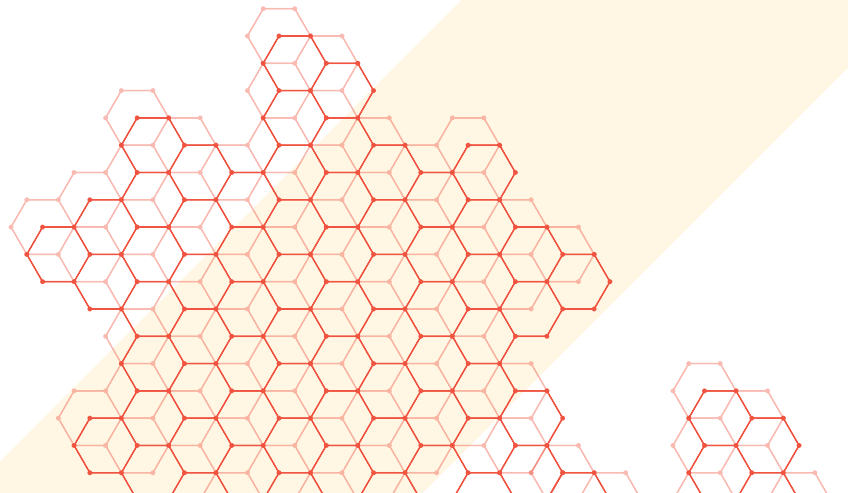
Guided by our institutional **CRC Equity, Diversity & Inclusion Action Plan**, the VPRI continues to work with academic divisions and affiliated hospitals to implement strategies to meet future interim targets and our 2029 deadline.





### EDI in External Research Grants

The VPRI offers consultation services to our research community that promote the implementation of EDI best practices. In 2022, we continued to provide guidance to researchers on addressing EDI when preparing applications for research grant programs. The VPRI also supported the development of EDI plans for several large-scale national research funding programs, including the Canada First Research Excellence Fund (CFREF) and the Canada Biomedical Research Fund (CBRF).



### Connaught PhDs for Public Impact Fellowship Program

Launched in September 2022, the Connaught PhDs for Public Impact Fellowship Program supports 15 PhD students pursuing public impact scholarship. This program enables fellows to meaningfully contribute to our local and global communities through publicly accessible scholarship, open-access initiatives, community partnerships, and non-traditional research means, including social media. To promote just and equitable opportunity, the VPRI collaborated with the fellowship's advisory committee to embed EDI practices into the adjudication process.

### Connaught Major Research Challenge for Black Researchers

Launched in July 2022, this program was established to strengthen the research capacity of U of T's Black researchers who are addressing major research challenges through the advancement, transfer, and application of knowledge.

The program's mission is to support new research collaborations for external funding, new meaningful partnerships, and new research academic programs and opportunities. This program awards up to \$250,000 to one team, led by a Black researcher, that initiates collaborations involving U of T researchers and students from multiple disciplines, along with innovators and thought leaders from other sectors. This new initiative is sponsored by the Connaught Fund and was developed in collaboration with the Black Research Network.



# Indigenous Initiatives

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## **U of T is dedicated to creating a supportive environment for Indigenous research.**

In 2017, the University of Toronto released its response to the Truth and Reconciliation Commission's Final Report, entitled **Wecheehetowin: Answering the Call**. To meet the Commission's Calls to Action, U of T continues to develop initiatives to increase the capacity and supports for Indigenous research. The VPRI works closely with Professor Dale Turner, the Provostial Academic Advisor on Indigenous Research, who provides leadership and guidance to colleagues conducting research in and with Indigenous communities.

## The Indigenous Research Network (IRN)

The IRN is a multi-campus and multidimensional network supporting Indigenous faculty and trainees, as well as other faculty members and staff, involved in research related to Indigenous peoples and communities. The aim of this Institutional Strategic Initiative is to develop an interconnected and collaborative network of researchers involved in all areas of Indigenous research at U of T.



## Indigenous Research Ethics Process

In 2022, the University of Toronto's IRN collaborated with the Human Research Ethics Unit to develop a culturally and spiritually informed ethics review process for applications to U of T Research Ethics Boards (REBs) for those intending to conduct research with Indigenous peoples, communities, or organizations.

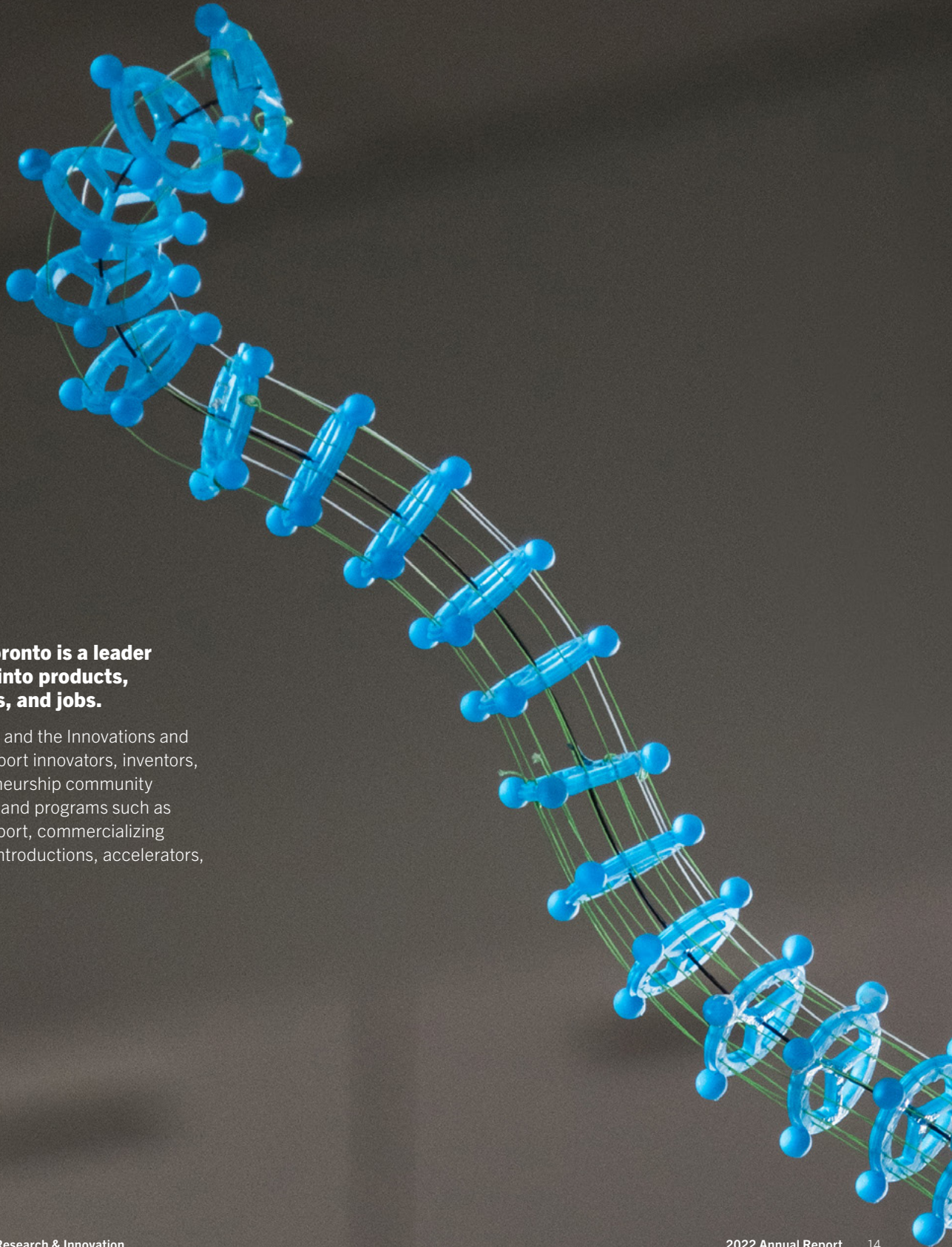
IRN conducted over 70 community consultations with faculty, staff, and students at the University with the guidance of its Elders Advisory Council and their Traditional Knowledge Keeper. This consultation process was used to honour Indigenous ways of knowing in the development of this initiative and to ensure the established ethics review process was informed by the needs of the U of T Indigenous community.

## Kay-Nah-Chi-Wah-Nung Gathering: Museums, Universities, and Communities Working Together

In October 2022, U of T researchers and partners held the workshop *Kay-Nah-Chi-Wah-Nung Gathering: Museums, Universities, and Communities Working Together* at the Kay-Nah-Chi-Wah-Nung Historical Centre of Rainy River First Nations, Treaty 3 Territory.

This workshop brought together Elders, Indigenous community researchers, local, regional, and provincial museum staff, and University researchers to experience the Manitou Mounds, share their work, and build future partnerships. The Kay-Nah-Chi-Wah-Nung Gathering was part of Treaty Conversations, a project supported by the Connaught Community Research Partnership Program.

# Innovation & Entrepreneurship



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**The University of Toronto is a leader  
in turning research into products,  
services, companies, and jobs.**

U of T Entrepreneurship and the Innovations and Partnerships Office support innovators, inventors, and the larger entrepreneurship community with a range of services and programs such as legal and patenting support, commercializing assessments, investor introductions, accelerators, and innovation hubs.

## Entrepreneurship Initiatives

### RBC Scholarships for Diversity and Innovation in Technology

In June 2022, U of T, in partnership with RBC, launched a scholarship fund to support students from equity-deserving groups including women, Black, and Indigenous students interested in careers that intersect both innovation technology and financial services. Part of a three-year initiative, the **RBC Scholarships for Diversity and Innovation in Technology** will provide up to six \$15,000 scholarships annually.



### Desjardins Startup Prize

In 2022, U of T partnered with Desjardins to launch the **Desjardins Startup Prize**. This annual business pitch competition awards over \$100,000 in prizes to recognize, reward, and accelerate 10 innovative U of T startups.

The Desjardins Startup Prize is part of a larger three-year commitment by Desjardins featuring a financial literacy workshop for founders and the Desjardins Speaker Series, providing inspirational thought leadership events covering topics relevant to the U of T entrepreneurship community.



### Intellectual Property (IP) Education

Since its launch two years ago, U of T has expanded its **IP Education Program** by complementing educational content with case study videos, interactive questions, student and instructor support modules, and by making a portion of the program accessible across Ontario.

2022 marked the launch of the IP Matters speaker series to explore topics including AI, biotech, and cleantech. This series brings together subject matter experts, industry leaders, and entrepreneurs to discuss emerging trends and share real-world applications of concepts from the IP Education Program.

### Key Metrics

**Top 5**  
university-managed  
incubators globally

Members of  
the U of T  
entrepreneurial  
community  
have launched

**600+**  
venture-backed  
companies  
and created

**9,000+**  
jobs in the  
past decade

**\$2.5 billion**  
in investment raised  
by U of T startups over  
the past decade

## Entrepreneurship Opportunities

### Black Founders Network (BFN)

The **BFN** celebrates Black excellence in entrepreneurship, built on a foundation of community support and allyship. In June 2022, the BFN welcomed 11 early-stage startups to the inaugural cohort of BFN Accelerate, a three-month accelerator open to Black-led companies within the U of T community.

In October 2022, the BFN celebrated its one-year anniversary and the graduation of the first cohort of BFN Accelerate. U of T's Convocation Hall played host to over 200 entrepreneurs, investors, mentors, students, and community supporters. The evening featured pitch presentations to a panel of investor judges, the presentation of \$45,000 in prize investments to startups, and a roundtable discussion with Black founders.



### Collision

In June, Toronto hosted Collision, North America's fastest-growing tech conference, with over 40,000 attendees. The University of Toronto had an immense presence at this annual event, with over 800 students, staff, faculty, and alumni in attendance. A Defy Gravity booth was represented by over 20 U of T groups. More than 20 startups participated as speakers and exhibitors during the three-day event.





### University of Toronto Early Stage Technology (UTEST)

This past year, **U**TEST**** celebrated 10 years of supporting U of T entrepreneurs creating companies based on intellectual property developed at the University. The program provides many facets of support, including intensive entrepreneurial education, mentorship, investment, and dedicated incubation space. Over the past decade, UTEST has supported 149 companies that have raised \$700+ million in investment capital and \$2.5+ billion in equity creation. UTEST is a U of T partnership with Toronto Innovation Acceleration Partners (TIAP) and receives financial support from the Connaught Fund.

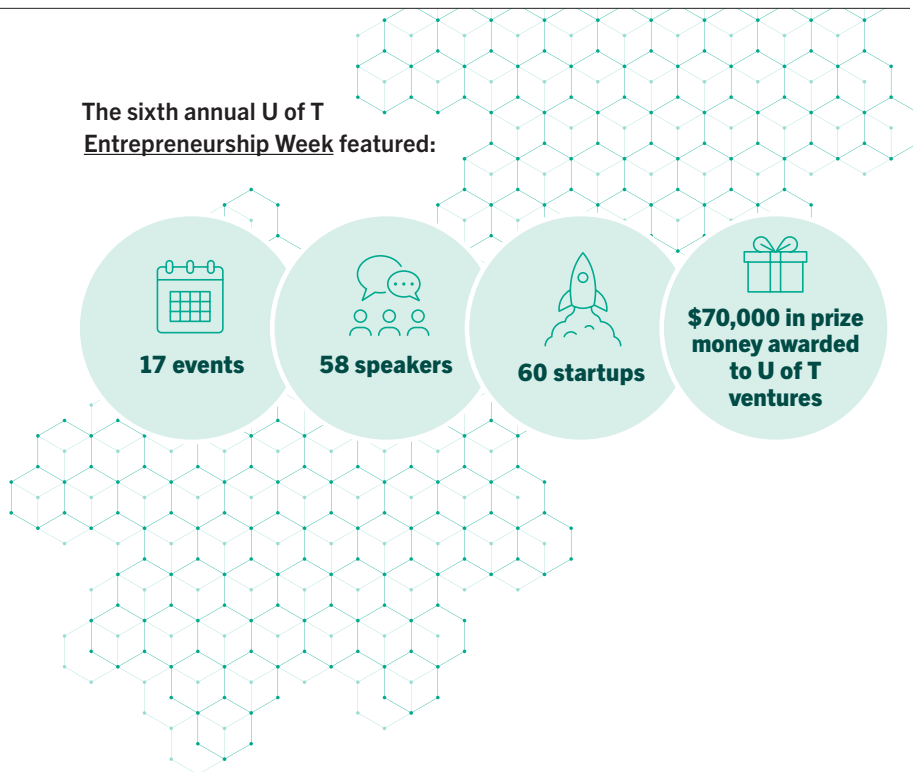
In 2022, UTEST selected 21 new companies to support, including eight from U of T’s affiliated hospitals. UTEST also collaborated with the Office of the Vice-President, International (OVPI) to launch the first Entrepreneurship Exchange with the Hebrew University of Jerusalem, an International Entrepreneurship Highway initiative. Each institution selected six startups to be immersed in the other’s entrepreneurship ecosystem for a week of learning and company development.



### Entrepreneurship Week

In March 2022, the University of Toronto’s entrepreneurship community and campus accelerators celebrated the impact of innovation and startups, while also highlighting the important issues of equity and mental health. Keynote speaker Canadian Olympic icon and business leader Donovan Bailey discussed the parallels between competing in sports and business in a fireside chat and Q&A session. Featured events included an exploration of how Indigenous knowledge intersects with entrepreneurship and business education, a celebration of International Women’s Day, and a discussion with healthcare entrepreneur and dermatologist Dr. Sandy Skotnicki.

The sixth annual U of T Entrepreneurship Week featured:



# Institutional Strategic Initiatives



$f(x) =$   
that may be given

**Overcoming society's grand challenges and creating transformational impact, from climate change to equity, require interdisciplinary research and collaborations that span multiple domains.**

U of T's portfolio of **Institutional Strategic Initiatives (ISI)** increases the University's capacity to support and scale cross-divisional, high-impact interdisciplinary research.



### Tanenbaum Institute for Science in Sport (TISS)

Launched in 2022 through a generous \$20 million gift from the Larry and Judy Tanenbaum Family Foundation, **TISS** is a global centre of excellence for high-performance sports science and sports medicine.

TISS combines and leverages the immense strengths of our partners: the sports science research of the Faculty of Kinesiology & Physical Education, the sports medicine research of the Temerty Faculty of Medicine, and the clinical and research expertise of the Dovigi Orthopaedic Sports Medicine Clinic and the Lunenfeld-Tanenbaum Research Institute at Sinai Health.

The Institute advances high-performance sports and aims to improve health outcomes for professional, non-professional, and para-athletes, as well as members of the wider community, both able-bodied and with disabilities, who want to optimize their recreational participation in sports.



### Robotics Institute

Launched in 2019, the **University of Toronto Robotics Institute** is home to the largest and most diversified robotics research program in Canada, boasting broad robotics expertise within its faculty. The Institute unites, grows, and catalyzes collaborations at the University around the three key research pillars of autonomous field robotics, healthcare robotics, and advanced manufacturing.

In the past year, the Robotics Institute formed the Canadian Robotics Council, whose mission is to help Canadians benefit from robotics technologies poised to fuel economic development, global competitiveness, productivity, and improved safety. In September, Institute researchers and graduate students demonstrated U of T's AI robotic innovations to visiting South Korean President Yoon Suk-yeol. Finally, U of T Mississauga's Undergraduate Robotics Teaching Laboratory expands the resources of the Robotics Institute and hosts robotics courses for students.



### Toronto Cannabis and Cannabinoid Research Consortium (TC3)

Formed in 2019, the **TC3** is a tri-campus, multi-institutional, interdisciplinary Institutional Strategic Initiative. It brings together researchers and trainees to advance the study of cannabis and cannabinoids at the University of Toronto and the Toronto Academic Health Science Network (TAHSN).

TC3 endeavours to close the significant gaps in knowledge on the benefits, harms, and opportunities of cannabis and cannabinoid use and to develop a pipeline of highly qualified personnel who will become leaders in research and innovation in cannabis health sciences, business, and policy.

In December 2022, the Consortium announced the second cohort of TC3 Fellows. These 18 fellows were recruited from across U of T and TAHSN and are engaged in advancing impactful cannabis- and cannabinoid-related research projects, which range from cannabis use in individuals with social anxiety disorder to the role of medical cannabis in the treatment of osteoarthritis.

### Institute for Pandemics (IfP)

COVID-19 is the ninth pandemic, or large-scale epidemic, the world has experienced in the past century. To help the public and policymakers better navigate the next global outbreak, U of T launched the **IfP** in 2022. The initiative brings together researchers and educators from across disciplines and around the world to address the complex global public health challenges posed by pandemics.

With a focus on readiness, resilience, and recovery, the Institute is working to better understand pandemics before they arise and while they are progressing: training the next generation of public health leaders with the skills they need to respond to pandemics, and strengthening pandemic responses, policies, and health systems.

Located in Canada's leading school of public health, the Dalla Lana School of Public Health, IfP serves as a knowledge nexus, informing public health responses, helping to strengthen systems, and equipping future health leaders with a multi-faceted skill set to combat pandemics and epidemics.





**Medicine by Design** is a convergence hub for scientists, engineers, and clinicians to conceive and translate regenerative medicine discoveries into new therapies that transform human health.

In 2015, with an unprecedented investment of \$114 million from the Canada First Research Excellence Fund (CFREF), U of T launched Medicine by Design. Since then, Medicine by Design has been pushing the frontiers of regenerative medicine through deep investment in transformative, multidisciplinary, and multi-institutional research projects and initiatives to support the translation of discoveries into new products and companies and the recruitment of world-class faculty members across the Toronto Academic Health Science Network (TAHSN).

Over the past seven years, Medicine by Design has strategically curated and funded a high-risk, high-reward research portfolio with the potential for “moonshot” breakthroughs to defeat diseases that today are considered incurable such as blindness, heart disease, and diabetes.



### Pivotal Experiment Fund

The Pivotal Experiment Fund enables regenerative medicine innovation by bridging the “valley of death”—a gap between funds for research and investments from venture capital and/or industry partners. With four new projects supported in 2022, \$2.5 million has now been awarded to support the early-stage translation of 10 innovations including an efficient mRNA delivery platform and a gene therapy to reprogram brain cells.

### Convergent Working Groups

To achieve the goals of its new strategic plan, Medicine by Design launched a \$1 million funding call for Convergent Working Groups in 2022. These multi-sectoral collaborations bring new voices to Medicine by Design to explore ideas and possibilities in regenerative medicine around themes such as equitable access to therapies; the potential of new technologies; and implementing regenerative medicine therapies into health systems, clinics, and communities.

### Summer Student Research Program

As part of its Healthy and Inclusive Labs initiative and commitment to supporting equity, diversity, and inclusion, Medicine by Design funded eight research positions within its labs for high-performing students from underrepresented communities. This program is in collaboration with the Research Application Support Initiative (RASI), part of the **Community of Support** program at the Temerty Faculty of Medicine.

**\$75 million** awarded by Medicine by Design for **170** regenerative medicine research projects

(2015–2022)

**165** principal investigators and **1,000+** trainees funded by Medicine by Design

(2015–2022)

**17** new regenerative medicine faculty recruited to U of T and its partner hospitals

(2015–2022)

**352** patent applications filed by Medicine by Design-funded investigators

(2021–2022)

**1,000+** jobs and **42** startups created in Toronto’s regenerative medicine ecosystem

(2015–2022)

**\$2 billion+** venture capital investment attracted to regenerative medicine-related companies

(2021–2022)

# Award-Winning Research & Innovation

**The number and prestige of accolades received by U of T researchers highlight their calibre and reputation.**

Although the size of our academic staff represents a small fraction of all Canadian university teaching staff, the University of Toronto leads nationally in the number of prestigious Canadian and international honours received.

## Awards & Honours Highlights

### Key Metrics

**100**

U of T faculty won major international and national awards in 2022

With **35**

fellows, U of T has led Canada in new elections to the Canadian Academy of Health Sciences for the past three years

(2020–2022)

U of T faculty received

**20%**

of Royal Society of Canada Awards and Medals over the past 10 years

(2013–2022)

### Canada Gairdner Awards

In 2022, U of T faculty members won two prestigious Canada Gairdner Awards, celebrating the world's best biomedical and global health researchers.



Photo: [imagesbydelmar.com](https://imagesbydelmar.com)

#### University Professor John Dick

Temerty Faculty of Medicine  
University Health Network

Canada Gairdner International Award



#### Professor Zulfiqar Bhutta

Temerty Faculty of Medicine  
The Hospital for Sick Children

John Dirks Canada Gairdner  
Global Health Award

### Spotlight on Early Career Researchers

2022 marked outstanding U of T recognition for early career researchers:

#### Sweep

of the Council of Ontario Universities' five **John Charles Polanyi Prizes** in Chemistry, Economic Science, Literature, Physics, and Physiology/Medicine

Recognition spanned disciplines, campuses, and hospital partners:

**47%**

of awards recognized outstanding achievement in physical sciences and engineering, and

**26%**

recognized work in the social sciences and humanities across four academic divisions

#### Record of 9 Members

elected to the **Royal Society of Canada College of New Scholars, Artists and Scientists** spanning the health sciences, physical sciences, and social sciences

**26%**

of recipients were awarded for excellence in the health sciences, and hold appointments at U of T's hospital partners as well as the Temerty Faculty of Medicine and the Dalla Lana School of Public Health

#### #1 in North America

in number of **Sloan Research Fellowships** awarded to promising pre-tenure leaders in Computer Science and Mathematics

**21%**

of recipients are appointed at the University of Toronto Scarborough and Mississauga campuses

The University of Toronto is home to some of the world's top faculty, students, alumni, and staff. **U of T Celebrates** recognizes their award-winning accomplishments.



## Recognizing Impact

### President's Impact Award (PIA)

The **PIA** celebrates and honours faculty members whose research results in significant impacts beyond academia. Since its inception in 2017, the PIA has recognized the impacts of 44 U of T researchers representing an impressive range of fields, including gender and care work, advocacy for inclusive schooling, evidence-informed decision-making and response to the COVID-19 pandemic in Ontario, scientific entrepreneurship and innovation, and micro-nano scale robotics.

In 2022, the PIA competition was expanded to recognize teams of faculty for impacts that emerge from collaborative research.

### 2023 President's Impact Award Winners

#### Professor Ajay Agrawal

Rotman School of Management

For his impactful application of economic theory to the problem of market failures associated with transforming scientific inventions into scalable companies that benefit society—now adopted by many universities around the world.



#### Professor George Dei

Department of Social Justice Education,  
Ontario Institute for Studies in Education

For influential work advancing anti-racism, equity, anti-colonial thought, and African Indigeneity in education and sustained impact on policies, practices, and advocacy for inclusive schooling and the educational success of Black youth.



#### Professor Yu Sun

Department of Mechanical and Industrial Engineering,  
Faculty of Applied Science and Engineering

For outstanding contributions to robotics at micro-nano scales, whose far-reaching impacts include transformative fertility treatments for patients and materials characterization techniques for industry.



#### Professor Ito Peng

Department of Sociology, Faculty of Arts and Science

For global social policy leadership informing national and international policy bodies on issues of gender, care work, and care migration.

*Professor Peng is also the recipient of the 2023 Carolyn Tuohy Impact on Public Policy Award.*



#### Ontario COVID-19 Science Advisory Table Leadership

Dalla Lana School of Public Health and Institute of Health Policy, Management and Evaluation; Department of Mathematics, Faculty of Arts and Science; Departments of Family and Community Medicine, Medicine, Paediatrics, and Psychiatry, Temerty Faculty of Medicine

Baycrest Health Sciences, Sinai Health System, The Hospital for Sick Children, Unity Health, University Health Network, and Women's College Hospital

For outstanding contributions and dedication to supporting evidence-informed decision-making and response to the COVID-19 pandemic in Ontario and nationally. Thirteen faculty members from seven departments, many with appointments at six partner hospitals, played central leadership roles in the Science Advisory Table—a uniquely collaborative and multi-sectoral body that brought together interdisciplinary expertise to analyze and interpret emerging COVID-19 research and data to support a rapid response to urgent pandemic decisions.





# Research Partnerships & Collaborations

**The University of Toronto's global reputation as a top research university attracts partners dedicated to addressing pressing challenges.**

Research partnerships with industries, not-for-profits, communities, and others expand the collaborative network available to U of T researchers and facilitate access to essential materials, data, and resources for research and training.

## Industry

The VPRI supports partnerships between U of T and external organizations from a diverse range of sectors that are formed to advance the future of research and innovation at the University and beyond.



### Moderna Collaboration Partnership Framework

In April 2022, U of T and Moderna Inc. forged a collaborative partnership to work together across a wide range of fields developing new tools to prevent and treat infectious diseases. This is Moderna's first research partnership with a Canadian university.

Already, a team of U of T researchers is working with Moderna to develop the next generation of platform technologies for future RNA-based medicines.



### MaRS First Adopter Network (FAN)

MaRS and U of T partnered in June 2022 to launch FAN, a digital space where Canadian business leaders can source locally developed cutting-edge innovations and business solutions.

FAN helps address Canadian commercialization challenges by connecting established Canadian companies to local startup companies and enhancing research and development partnerships and access to intellectual property (IP), creating a market for promising technologies, early stage IP, and research. The Network will leverage startup and scale-up networks at U of T and MaRS to accelerate research into relevant business challenges in key sectors, drive commercialization, and generate momentum around early adoption in the innovation economy.

## Community

U of T plays an important role in addressing significant societal issues by engaging communities as equal partners to advance solutions that serve their needs.

### Muslims in Canada Archives (MiCA)



Led by Professor Anver Emon (Faculty of Law, Department of History, and Director, Institute of Islamic Studies), and supported by the SSHRC Partnership Development Grant in 2020, the MiCA is a collaborative and participatory initiative at the Institute for Islamic Studies (IIS), providing a platform for missing Muslim voices in Canada. A community-engaged archive, it leverages the excellence of Canada’s university sector with both provincial and national archival institutions, and Muslim communities across the country. MiCA seeks to redress the representation of Canadian Muslim communities, whose stories and identities are shaped by mainstream media that is overwhelmingly non-Muslim and burdened with narratives of terrorism, war, violence, Islamophobia, and extremism.



### From Harvest to House: Developing a Pathway to Housing Self-Sufficiency in Remote First Nations Communities



Led by Professor Sarah Haines (Department of Civil & Mineral Engineering), this partnership supported by the Connaught Global Challenge Award brings together several First Nations in Saskatchewan with a team of researchers from the University of Toronto and Toronto Metropolitan University to develop new pathways toward housing self-sufficiency. The project explores opportunities to improve sustainable housing development processes with local, sustainable materials, and community capacity-building.

### 2022 Key Metrics

**8** partnerships awarded  
**\$1.5 million** in funding from the SSHRC Partnership Development Grant Program

**5** partnerships awarded  
**\$2.2 million** in funding from the SSHRC Race, Gender and Diversity Initiative

**4** partnerships awarded  
**\$320,000+** in funding from the Connaught Community Partnership Research Program (CPRP)

## Global Reach

The VPRI works closely with U of T's Office of the Vice-President, International (OVPI) on key international partnerships that contribute to accelerating discovery, fostering learning, and leveraging complementary research strengths.

### The International Strategic Plan, 2022–2027

In July 2022, U of T released its **International Strategic Plan for 2022–2027**, which is central to advancing the University's mission and priorities. The plan supports international research collaborations with the goal of driving high-impact research to tackle global challenges.



### 2022 Key Metrics

Received **\$29.7 million** in corporate-sponsored research from international companies

Provided **\$910,000+** in funding supports for 100 joint international research projects led by U of T faculty in collaboration with researchers at other universities

### Naver Corporation & Wattpad

In November 2022, U of T announced a partnership with South Korean technology company Naver Corporation and its Toronto subsidiary, digital storytelling platform Wattpad. The partners will engage in artificial intelligence research aimed at harnessing technology to empower human creativity in areas ranging from human-computer interaction to natural language processing. This five-year initiative will train dozens of graduate and postdoctoral researchers.



### Africa Partnership for Mutual Excellence

In June 2022, U of T hosted an historic two-day event, which convened more than 90 leaders from Africa, U of T, and U of T's global partners. The event presented U of T's recently developed Africa partnership strategy, explored ideas for partnerships that address important issues facing Africa and Canada, and established a set of mutually shared research priorities.



## AI for the Better Future of Humanity

In September 2022, U of T welcomed South Korean President Yoon Suk-yeol to discuss the rise of AI, its potential applications, and opportunities for further collaboration. The roundtable featured AI luminaries Geoffrey Hinton and Lee Jong-ho, and included an announcement of a new U of T exchange program for AI training with the South Korean Institute of Information & Communication Technology Planning & Evaluation, which will accept 30 students from South Korea.



## Supporting U of T Partnerships

U of T is the host of an active ecosystem of partnerships to advance the future of innovation and research. To facilitate the efforts of the University's research community, the VPRI engages in the development of an extensive portfolio of services, tools, and resources.

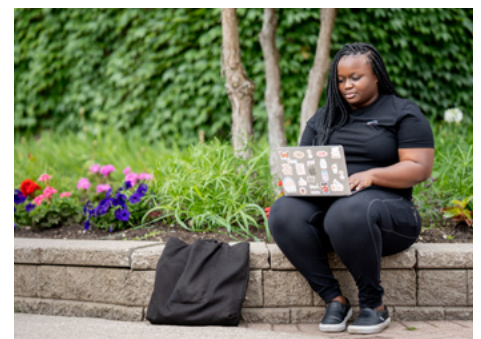
### Blue Door

March 2022 marked the launch of **Blue Door**, a partnership brokerage service where experts connect prospective partners to groups with matching needs within the U of T community. Blue Door helps identify potential partnership opportunities and streamlines the collaboration process. It provides a seamless partnership experience that leverages our vast resources, expertise, and top talent to help achieve shared goals.



### Research Partnership Security

U of T's new Office of Research Security, launched in 2022, provides geopolitical advice to researchers so they can better understand the new dynamics in government research security policy. This service supports U of T's ongoing efforts to assist researchers in identifying, managing, and addressing risks related to international research collaboration. Available supports include dedicated expert staff to advise faculty members and **online tools** to guide the security considerations of a research partnership.



# Serving the U of T Research & Innovation Community

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**The VPRI oversees a wide-ranging portfolio of services supporting U of T researchers throughout all stages of the research life cycle.**

The VPRI offers services including funding application development, administration of sponsor and Tri-Agency funding, management of research sponsorship relationships, and development of research partnerships.

## Oversight and Compliance

The VPRI ensures that the University fulfills its ethical, legal, and financial reporting obligations associated with research, including human and animal research ethics, environmental health and safety, and financial reporting and auditing. The VPRI manages research risks for the University so that researchers and learners can conduct research in a safe and appropriate environment. A major component of risk management is the creation and implementation of appropriate and stringent policies and procedures that address a wide spectrum of risks. With the assistance of dedicated faculty, staff, and community volunteers, all the VPRI units work together to manage the complex sponsor and regulatory requirements that accompany academic research, including participation on research review committees, environmental health and safety committees, research ethics boards, and animal care committees.



### Health Canada Institutional Cannabis Research Licences

U of T recently received four institutional cannabis research licences from Health Canada allowing researchers to study cannabis and cannabis products under the University's licence rather than having to apply for an individual research project licence from Health Canada. The University's new cannabis research licences cover a wide range of research areas, including the growth and cultivation of cannabis plants, and research with human participants. Studies on cannabis are of growing interest to society, particularly since 2018, when cannabis was legalized. These licences will facilitate cannabis research at the University while providing an appropriate regulatory framework.

### Human Research Ethics Unit (HREU)

The HREU provides administrative support to the University Research Ethics Boards (REB) and to researchers in the development, review, and oversight of human research to ensure compliance with applicable laws, regulations, and policies. The Human Research Ethics Program offered by HREU provides several continuing education opportunities to its REB members and the broader U of T research community.

In 2022, HREU provided over 300 pre-submission ethics consultations, 100 post-approval consultations, 24 information sessions and lectures, and 50 My Research Human Protocol training sessions.

### Principles and Practices of Biorisk Management Workshop

The VPRI's Environmental Health and Safety (EHS) Unit relaunched its Principles and Practices of Biorisk Management Workshop, a comprehensive five-day lecture series introducing the essential elements of biosafety and biorisk management.

Participants advance their biosafety knowledge in general risk assessment, protective measures, facility design, equipment requirements, and governmental regulations in both research and diagnostic laboratory settings. The course content is developed and delivered by a diverse panel of experts in the field of biosafety, including the University of Toronto Institutional Biosafety Committee's subject matter experts, and provincial and federal regulators.

## The Connaught Fund

2022 marked the 50th anniversary of the **Connaught Fund**, the largest internal research funding program in Canada, with an endowment worth over \$147 million. The Fund supports high-calibre research that seeks to meet the challenges facing our global society. Since its inception, more than \$182.3 million has been awarded to University of Toronto researchers.

The Connaught Fund offers 10 funding programs available to a broad range of researchers, from graduate students and early career researchers to interdisciplinary teams and entrepreneurs. The programs support global challenges, community partnerships, dedicated funding streams for PhD students and Black and Indigenous researchers, U of T-led startup companies, and more.



## Community Partnership Research Program

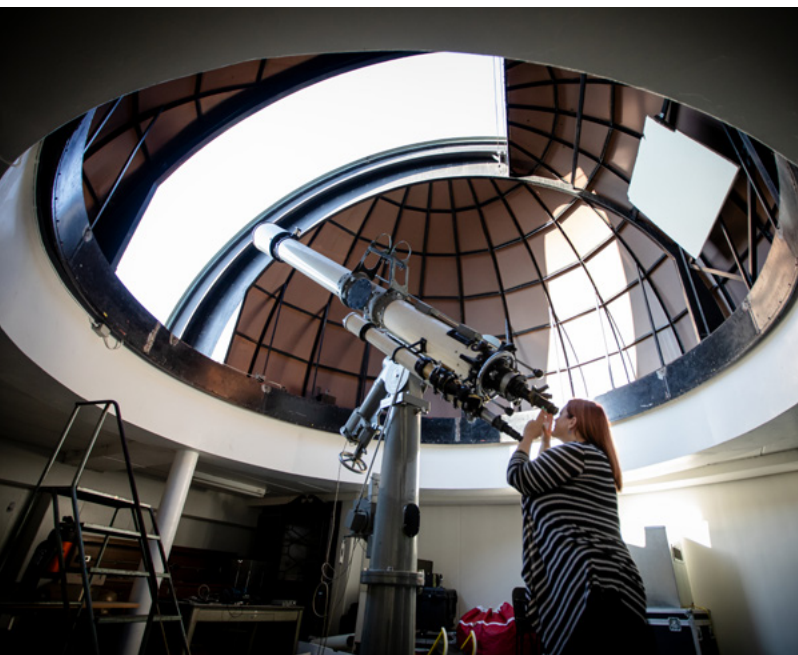
The Community Partnership Research Program creates new partnerships and nurtures early stage research partnerships between U of T and community partners, fostering access to each other's unique knowledge, expertise, and capabilities on topics of shared interest. It is anticipated that these collaborations will evolve into established relationships that can attract external funding.

In 2022, four projects were awarded funds from the Community Partnership Research Program for research exploring sustainable arts-wellness programming for 2SLGBTBQ+ youth, dental care access needs of racialized women experiencing intimate partner violence, First Nations community-based research on climate health targeting Lyme disease, and the endangered Mayan language of Itzaj in Guatemala.

## Global Challenge Award

The Global Challenge Award heightens U of T's contribution to important issues facing society through the advancement of knowledge and the transfer and application of solutions. The program funds up to \$250,000 for each global challenge team project, with the aim of establishing new collaborations with colleagues from diverse disciplines, along with innovators and thought leaders from other sectors.

In 2022, three U of T researchers received Connaught Global Challenge Awards for projects addressing sustainable housing in First Nations communities, the role of automation and technology in health care, and how humanistic research can promote equity in the present by exploring the diversity of the past.





## Celebrating 50 Years of the Connaught Fund

Since its establishment in 1972, the Connaught Fund has supported thousands of researchers from a wide range of disciplines across the University of Toronto. The Connaught Fund traces its legacy to the discovery of insulin at U of T in 1921 and its production at U of T's Connaught Laboratories. The Labs played an instrumental role in the mass production and worldwide distribution of penicillin in the 1940s, as well as the polio vaccine in the 1950s. In the 1970s, the Connaught Laboratories, together with the World Health Organization, played a leading role in the eradication of smallpox.

Today, the Fund's many programs carry on the legacy of groundbreaking discovery through their support of innovative research across all fields of inquiry.



## Big Ideas at U of T

The VPRI hosted *Big Ideas at U of T* at Convocation Hall in November, an evening celebrating 50 years of the Connaught Fund by showcasing three Connaught-funded researchers: Professors Renée Hložek (Dunlap Institute for Astronomy and Astrophysics), Maydianne Andrade (Department of Biological Sciences, UTSC), and Ronald Deibert (The Citizen Lab, Munk School of Global Affairs & Public Policy).

The speakers shared their leading-edge scholarship on topics ranging from the earliest moments of the universe, and the dangers of international digital espionage, to how we can practise activism and advocacy through research. The evening was hosted by broadcast journalist Mary Ito, host of The CRAM Podcast.

## Connaught Fund Website

In November 2022, the VPRI launched a new **Connaught Fund website** to better reflect the Fund's prestigious history and to showcase current Connaught-funded researchers across a range of disciplines and programs. The website features new photography of U of T researchers and design elements that align with the University's Defy Gravity brand identity, along with an improved user experience.



## The Centre for Research & Innovation Support (CRIS)

The **Centre for Research & Innovation Support** has a broad mandate to support faculty researchers across all three campuses by improving the visibility of and access to the University's rich array of supports and resources. In 2022, it delivered 180+ programming offerings, ranging from panel discussions on how to succeed with funding applications and key strategies for successfully navigating industry and international partnerships, to practical workshops on research project management and facilitating group manuscript writing.

CRIS also provides collaboration consultation services to support faculty members in the planning and execution of collaborative engagements such as interdisciplinary roundtable discussions, community engagement conversations, and interactive strategic planning workshops.

### Key CRIS resources include:



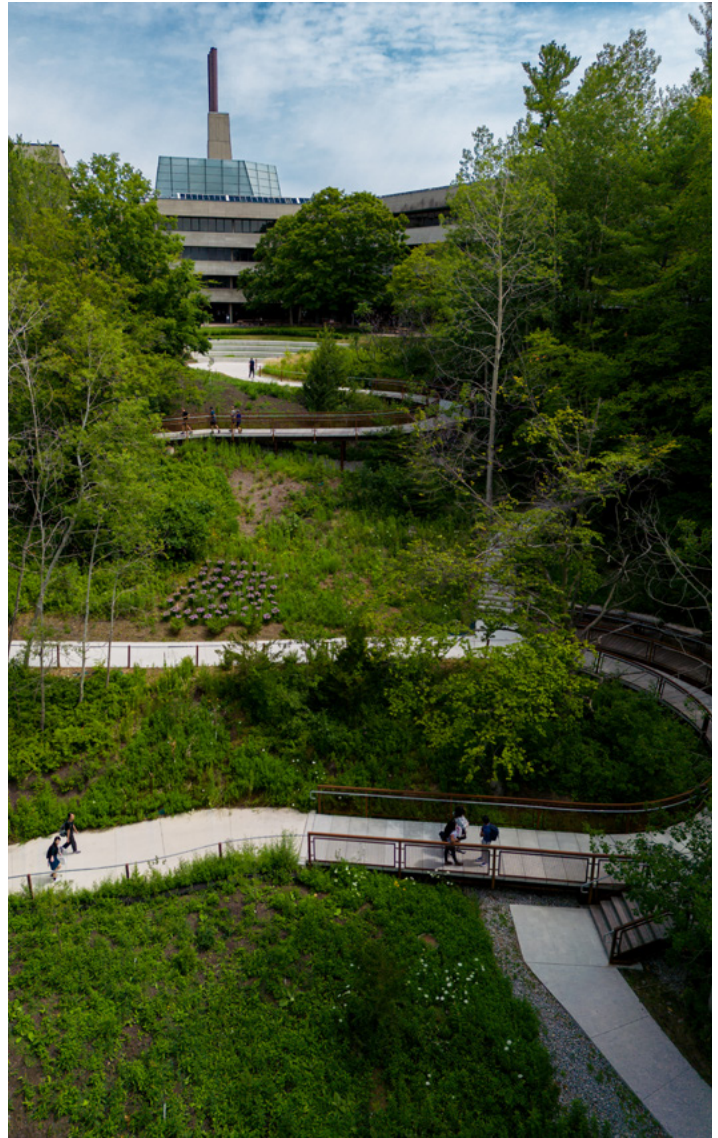
### Researcher Development Framework

During the two-year pandemic-related campus closure in 2020 to 2021, the needs of the U of T research community and the programming offerings of CRIS underwent significant changes. The **Researcher Development Framework** was introduced in 2022 to shape all administered programming into six key functional areas to ensure that future programming aligns with the in-demand needs of the U of T research community.

## Social Science Working Group

In February 2022, U of T formed a Social Science Working Group representing faculty from a range of social science disciplines spanning the University. The group's mandate was to develop a strategic roadmap for outstanding and impactful research, which would build on U of T's legacy of excellence and engagement in the social sciences—locally, nationally, and internationally. CRIS organized a series of large strategic engagements that took place in the spring of 2022, including a community-wide consultation and a leadership forum, where stakeholders were afforded the opportunity to reflect on the current state of the research environment, consider an ideal future, and participate in the development of solutions.

The working group issued its final report, *Global Ambition, Local Impact: Galvanizing the Social Science Research Community at the University of Toronto*, in November, with a series of recommendations for improving opportunities for collaborations, research and administrative supports, assisting students and postdoctoral fellows, and recognizing, celebrating, and valuing research.



## Strengthening the Administration of Research (STAR)

In 2022, **STAR** hosted a networking session and six virtual workshops with a total attendance of 860 participants on topics including advanced research procurement, reducing risk exposure in research expenses, and a focused Canada Foundation for Innovation (CFI) session on developing a budget and purchasing equipment. The most popular workshop was “Understanding the VPRI: An Overview of the VPRI’s Units and Functions,” which provided an opportunity for attendees to explore functional areas within the VPRI and meet representatives from its units.

## DiscoverResearch

**DiscoverResearch** is a new online platform that highlights, celebrates, and promotes U of T’s scholars to help spark discovery, connection, and collaboration.

In DiscoverResearch, U of T faculty can leverage powerful data feeds to build searchable profiles that showcase their research and scholarly activities across all domains of study, as well as signal their interest in collaborations with academics, graduate students, industry, and media. DiscoverResearch will enable faculty to download up-to-date CVs and information about departmental and institutional strategic initiatives for integration with websites and communication strategies.

## Toronto Academic Health Science Network (TAHSN)

This year, the VPRI served the **TAHSN** community by coordinating the data reporting of:

**more than 8,400 research agreements funding \$920 million across 14 institutions, and over 3,000 active, affiliated researchers.**

**TAHSN-affiliated researchers are represented across all three campuses, spanning 11 faculties and 61 departments.**

The VPRI improved the data quality and collection process for our partners, initiated TAHSN-focused reporting that showcased research funding and TAHSN-researcher involvement, and provided TAHSN-focused analytics to support decision-making and enhance communication of its research excellence. The VPRI maintains a helpdesk and support site for affiliated institutions to submit their grant data.

## SciNet

**SciNet** is the supercomputer centre at U of T, hosting Niagara, the fastest supercomputer in Canada, plus a range of other systems. As one of five host sites in the national advanced research computing platform, SciNet provides Canadian researchers with the computational resources and expertise necessary to perform their research on a scale not previously possible in Canada. The systems help power work from the biomedical sciences and aerospace engineering to astrophysics and climate science.

## VPRI Dashboards

The VPRI **Dashboards** are the official source for analytics-focused research funding and innovations data at U of T. The VPRI Dashboards provide access to and analysis of research applications, funded awards, Tri-Agency participation and market share, and innovations activity. The Dashboards’ reporting, map creation, and data visualization tools support large team research applications, internal and external benchmarking, and divisional quantitative research strategic planning.

As the most used dashboard suite at U of T, the VPRI Dashboards were visited over 10,000 times this year. The Dashboards serve over 500 administrative users, supporting work in all divisions. These diverse users are supported through a helpdesk, video tutorials, classes, user groups, and instructional material.



## U of T Commercialization Framework

Research that feeds innovation, entrepreneurship, and commercialization is thriving at U of T. Commercialization and patent protection are critically important to the process of turning ideas and innovations into new products and services, and are valued by commercialization partners, entrepreneurs, and investors seeking to bring new innovations to the market.

With the launch of U of T's first Commercialization Framework in April 2022, the University seeks to ensure that all scholars are enabled to effectively identify intellectual property opportunities emerging from their research, and to provide support to effectively manage and protect IP when warranted.



## Technology Licensing & Startup Opportunities

The University of Toronto is a global leader in turning research and intellectual property into products, services, companies, and jobs.

**The Innovations & Partnerships Office (IPO)** offers a one-stop shop to license these technologies and support the creation of new companies based on innovations created at U of T—the top institution in Canada for creating research-based startups.

IPO supports the research and innovation community by receiving roughly 190 invention disclosures, filing over 70 priority patent applications, and executing over 40 licensing and option agreements. The University has launched over 90 research-based startups in the past five years.

## Major Research Project Management (MRPM) Fund

This VPRI initiative enables U of T faculty to focus on their research by providing proposal development and project management support for large, complex research projects with multiple principal investigators and formidable reporting and audit provisions.

## My Research Applications & Agreements (MRA)

**MRA** provides the U of T research community with modernized and user-friendly tools for submitting research funding applications and non-funded agreements. In 2022, upgrades to MRA included building and integrating functionality for University block grants, automating access for teaching stream faculty and librarians, and directly linking applicants to research security resources.





## Core Facilities Working Group (CFWG)

Over the past two years, the CFWG has led an exploratory study to make recommendations for improved planning and the development and oversight of U of T's extensive collection of high-value research assets, such as equipment and facilities, across the University's academic divisions and campuses. The group's mandate is to leverage capital investments, promote equitable access, and facilitate operational efficiency and responsible management. In 2022, its report received unanimous support and approval and its recommendations will be implemented in 2023.

## Divisional Quantitative Research Strategic Plans (DQRSP)

In 2022, the VPRI launched the inaugural DQRSP process, which will report annually on the key strategic research and innovation objectives of each academic division. This critical reporting informs the VPRI's plans for leveraging institutional strengths, pursuing areas of planned growth, addressing gaps pertaining to research excellence, and shaping U of T's institutional strategic research plan.

The DQRSPs better enable the VPRI to support divisions so they can recognize the breadth of their research excellence and impact, and plan appropriate resources.

## Community for Research Excellence (CORE)

2022 marked the launch of CORE, a community of practice for research administrators providing a collegial forum for sharing best practices and strategies for success across research fields and disciplines. Through this initiative, over 55 research administrators from various divisions support faculty research excellence by facilitating collaborative problem solving for shared operational concerns and challenges.

To guide the development of common goals, solutions, and resources, CORE working groups of research administrative staff advise on strengthening research proposal development, honours and awards strategies, relationship and partnership building, and measuring research impact.

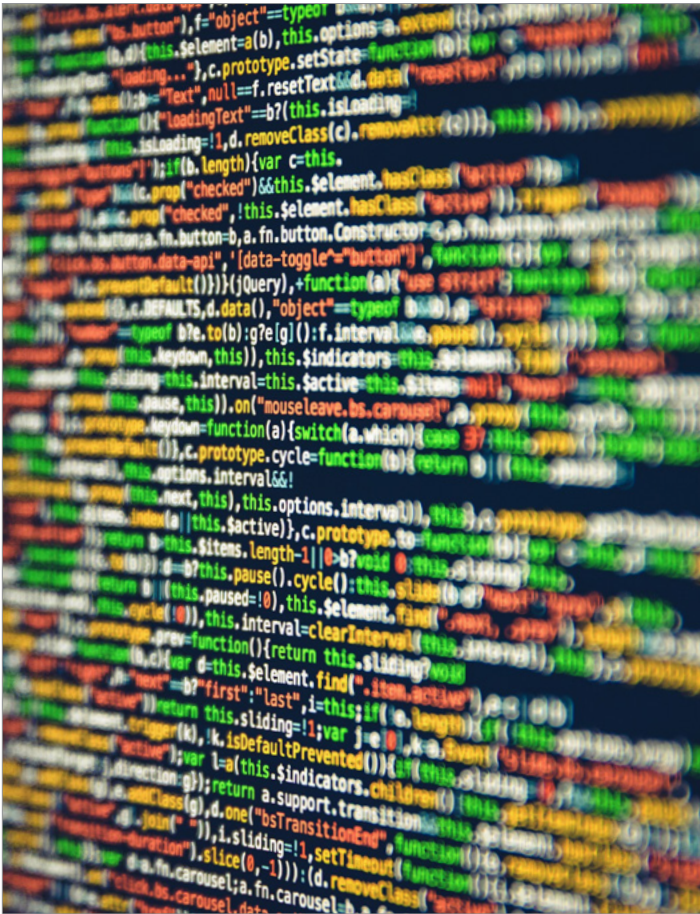
## Public Policy Reports Collection in TSpace

The **U of T Public Policy Reports Collection** is housed in **TSpace**, and is a joint venture of the VPRI and U of T Libraries, which disseminates and preserves the openly accessible work of the University of Toronto community. Making these works available online in indexed sites increases their visibility and citation rate. Launched in 2003, TSpace now houses over 100,000 items and facilitates over seven million downloads per year.

The Public Policy Reports Collection assembles policy-related research reports and grey literature by U of T faculty, which improves discoverability of U of T contributions in a wide range of areas, including local, provincial, national, and global public policy matters. In the past five years, this collection has posted over 70 public policy documents.

## Digital Research Infrastructure at U of T (DRI@UT)

The VPRI introduced the **DRI@UT** Advisory Committee and Researcher Council to guide and facilitate the creation and maintenance of digital research infrastructure strategy, services, and supports to meet the complex and varied needs of U of T's research community. The DRI@UT structure aligned with the national Digital Research Alliance of Canada and the Compute Ontario organizations, enabling U of T contributions to national and provincial strategy development and priority setting, as well as responses to DRI funding opportunities. 2022 marked DRI@UT's continued growth through a series of key initiatives.



### DRI Portal


Launched in 2022 by CRIS under the leadership of the DRI Advisory and DRI Researcher Council, the **DRI Portal** is a response to the increased need for DRI resources. The Portal supports the digital research community by providing access to resources related to data management planning, research data storage and sharing, working with research data, and privacy and security considerations.

### Institutional Research Data Management Strategy

A key priority of DRI@UT was the development of the University of Toronto Institutional Research Data Management Strategy, which outlines the University's commitment to responsible practices pertaining to the management of data throughout the research process. This year, a working group engaged in a series of public consultations with the U of T research community, and **The Strategy** was launched in February 2023.

### SciNet

At U of T, SciNet is one of five host sites of the national advanced research computing platform operated under the auspices of the Digital Research Alliance of Canada. In 2022, DRI@UT provided institutional guidance to SciNet by advising on pilot projects for computing with sensitive data and engagements with private sector clients.



“There has been tremendous engagement and a recognition that we need really diverse, great minds at the table with different kinds of skill sets to solve grand challenges.”

**Professor Leah E. Cowen**  
Vice-President,  
Research and Innovation, and Strategic Initiatives



# U of T Research by the Numbers

## Rankings & Awards

### U of T Rankings in the Most Prominent Global Rankings Systems

Ranking	2022–2023	2021–2022	2020–2021
1. National Taiwan University Rankings	6	3	3
2. U.S. News Best Global Universities	18	16	17
3. Times Higher Education World University Rankings	18	18	18
4. Academic Ranking of World Universities	22	22	23
5. QS World University Rankings	34	26	25

*Each ranking system has its own provenance and methodology, including different metrics and how they are weighted:*

- National Taiwan University (NTU) Rankings** uses eight indicators that are based on bibliometric data from the Web of Science™ and includes publication and citation counts.
- U.S. News - Best Global Universities** uses 13 indicators that are based on bibliometric data from the Web of Science™ and the results of reputation surveys.
- Times Higher Education (THE) - World University Rankings** uses 13 indicators grouped into five pillars. The indicators are based on a combination of bibliometric data from Scopus, the results of reputation surveys, and data about staff, students, and finances submitted by participating universities.
- The ShanghaiRanking - Academic Ranking of World Universities (ARWU)** uses six indicators that are based on a combination of bibliometric data from the Web of Science™, the number of alumni and staff that have been awarded a Nobel Prize or Fields Medal, and the number of Highly Cited Researchers (from Clarivate).
- QS - World University Rankings** uses five indicators that are based on a combination of bibliometric indicators from Scopus, the results of reputation surveys of academics and employers, and data about staff and students submitted by participating universities.

## Rankings & Awards

### U of T 2022–2023 Major Field Ranking Results

#### In the top 5 by major field

2022–2023	Field	World Ranking
NTU	Medicine	4

#### In the top 15 by major field

2022–2023	Field	World Ranking
THE	Clinical, Pre-clinical & Health	7
NTU	Social Sciences	9
QS	Life Sciences & Medicine	12
THE	Education	13
NTU	Life Sciences	13
THE	Arts & Humanities	15

#### In the top 30 by major field

2022–2023	Field	World Ranking
QS	Arts & Humanities	16
THE	Law	16
THE	Psychology	19
QS	Social Sciences & Management	21
THE	Computer Science	22
THE	Physical Sciences	22
THE	Life Sciences	24
QS	Natural Sciences	24
THE	Business & Economics	25
THE	Social Sciences	26
THE	Engineering	27

Data sources: [QS](#), [NTU](#), and [THE](#).

**#1**  
in Canada  
in almost  
every major  
field.

## Rankings & Awards

### U of T 2022–2023 Subject Ranking Results

#### In the top 5 by subject

2022–2023	Field	World
NTU	Clinical Medicine	3
U.S. News	Clinical Medicine	4
QS	Education & Training	4
Shanghai	Sociology	4
U.S. News	Surgery	4
U.S. News	Cardiac and Cardiovascular Systems	5
U.S. News	Endocrinology and Metabolism	5
U.S. News	Oncology	5
QS	Sports-related Subjects	5

#### In the top 30 by subject

2022–2023	Field	World
QS	Accounting & Finance	16
QS	Anthropology	16
QS	Biological Sciences	16
NTU	Biology & Biochemistry	16
QS	Chemistry	18
QS	History	18
Shanghai	Aerospace Engineering	19
QS	Electrical & Electronic Engineering	19
QS	Law	19
NTU	Molecular Biology & Genetics	19
QS	Sociology	19
U.S. News	Biotechnology and Applied Microbiology	20
Shanghai	Ecology	20
Shanghai	Economics	20
QS	Economics & Econometrics	20
QS	Physics & Astronomy	20
NTU	Space Science	20
Shanghai	Biomedical Engineering	21
Shanghai	Biotechnology	21
U.S. News	Cell Biology	21

#### In the top 15 by subject

2022–2023	Field	World
Shanghai	Medical Technology	6
NTU	Psychiatry/Psychology	6
Shanghai	Psychology	7
QS	Anatomy & Physiology	8
Shanghai	Pharmacy & Pharmaceutical Sciences	8
U.S. News	Psychiatry/Psychology	8
NTU	Social Sciences, General	8
U.S. News	Arts & Humanities	9
NTU	Neuroscience & Behaviour	9
QS	Pharmacy & Pharmacology	9
U.S. News	Social Sciences and Public Health	9
Shanghai	Education	10
Shanghai	Finance	10
QS	Medicine	10
QS	Nursing	10
QS	Philosophy	10
Shanghai	Public Health	10
U.S. News	Public, Environmental and Occupational Health	10
Shanghai	Statistics	10
U.S. News	Biology and Biochemistry	11

Data sources: QS - Subject Rankings, NTU Ranking by Subject, U.S. News - Best Global Universities, and ShanghaiRanking - Academic Subject

## Rankings & Awards

### Institutional Rank in the Top 10% Most Highly Cited Publications (2017–2021)

#### Top 5 Global Institutions by Publications

Global Ranking	
1	Harvard University
2	University of Chinese Academy of Sciences
3	Stanford University
4	University College London
5	<b>University of Toronto</b>

**U of T is in the top 5 globally ranked universities.**

Based on the number of publications (2017 to 2021) that are among the top 10 percent most cited articles.

#### Fields where U of T Places in the Top 10 by Publications

Global Ranking	
2	Clinical Medicine
4	Psychiatry/Psychology Social Sciences
6	Neuroscience & Behaviour
7	Arts & Humanities

**Clinical Medicine at the University of Toronto is globally ranked in 2nd place, just after Harvard University.**

Two fields (Psychiatry/Psychology and Social Sciences) are ranked in 4th place, Neurosciences & Behaviour is in 6th place, and Arts & Humanities is in 7th place.

#### Canadian U15 Universities by Publications

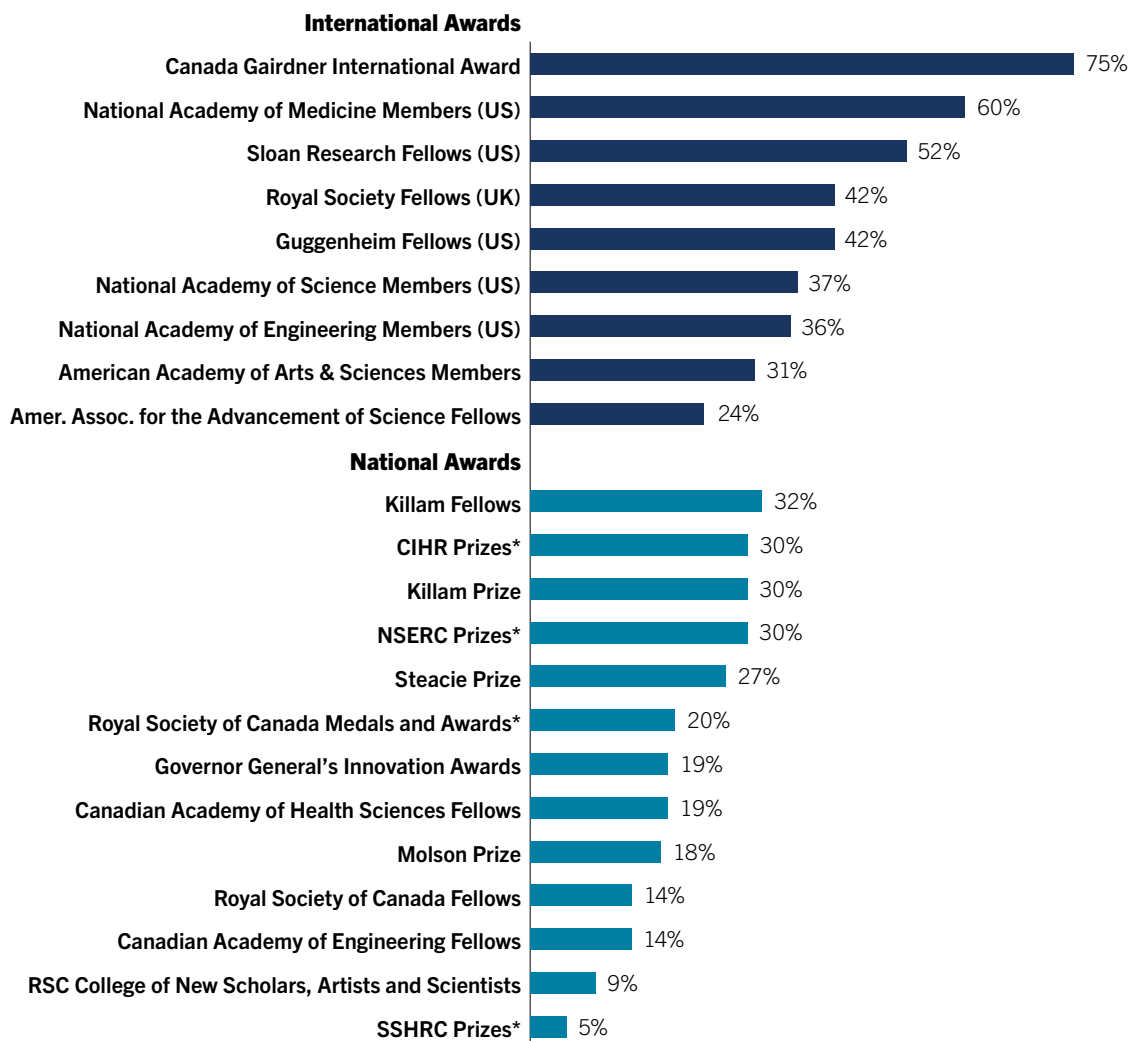
Global Ranking	
5	<b>University of Toronto</b>
17	University of British Columbia
60	McGill University

**Among the Canadian U15 universities, there are three ranked among the Top 100 globally, in the order of U of T, UBC, and McGill.**

*Data sources: Queried from InCites dataset updated 2023-01-27 with Web of Science™ content indexed through 2022-12-31. Analysis by the University of Toronto.*

Rankings & Awards

Major Honours & Awards to Faculty—U of T Market Share Among Canadian Universities (2013–2022)



Data source: VPRI, based on individual agency records. Updated January 2023.

\*Awards included in specified award suites:

CIHR Prizes include the CIHR Gold Leaf Prizes and CIHR Health Researcher of the Year Prize.

NSERC Prizes include the Gerhard Herzberg Canada Gold Medal for Science and Engineering, Arthur McDonald / E.W.R. Steacie Memorial Fellowships, Brockhouse Canada Prize for Interdisciplinary Research in Science and Engineering, NSERC Donna Strickland Prize for Societal Impact of Natural Sciences and Engineering Research, and NSERC John C. Polanyi Award.

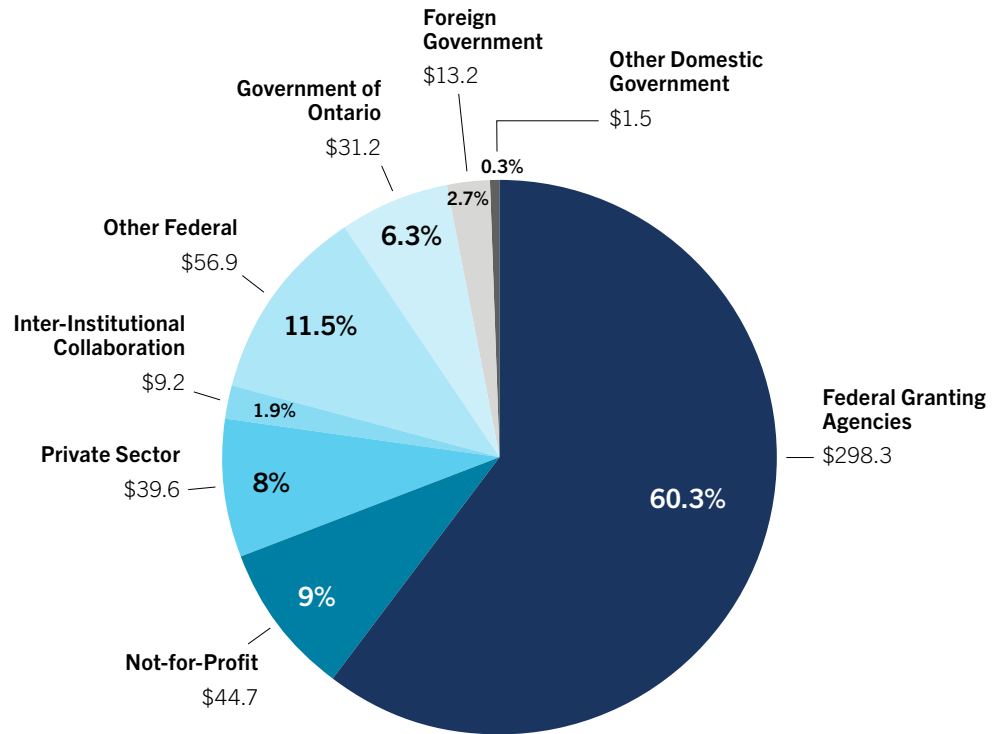
Royal Society of Canada Medals and Awards include all awards except the Alice Wilson Awards to postdoctoral researchers.

SSHRC Prizes include the SSHRC Gold Medal, SSHRC Connection Award, SSHRC Insight Award, and SSHRC Partnership Award.

## Funding

### Research Funds Awarded to U of T (without Partner Hospitals) by Sector (2021–2022)

(\$ Millions)



Total Funding  
**\$495 million**

**Data source:** VPRI Dashboards, February 2023

Includes University of Toronto only.

Represents funds awarded for use in year, based on government fiscal year, April to March.

As of this year, a shift in reporting funding by sector was made to show primary sponsors' sectors for all sub-grants.

The federal granting agencies include the Social Sciences and Humanities Research Council (SSHRC), the Natural Sciences and Engineering Research Council (NSERC), the Canadian Institutes for Health Research (CIHR) and related programs: Canada Research Chairs (CRC), Canada Excellence Research Chairs program (CERC), Canada 150 Chairs (C-150), Canada First Research Excellence Fund (CFREF), Research Support Fund (RSF), Incremental Project Grant (IPG), and New Frontiers in Research Fund (NFRF).

Other Federal includes the Canada Foundation for Innovation (CFI).

Other Domestic Government includes municipal governments and provincial governments other than Ontario.

All indirect costs are included.

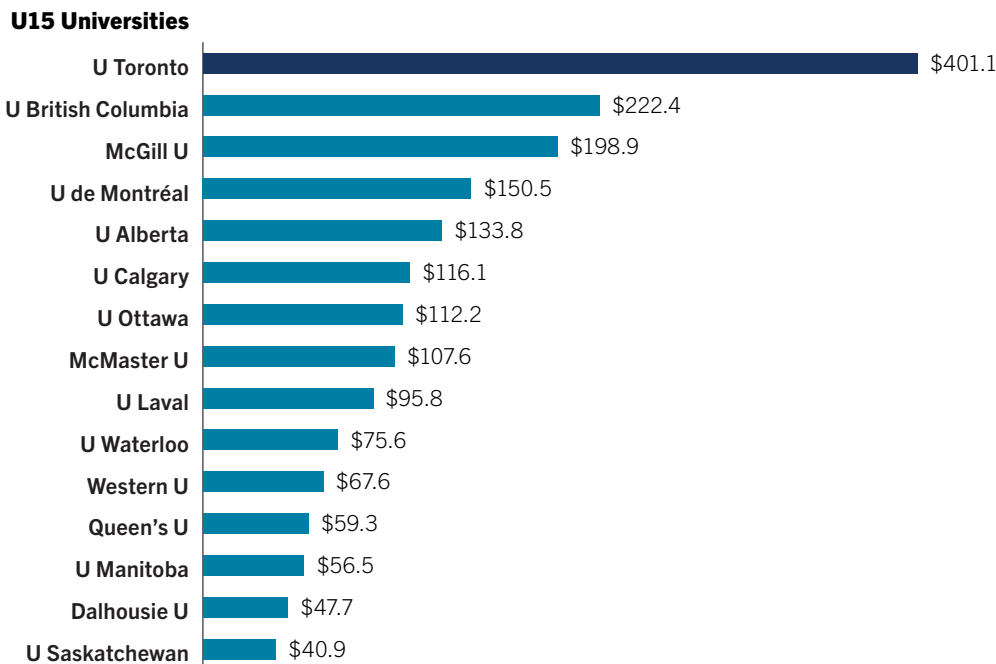
Includes funding from Research Support Fund subgranted from the University.

## Funding

U of T received **16%** of Tri-Agency funding awarded to U15 universities.

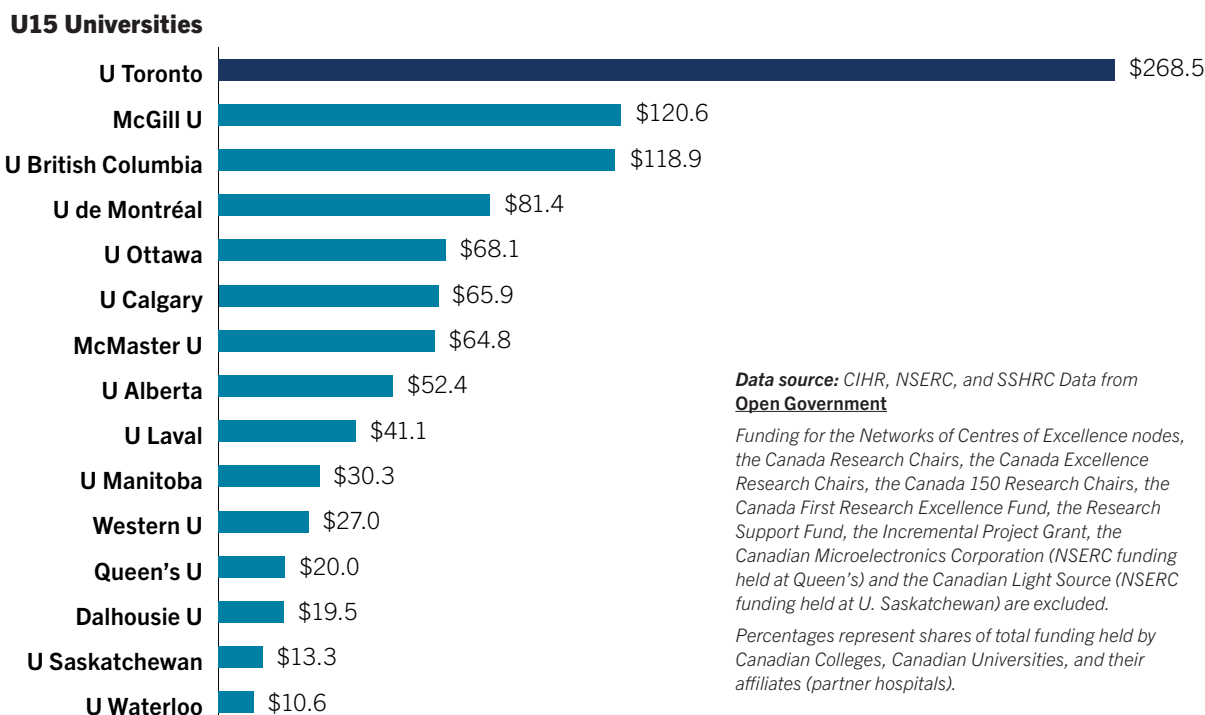
### Tri-Agency Funding to U15 Universities Including Partner Hospitals (2021–2022)

(\$ Millions)



### Canadian Institutes of Health Research (CIHR) Funding Including Partner Hospitals (2021–2022)

(\$ Millions)



**Data source:** CIHR, NSERC, and SSHRC Data from [Open Government](#)

Funding for the Networks of Centres of Excellence nodes, the Canada Research Chairs, the Canada Excellence Research Chairs, the Canada 150 Research Chairs, the Canada First Research Excellence Fund, the Research Support Fund, the Incremental Project Grant, the Canadian Microelectronics Corporation (NSERC funding held at Queen's) and the Canadian Light Source (NSERC funding held at U. Saskatchewan) are excluded.

Percentages represent shares of total funding held by Canadian Colleges, Canadian Universities, and their affiliates (partner hospitals).

U of T received **24.3%** of CIHR funding awarded to U15 universities.

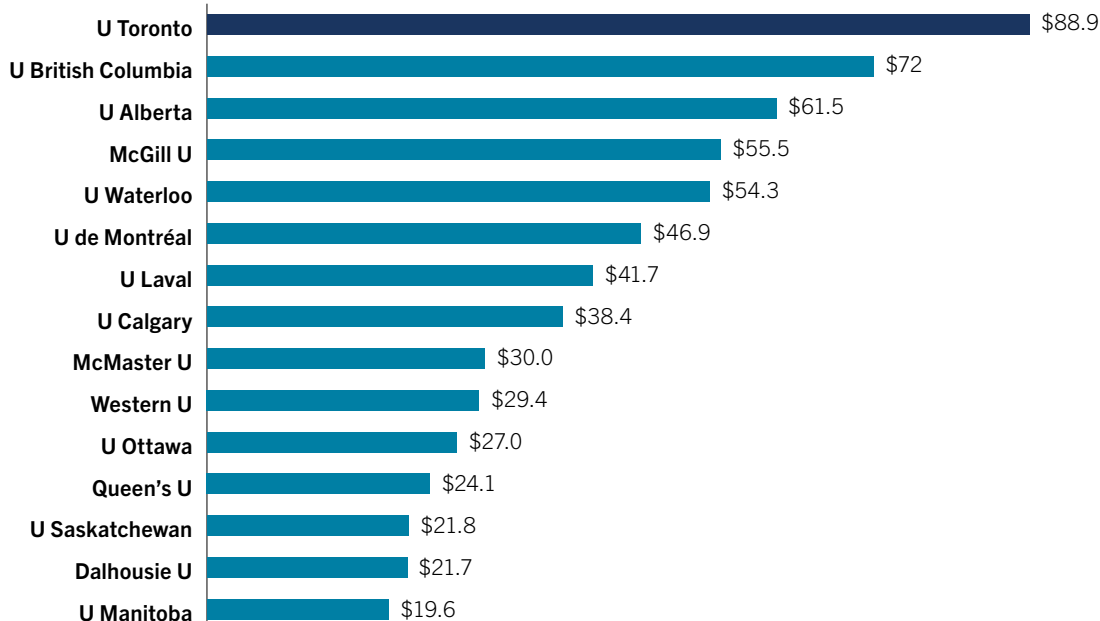
## Funding

U of T received **9%** of NSERC funding awarded to U15 universities.

### Natural Sciences and Engineering Research Council of Canada (NSERC) Funding (2021–2022)

(\$ Millions)

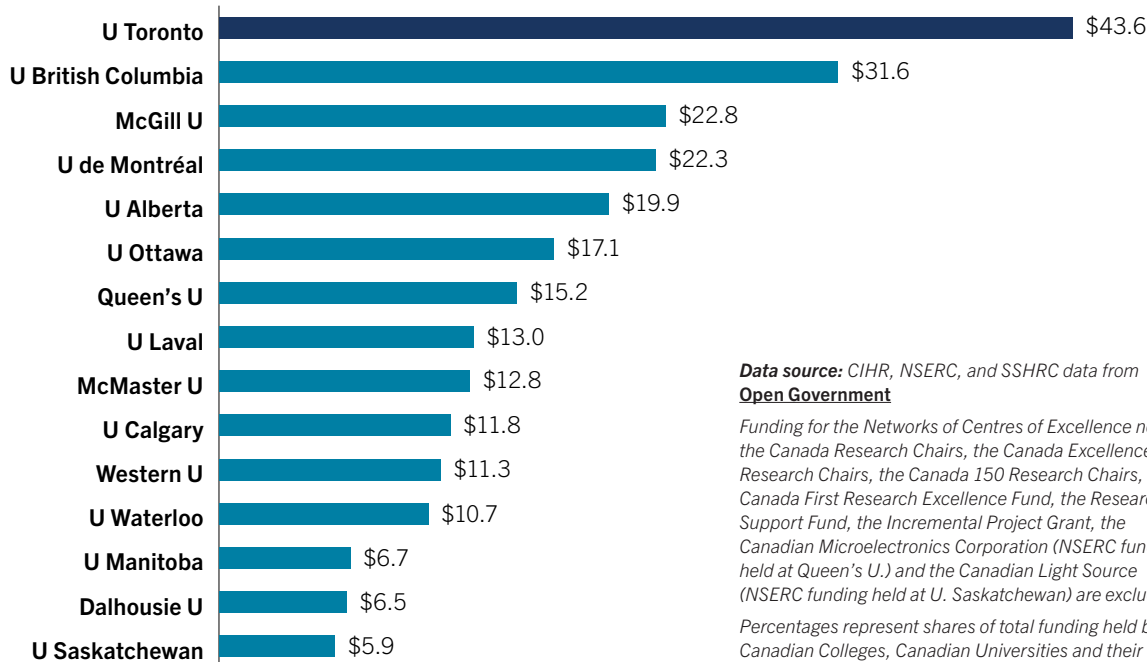
#### U15 Universities



### Social Sciences and Humanities Research Council (SSHRC) Funding (2021–2022)

(\$ Millions)

#### U15 Universities



**Data source:** CIHR, NSERC, and SSHRC data from [Open Government](#)

Funding for the Networks of Centres of Excellence nodes, the Canada Research Chairs, the Canada Excellence Research Chairs, the Canada 150 Research Chairs, the Canada First Research Excellence Fund, the Research Support Fund, the Incremental Project Grant, the Canadian Microelectronics Corporation (NSERC funding held at Queen's U.) and the Canadian Light Source (NSERC funding held at U. Saskatchewan) are excluded.

Percentages represent shares of total funding held by Canadian Colleges, Canadian Universities and their affiliates (partner hospitals).

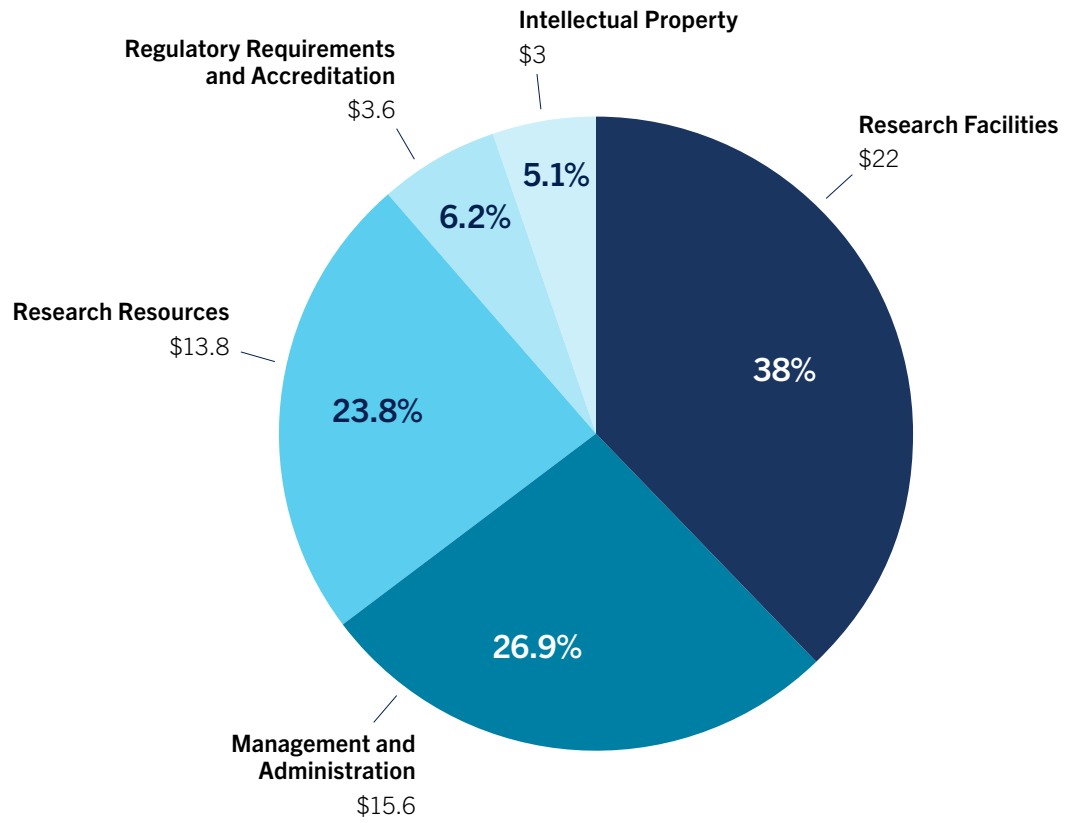
U of T received **10.6%** of SSHRC funding awarded to U15 universities.



## Funding

### Research Support Fund Expenditures by Eligible Categories (2021–2022)

(\$ Millions)



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Total Funding  
**\$58 million**

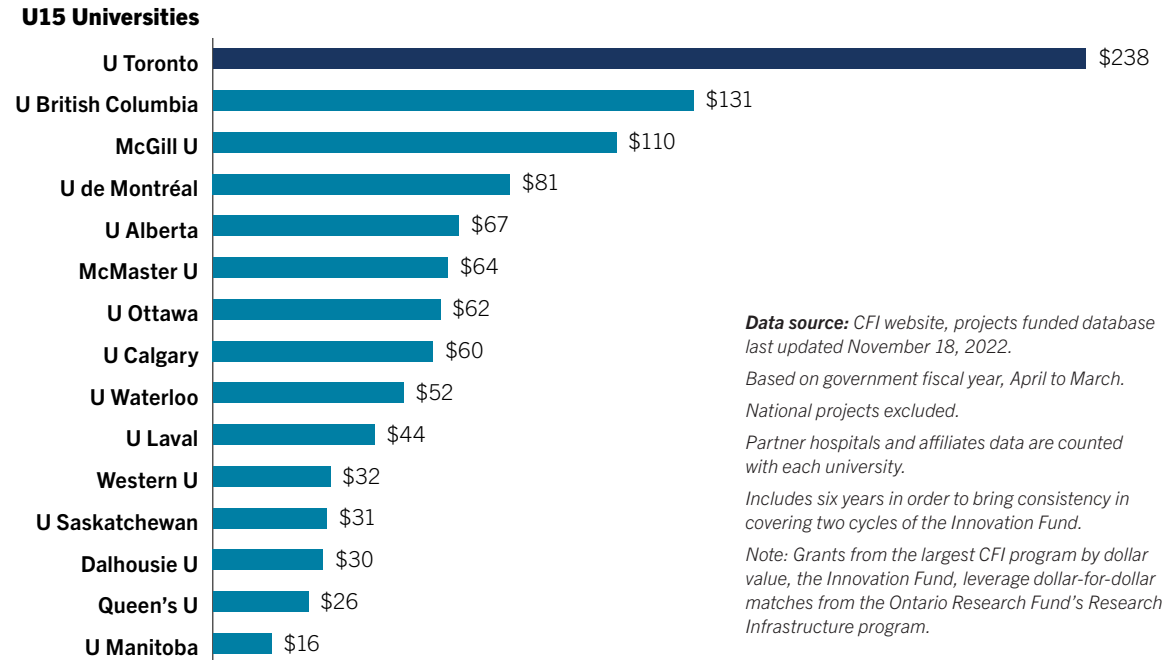
*Data source: VPRI, based on government fiscal year April 2021 to March 2022.*

## Funding

U of T received **16.8%** of CFI funding awarded to U15 universities.

### Canada Foundation for Innovation (CFI) Funding to U15 Universities (2016–2017 to 2021–2022)

(\$ Millions)



**Data source:** CFI website, projects funded database last updated November 18, 2022.

Based on government fiscal year, April to March. National projects excluded.

Partner hospitals and affiliates data are counted with each university.

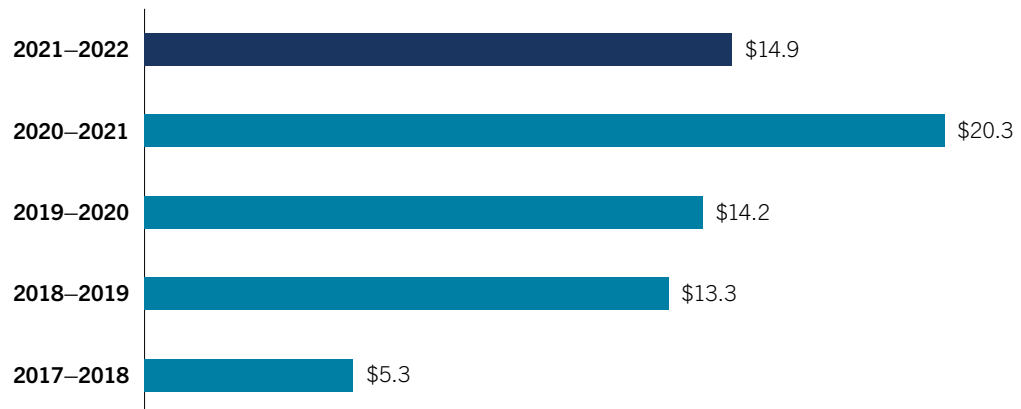
Includes six years in order to bring consistency in covering two cycles of the Innovation Fund.

Note: Grants from the largest CFI program by dollar value, the Innovation Fund, leverage dollar-for-dollar matches from the Ontario Research Fund's Research Infrastructure program.

### Mitacs Funding Awarded to U of T

(\$ Millions)

#### Competition Year



**Data source:** Mitacs Annual Activity Reports for the University of Toronto

For fiscal years 2017–2018 to 2021–2022.

## Funding

## Connaught Fund Amounts Awarded (2021–2022)

Program	Amount Awarded Connaught Expendable	McLean Fund	Inventions Revenue	I'Anson Fund	# of Awards
Global Challenge Award	\$859,143	–	–	–	4
New Researcher Award	\$990,554	–	–	–	51
Innovation Award	\$500,667	–	\$500,667	–	13
McLean Award*	\$62,500	\$62,500	–	–	1
Graduate Scholarship	\$1,129,583	–	–	–	116
<b>Total</b>	<b>\$3,542,447</b>	<b>\$62,500</b>	<b>\$500,667</b>	<b>–</b>	<b>185</b>

Total funding to research projects  
overseen by the Connaught Committee:

**\$4,105,614**

*Income earned by Connaught Endowment for 2021–2022: \$4,256,665*

*\* Required match to the McLean Fund investment.*

*For U of T fiscal year May 2021 to April 2022*

## Medicine by Design Awards (2021–2022)

A project funded by the Canada First Research Excellence Fund (CFREF)

MbD Program	Amount Awarded**	Funded Principal Investigators
Engineering-Medicine/Hospital (EMHSeed)	\$33,333	2
MbD Operations & Outreach	\$2,279,943	–
MbD Team Project (Cycle 2)	\$9,154,543	70
New Hire Faculty Support	\$1,761,103	4
New Ideas	\$1,578,489	24
Postdoctoral Fellowship	\$879,296	14
<b>Total</b>	<b>\$15,686,706</b>	<b>114</b>

**Data source:** VPRI

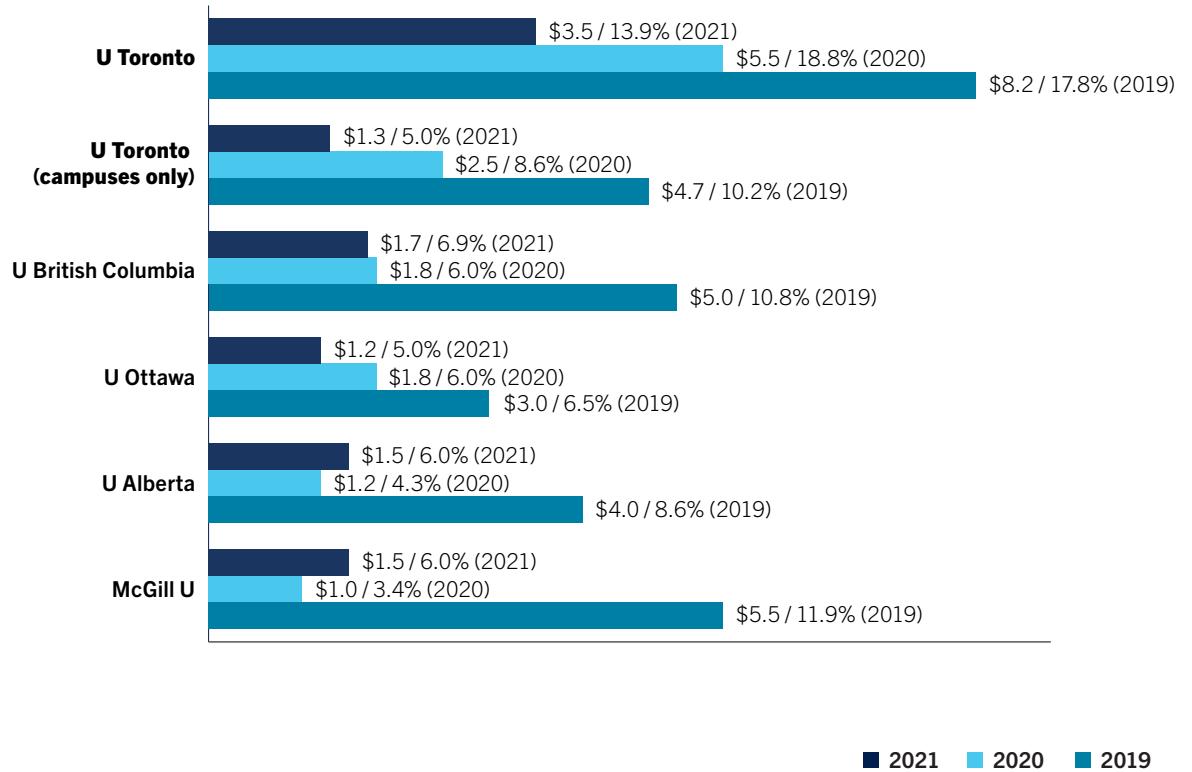
*\*\*Represents awards made April 2021 to March 2022 by Medicine by Design, a U of T and partner hospitals project funded by the Canada First Research Excellence Fund.*

*\*\*Includes indirect costs.*

## Funding

### New Frontiers in Research Fund (NFRF) Exploration Stream — Funding Awarded by Institution (2019–2021)

(\$ Millions and Percentages)



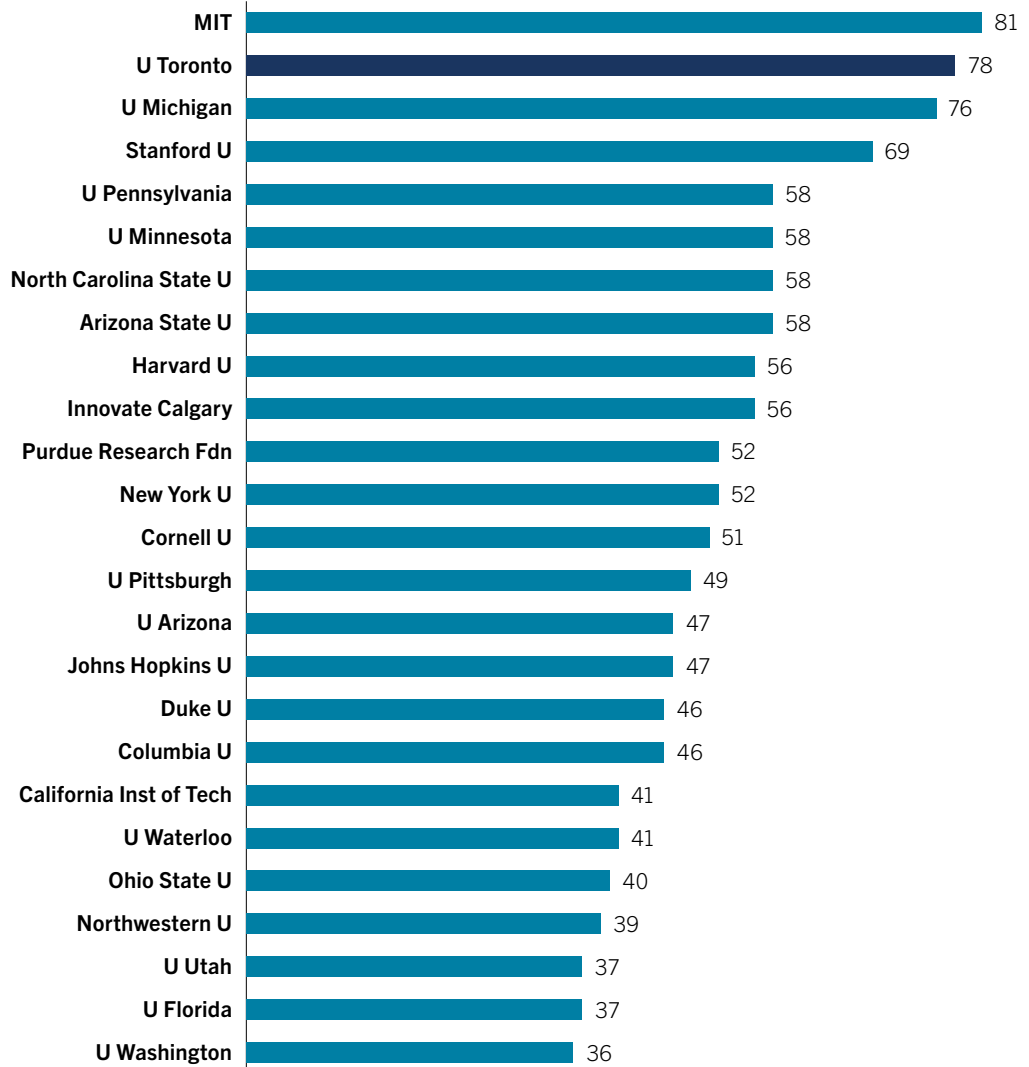
All peers are shown inclusive of their partner hospitals.

Data source: SSHRC, 2019–2021 data

## Innovation & Entrepreneurship

### New Startup Companies at Top 25 U.S. and Canadian Institutions

(Total: 2019–2021)



**Data source:** Association of University Technology Managers (AUTM), 2019–2021

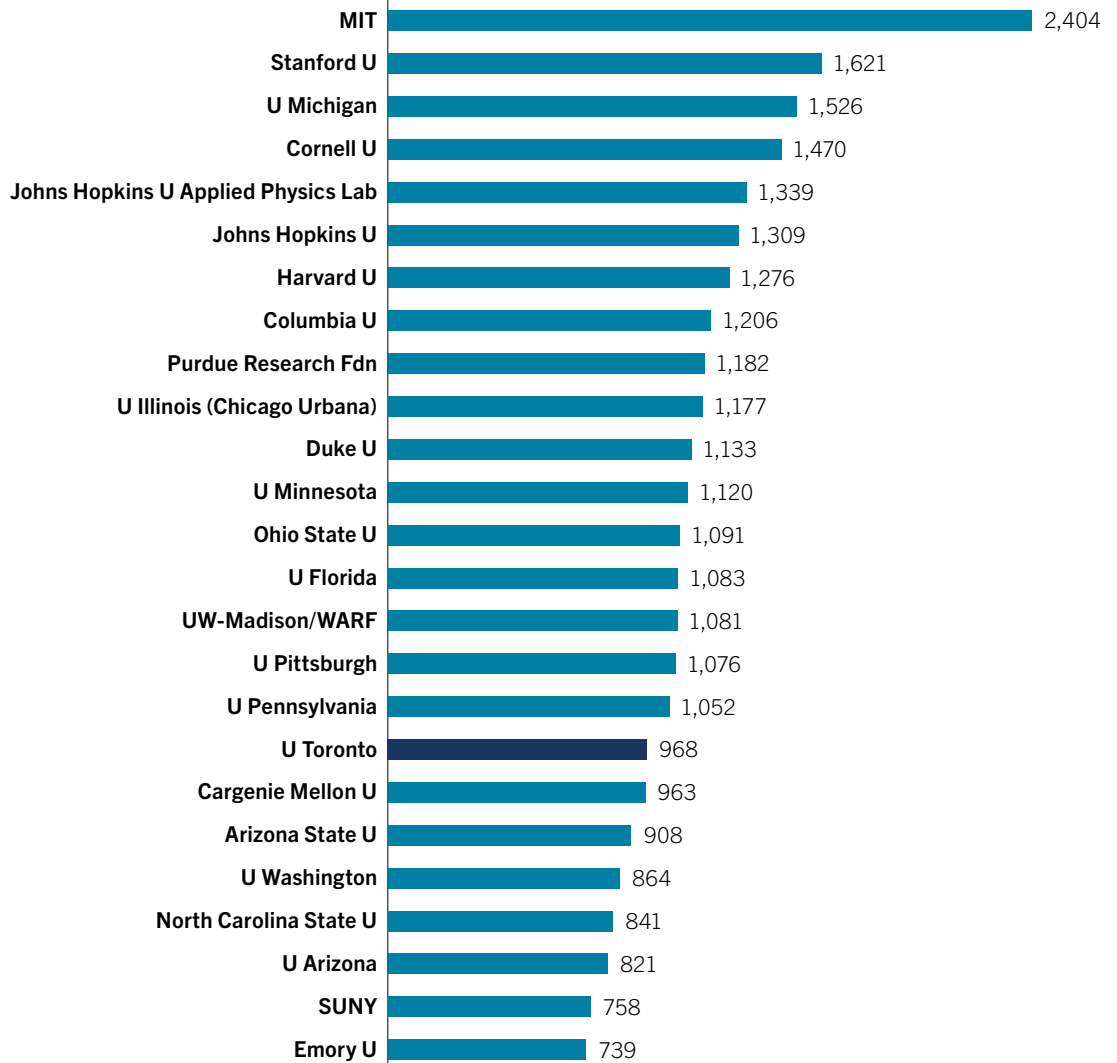
Universities reporting as systems are excluded.

U of T includes partner hospitals.

## Innovation & Entrepreneurship

### New Invention Disclosures at Top 25 U.S. and Canadian Institutions

(Total: 2019–2021)



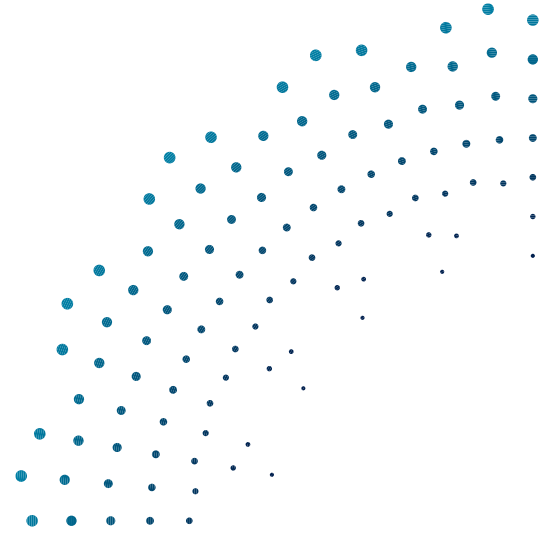
**Data source:** Association of University Technology Managers (AUTM), 2019–2021

Universities reporting as systems are excluded.

U of T includes partner hospitals.

# Serving the U of T Community

Every year the VPRI manages, resources, negotiates for, and supports the large research and innovation enterprise at U of T.



## Research Funding

The VPRI advocates on behalf of U of T researchers to ensure institutional alignment with the goals of our funding partners and sponsor organizations.

From 2020–2022, our offices on average annually facilitated the work of:

**2,050**  
principal investigators

By engaging with:

**550**  
sponsors

**200**  
private sector partners

**920**  
funding programs

And administering:

**4,100**  
new funding applications

**\$533M**  
in awarded funding

**9,490**  
research funds



## Innovation & Entrepreneurship

The VPRI helps build successful partnerships between industry, business, government, and the U of T research community, while managing U of T's intellectual property portfolio.

**170**  
invention disclosures  
*(2019–2021 annual average)*

**74**  
priority patent applications  
*(2019–2021 annual average)*

**40**  
licensing and option agreements  
*(2019–2021 annual average)*

**290**  
commercialization projects  
*(2011–2021)*



## Oversight & Compliance

The VPRI ensures that the University fulfills its ethical, legal, and financial reporting obligations associated with research. This includes human and animal research ethics, environmental health and safety, occupational and environmental health, and financial reporting and auditing.

**24**

external audits

**8,497**

financial reports and related oversights

**1,814**

human ethics protocols

**62**

animal lab space assessments

**547**

animal use protocols

**39,000+**

people trained in EHS programs

**768**

lab inspections conducted (mix of in-person and virtual)

**1,835**

worksite assessments

**3,135**

occupational health assessments



## Research Training & Resources

The VPRI provides researcher-centred, practical, and coordinated support and training opportunities to faculty and divisional research offices, and training for administrative staff.

**20,000+**

visitors to the CRIS website

**439**

events promoted to support the Research & Innovation community

**187**

events and workshops directly supported by CRIS

**138**

new resources, videos, and facilitation tools added to the CRIS collection

**147**

Research Roundup and

**4**

CRIS Compass issues published

**860**

people trained and connected as participants of STaR

**1,000+**

faculty and staff attended DiscoverResearch demos,

**60**

DiscoverResearch training sessions delivered, and

**25**

DiscoverResearch instructional videos developed

**#1**

Used Tableau dashboard at U of T is VPRI Dashboards,

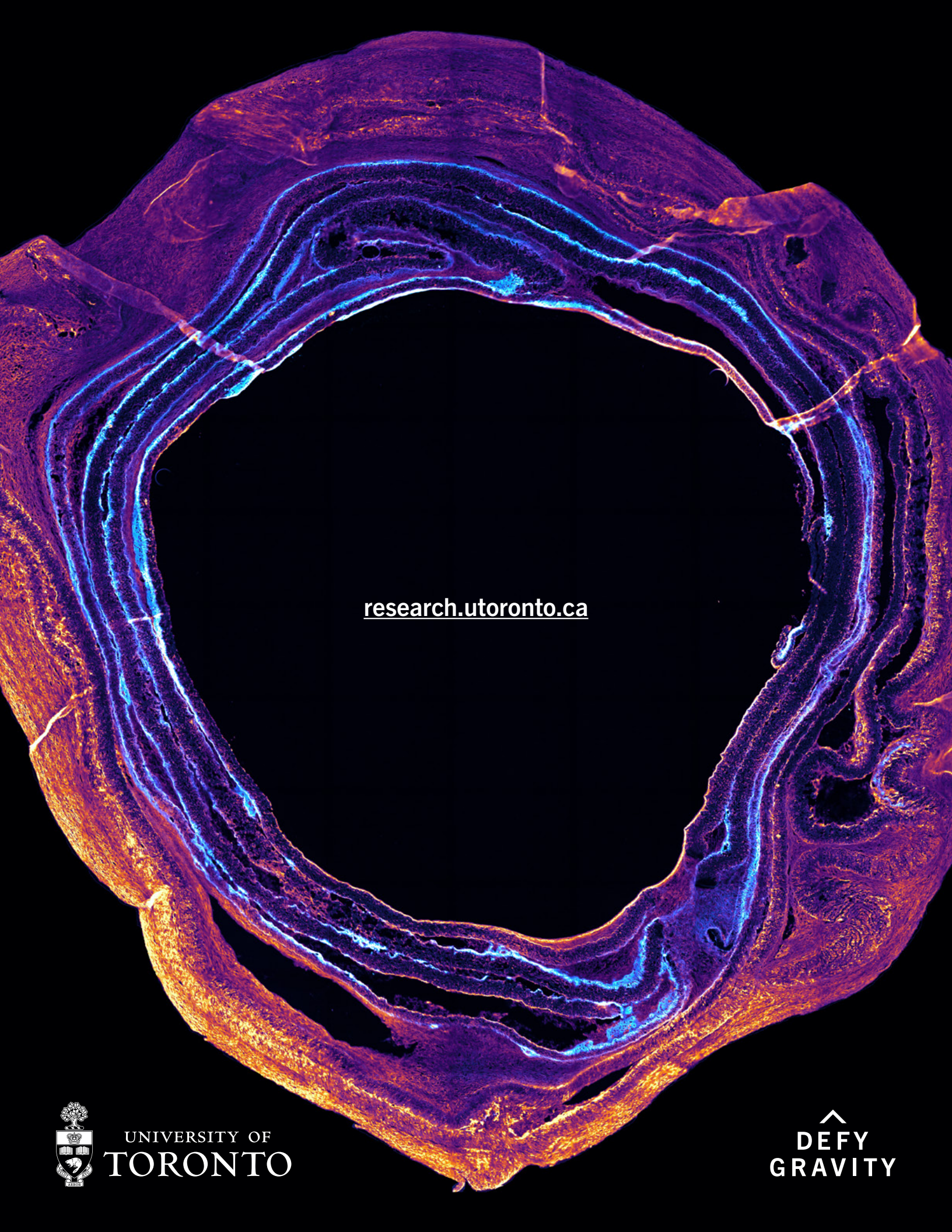
**20**

VPRI Dashboard training sessions delivered, and

**4**

VPRI Dashboard instructional videos developed





[research.utoronto.ca](http://research.utoronto.ca)



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TORONTO

DEFY  
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