



**FOR INFORMATION**

**PUBLIC**

**OPEN SESSION**

**TO:** Academic Board

**SPONSOR:** Professor Edward H. Sargent, Vice-President, Research and  
**CONTACT INFO:** Innovation, and Strategic Initiatives  
416-978-4984, [vp.research@utoronto.ca](mailto:vp.research@utoronto.ca)

**PRESENTER:** See above  
**CONTACT INFO:**

**DATE:** April 20, 2021 for April 28, 2021

**AGENDA ITEM:** 3

**ITEM IDENTIFICATION:**

2020 Annual Report, Division of the Vice-President, Research & Innovation

**JURISDICTIONAL INFORMATION:**

The annual report for the Division of the Vice-President, Research and Innovation is considered by the Academic Board for information. (Academic Board Terms of Reference, Section 5.2.12).

**GOVERNANCE PATH:**

1. **Academic Board [for information] (April 28, 2021)**

**PREVIOUS ACTION TAKEN:**

This report is provided annually to the Academic Board.

**HIGHLIGHTS:**

As Canada's leading university and one of the top public universities in the world, U of T plays a distinctive role in creating and translating knowledge that addresses the important challenges of our time. The extraordinary breadth and depth of academic excellence across our three campuses and partner hospitals is visible in the impact of our faculty members' research globally.

This past year, U of T and the Division of the Vice-President, Research & Innovation (VPRI) has responded to the unprecedented operational and research challenges posed by the COVID-19 pandemic by supporting our researchers, innovators, entrepreneurs, and learners so that they have the tools they need to conduct world class research. Our 2020 Annual Report highlights these accomplishments and the impact of the research taking place at U of T by reporting on key performance metrics. The report also focuses on important initiatives and service improvements we have implemented in order to support research and innovation.

The attached presentation provides key highlights. Please explore [2020.research.utoronto.ca](http://2020.research.utoronto.ca) to learn more about how we continue to build a portfolio that serves a world-class institution aspiring to even higher levels of achievement.

**FINANCIAL AND/OR PLANNING IMPLICATIONS:**

None

**RECOMMENDATION:**

For information only.

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**DOCUMENTATION PROVIDED:**

*2020 Annual Report Presentation – Research and Innovation Impact, Division of the Vice-President, Research & Innovation*

Link to full online report: <http://2020.research.utoronto.ca>

# 2020 Research & Innovation Annual Report

[2020.research.utoronto.ca](https://2020.research.utoronto.ca)

PROFESSOR EDWARD H. SARGENT  
VICE-PRESIDENT, RESEARCH AND INNOVATION, AND STRATEGIC INITIATIVES

ACADEMIC BOARD – APRIL 28, 2021



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# UNIVERSITY RANKINGS & AWARDS



# U of T Rankings in the Most Prominent World Ranking Systems

World Rankings ■

Canadian Rankings ■

| Ranking                                                   | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 |
|-----------------------------------------------------------|---------|---------|---------|---------|---------|
| 1. National Taiwan University Ranking (NTU)               | 4 1     | 4 1     | 4 1     | 4 1     | 3 1     |
| 2. US News Best Global Universities                       | 21 1    | 20 1    | 20 1    | 18 1    | 17 1    |
| 3. Times Higher Education World University Rankings (THE) | 22 1    | 22 1    | 21 1    | 18 1    | 18 1    |
| 4. Academic Ranking of World Universities (ARWU)          | 27 1    | 23 1    | 23 1    | 24 1    | 23 1    |
| 5. QS World University Rankings (QS)                      | 32 2    | 31 1    | 28 1    | 29 1    | 25 1    |



## **U of T is among the top four public universities in North America**

- **Across the major ranking systems, U of T has consistently kept company with the top public research universities in North America: Berkeley, UCLA, and Michigan – Ann Arbor.**
- **In the 2021 QS World University Rankings, U of T ranks 25<sup>th</sup>: second behind only Michigan – Ann Arbor (21<sup>st</sup>) and well ahead of Berkeley (30<sup>th</sup>), McGill (31<sup>st</sup>), and UCLA (36<sup>th</sup>).**

**VPRI Strategic Goal, 2020-2024: Rank as one of North America's top two public universities.**

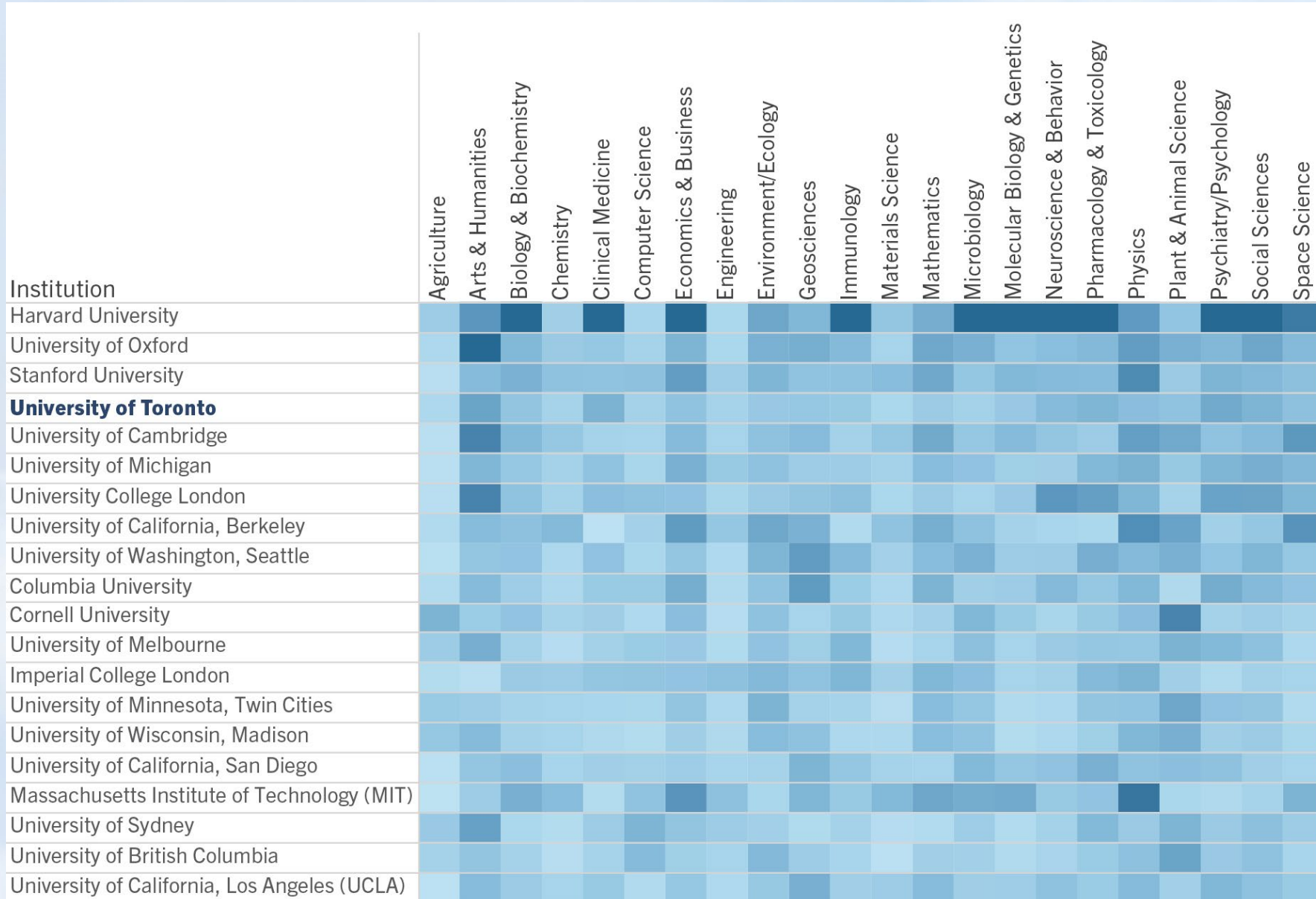


# U of T Major Field Ranking Results

| <b>QS 2020</b>               | <b>World</b> | <b>Canada</b> |
|------------------------------|--------------|---------------|
| Life Sciences & Medicine     | 13           | 1             |
| Natural Sciences             | 18           | 1             |
| Arts & Humanities            | 18           | 1             |
| Social Sciences & Management | 18           | 1             |
| Engineering & Technology     | 22           | 1             |
| <b>NTU 2020</b>              | <b>World</b> | <b>Canada</b> |
| Medicine                     | 3            | 1             |
| Social Sciences              | 4            | 1             |
| Life Sciences                | 11           | 1             |
| Natural Sciences             | 27           | 1             |
| Agriculture                  | 48           | 3             |
| Engineering                  | 78           | 2             |

| <b>THE 2021</b>                 | <b>World</b> | <b>Canada</b> |
|---------------------------------|--------------|---------------|
| Law                             | 14           | 1             |
| Clinical, Pre-clinical & Health | 6            | 1             |
| Education                       | 15           | 1             |
| Arts & Humanities               | 15           | 1             |
| Computer Science                | 23           | 1             |
| Psychology                      | 21           | 2             |
| Life Sciences                   | 25           | 1             |
| Social Sciences                 | 27           | 1             |
| Physical Sciences               | 33           | 1             |
| Business & Economics            | 24           | 1             |
| Engineering & Technology        | 28           | 1             |

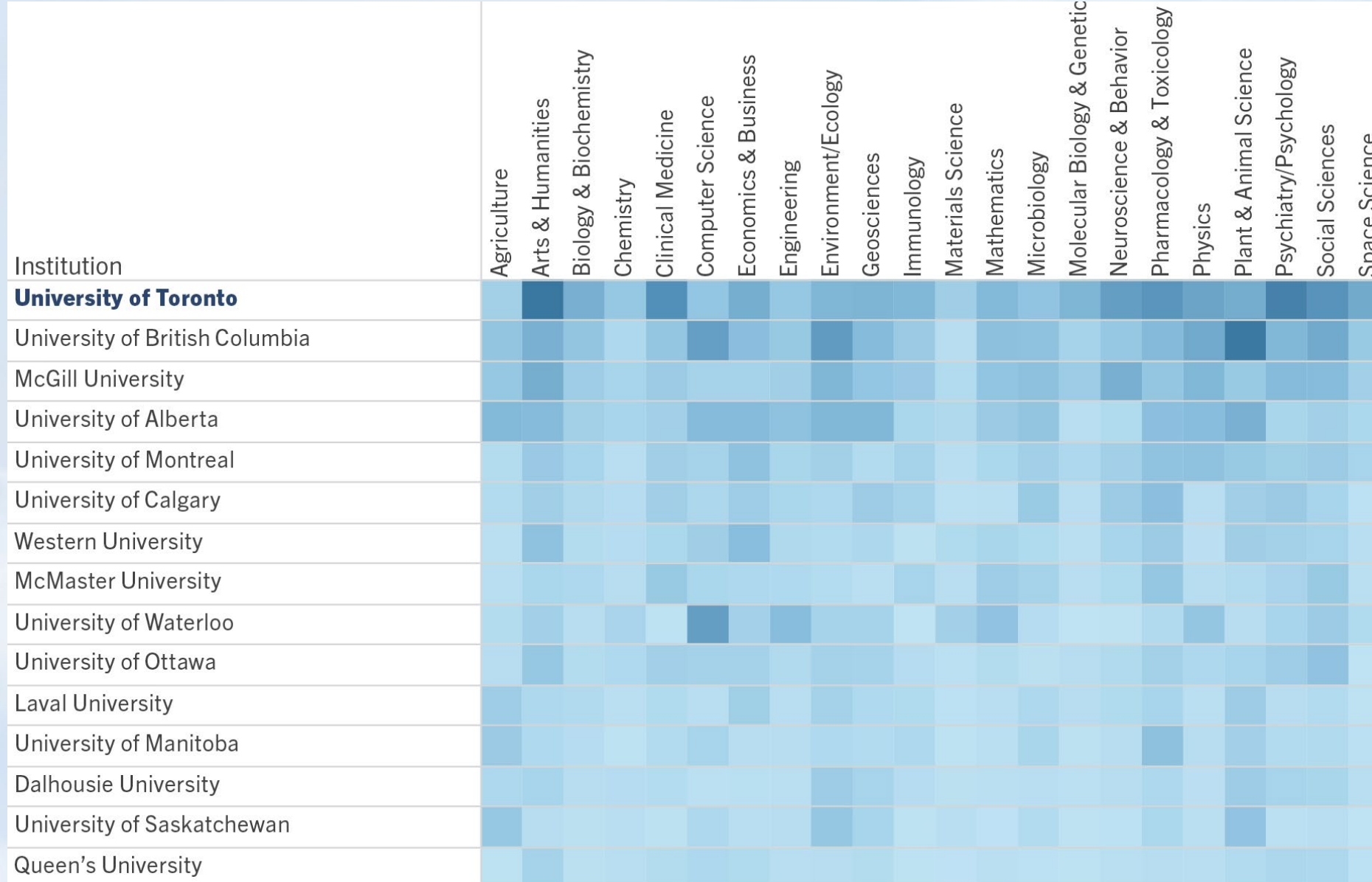
# U of T Publications in the top 10% Most Highly Cited Worldwide (2015-2019)



*The heat scale shading represents publications in the top 10% cited (darker blue means a higher percentage) relative to other universities. All ranked universities must have met a threshold of 200 top 10% cited publications over all fields.*

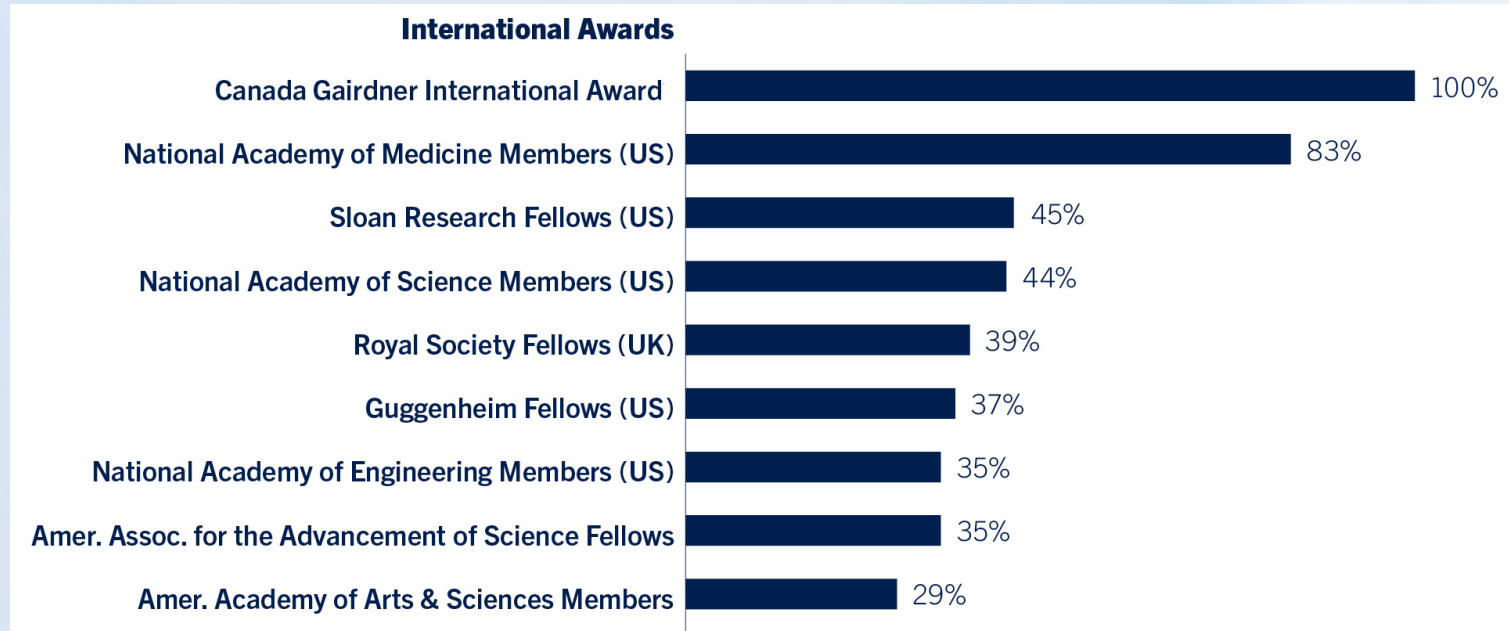


# U of T Publications in the top 10% Most Highly Cited – U15 Universities (2015-2019)



*The heat scale shading represents publications in the top 10% cited (darker blue means a higher percentage) relative to other universities. All ranked universities must have met a threshold of 200 top 10% cited publications over all fields.*

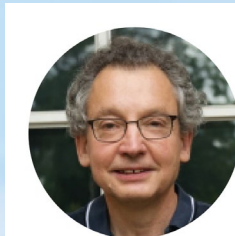
# Major Awards & Honours – U of T Market Share Among Canadian Universities (2011-2020)



In 2020, three U of T faculty won highly prestigious **Guggenheim Fellowships**.



**Anna Shternshis**  
*Department of German Languages & Literatures*



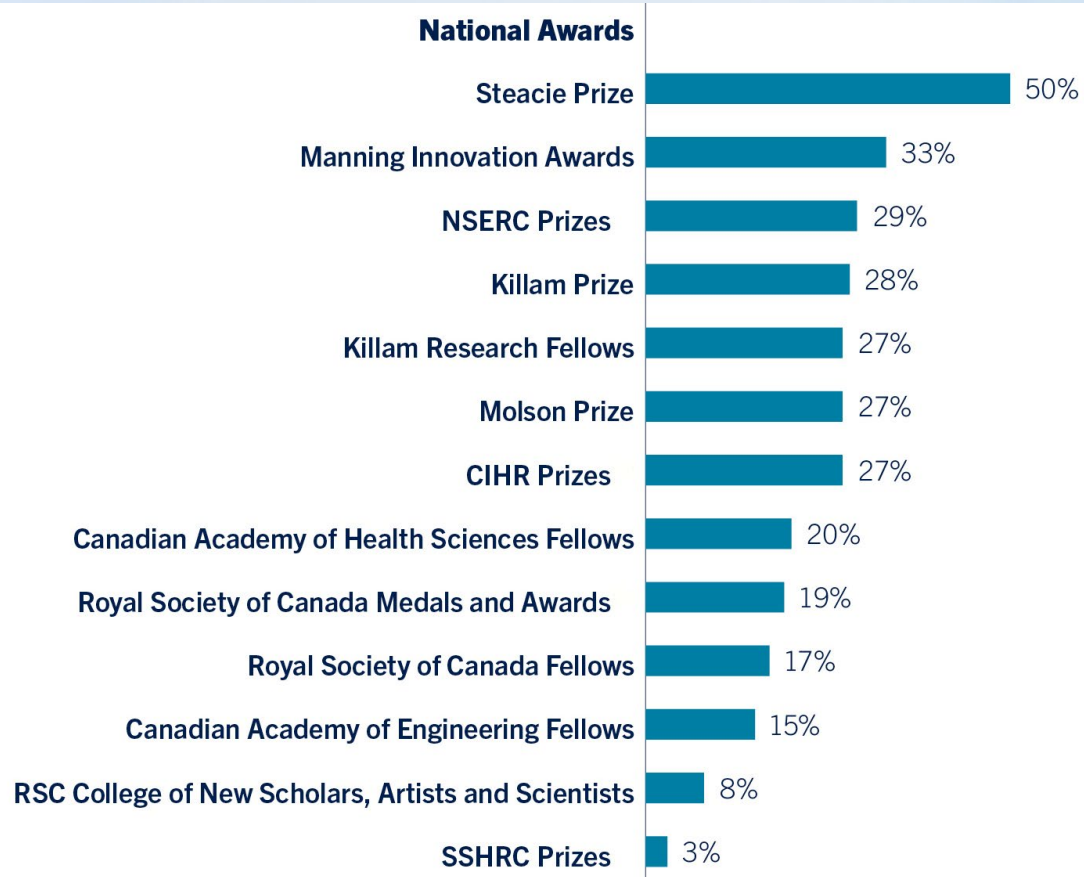
**David Dyzenhaus**  
*Faculty of Law*



**Doug Stephan**  
*Department of Chemistry*

VPRI Strategic Goal, 2020-2024: Increase U of T's share of prestigious international awards

# Major Awards & Honours – U of T Market Share Among Canadian Universities (2011-2020)



For three years running, U of T faculty have won Canada's most prestigious science and engineering Prize, **NSERC's Gerhard Herzberg Canada Gold Medal for Science and Engineering**



**Molly Shoichet (2020)**  
*Department of Chemical Engineering & Applied Chemistry*



**Barbara Sherwood Lollar (2019)**  
*Department of Earth Sciences*



**Lewis Kay (2018)**  
*Department of Molecular Genetics*



# President's Impact Award – 2021 Laureates



**Michael Carter**, Mechanical and Industrial Engineering

**Sidney Kennedy**, Psychiatry; St. Michael's Hospital

**Akwasi Owusu-Bempah**, Sociology, UTM

**Chelsea Rochman**, Ecology and Evolutionary Biology

*Also winner of the 2021 Carolyn Tuohy Impact on Public Policy Award.*

**Shelley Stagg Peterson**, OISE



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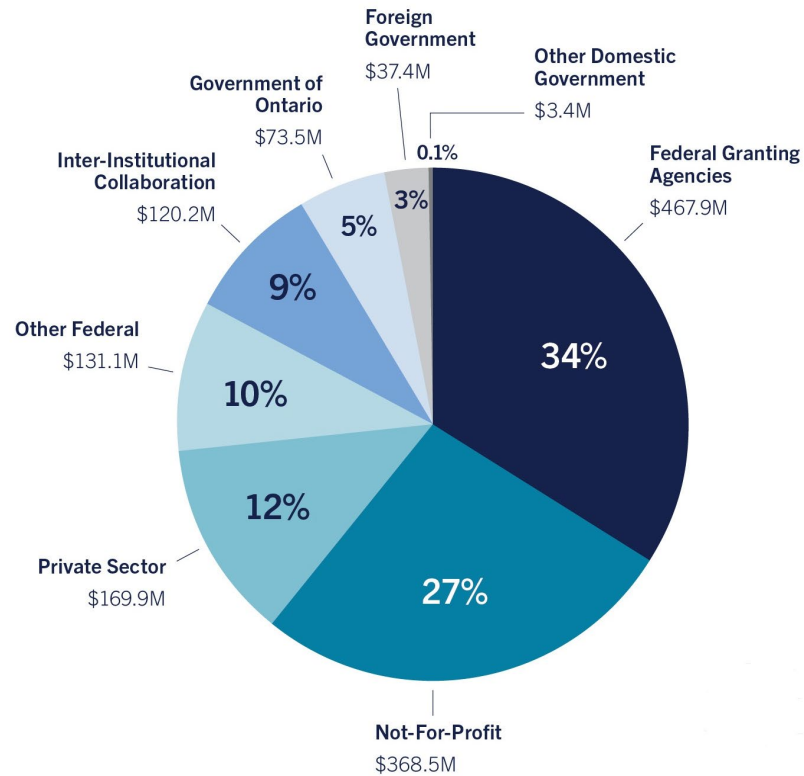




# RESEARCH & INNOVATION FUNDING



# Total Research Funding Awarded by Sector (2019-2020)

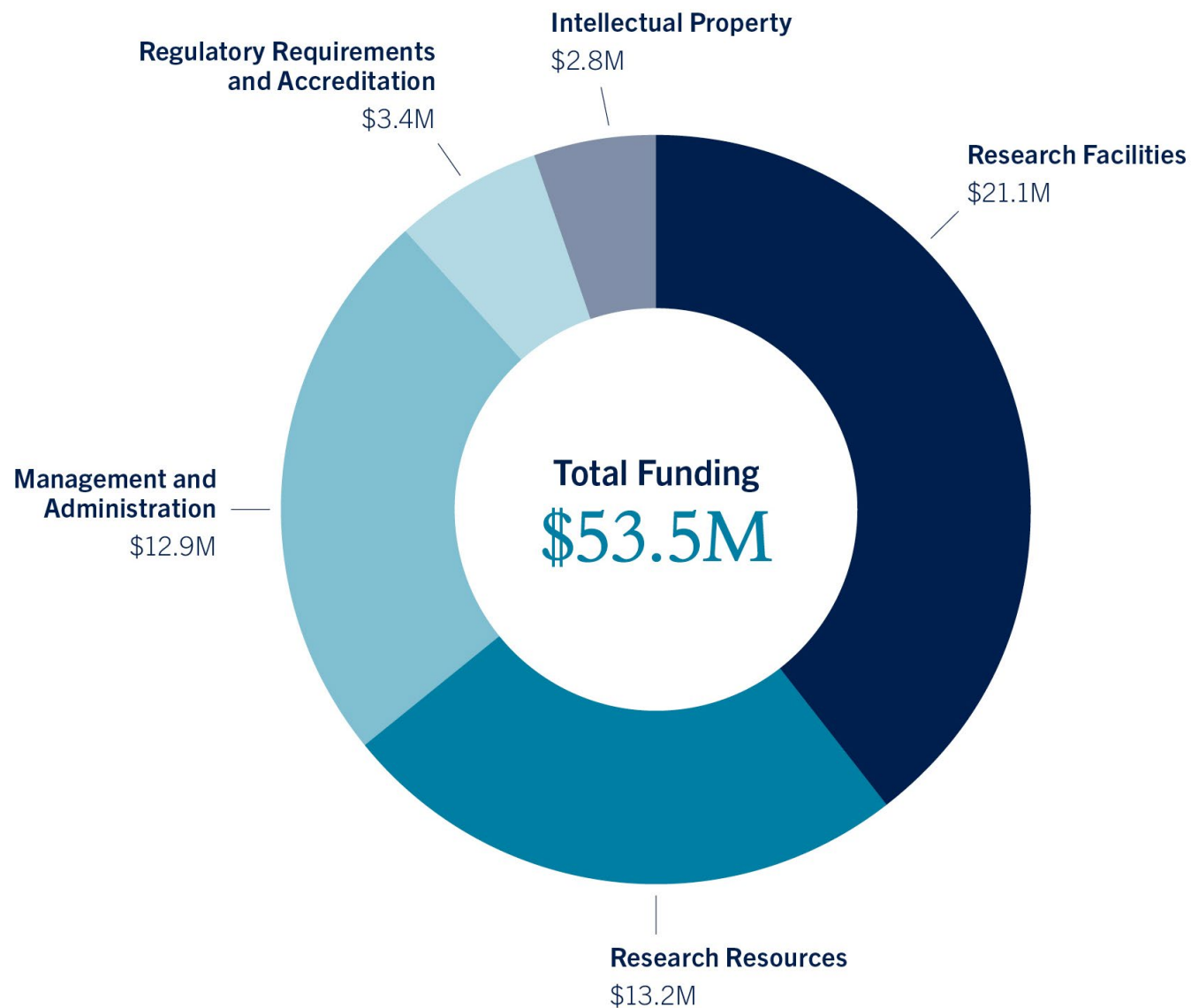


In 2019-20, U of T and its partner hospitals were awarded **\$1.4 billion** in total research funding, from international sources, federal and provincial governments, the not-for-profit sector and private-sector partnerships.

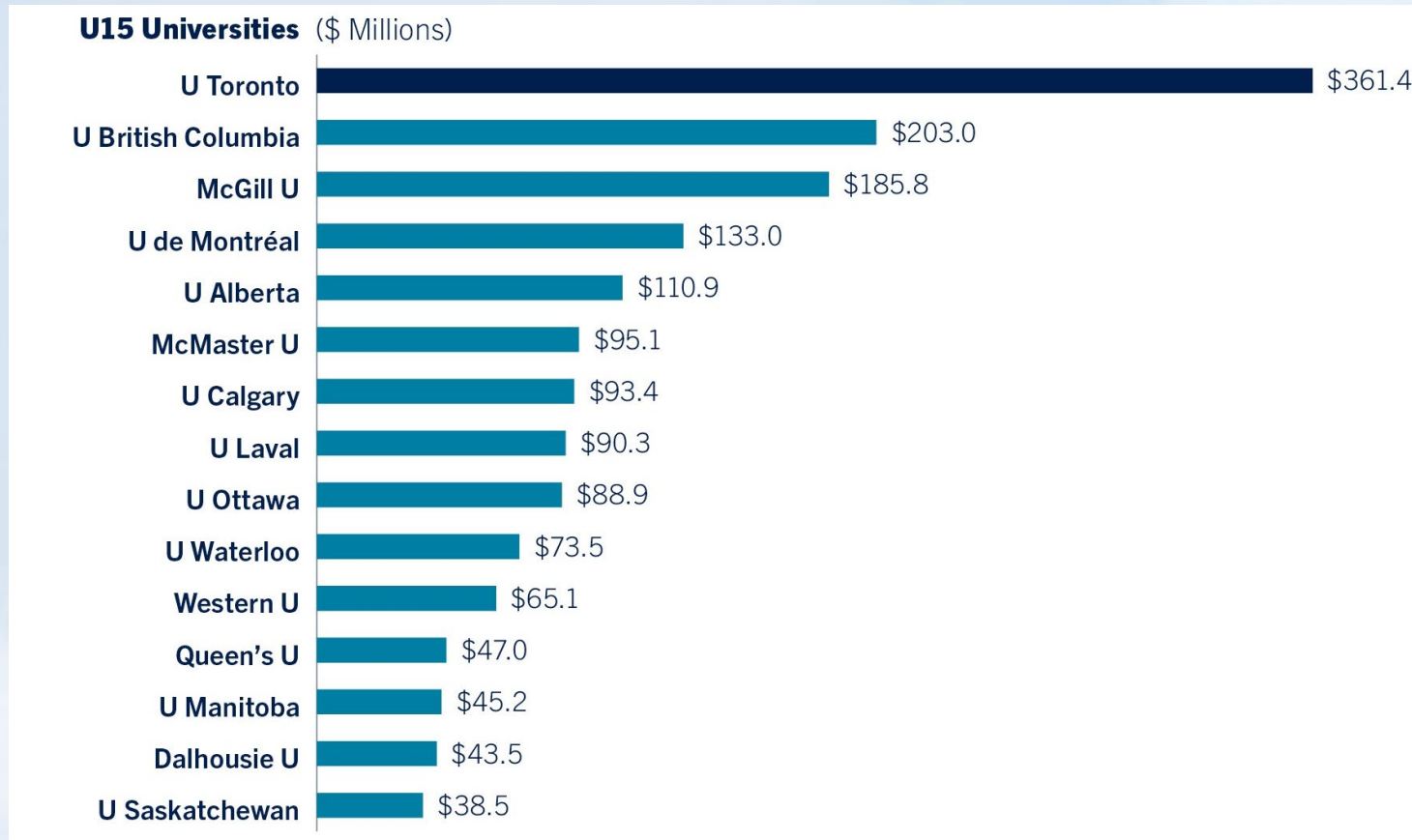
VPRI Strategic Goal, 2020-2024: Ensure U of T researchers are resourced and empowered as leading scholars in Canada



# Research Support Fund Expenditures by Eligible Categories (2019-2020)



# Tri-Agency Funding (2019-2020)



U of T holds **16.3%** of total Tri-Agency funding nationally.

Our tri-agency funding has steadily increased annually from **\$284M** in 2015-16 to **\$361.4M** in 2019-20.

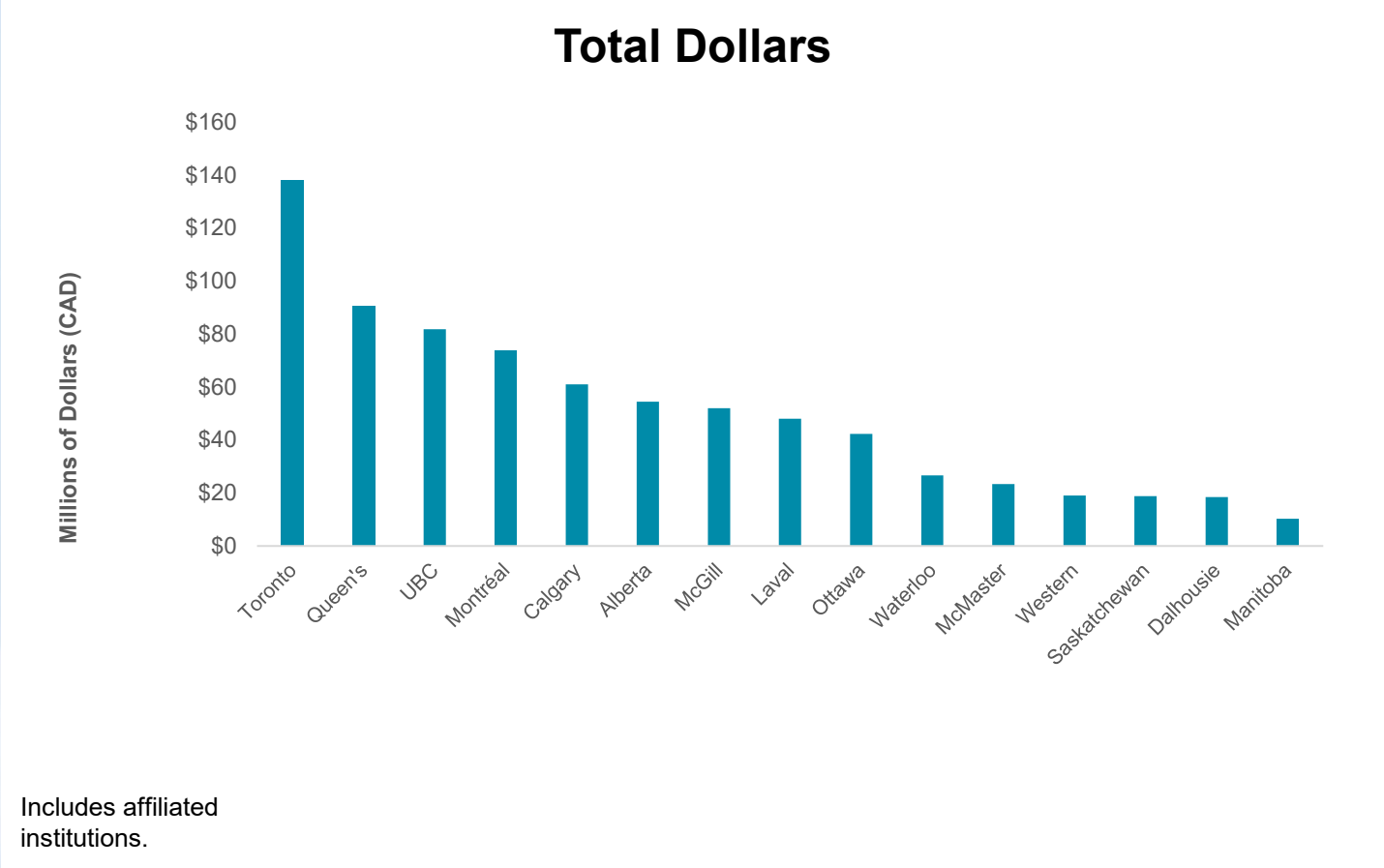
Our tri-agency national market share has increased from **15.5%** in 2015-16 to **16.3%** in 2019-20.



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# Total U of T and Partner Hospital Industry Funding (2018-19)



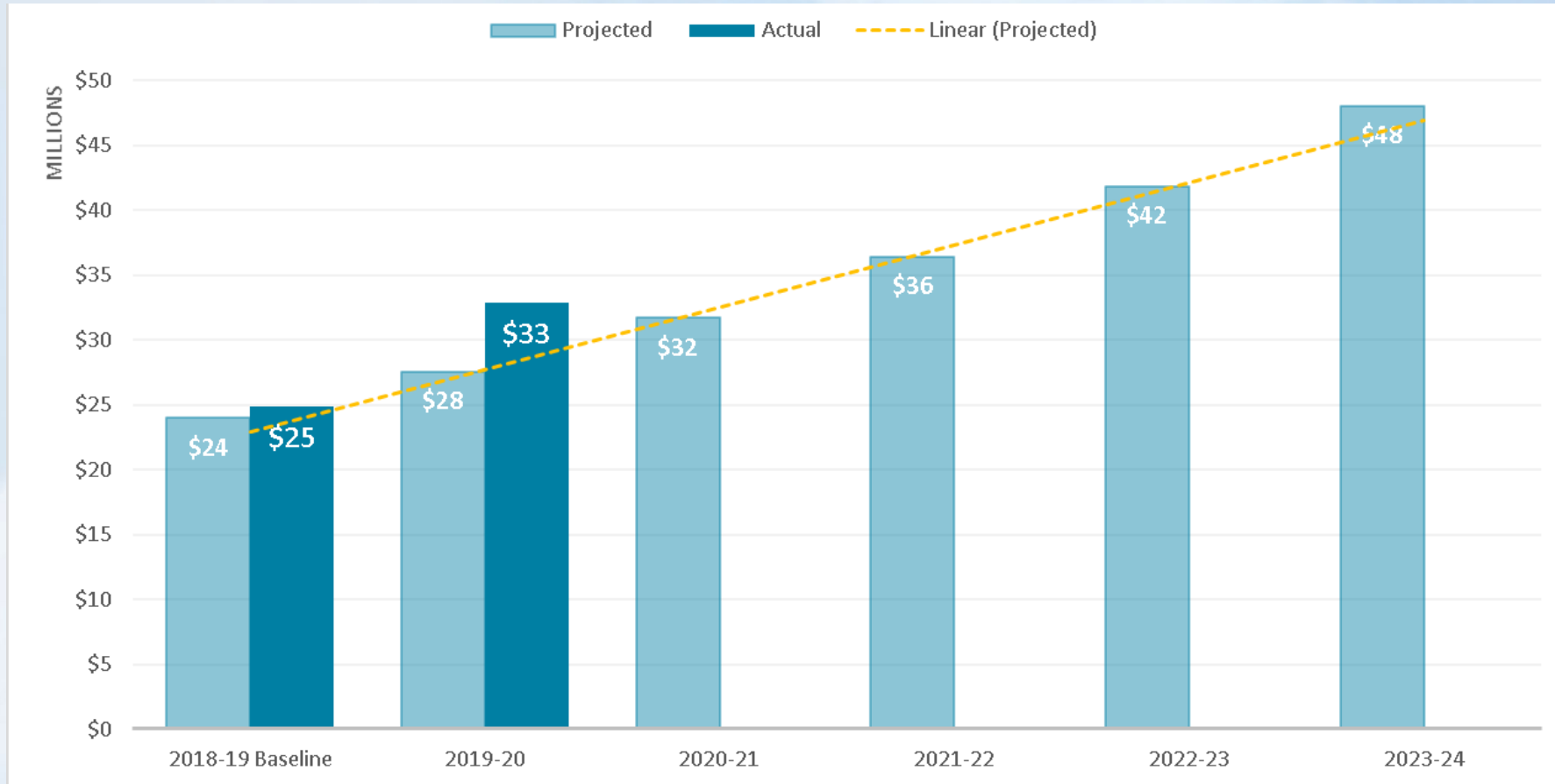
U of T holds 12% of total Industry funding among the U15 Universities.

Industry funding has grown from **\$126M** in 2015 to **\$138M** in 2018-19.



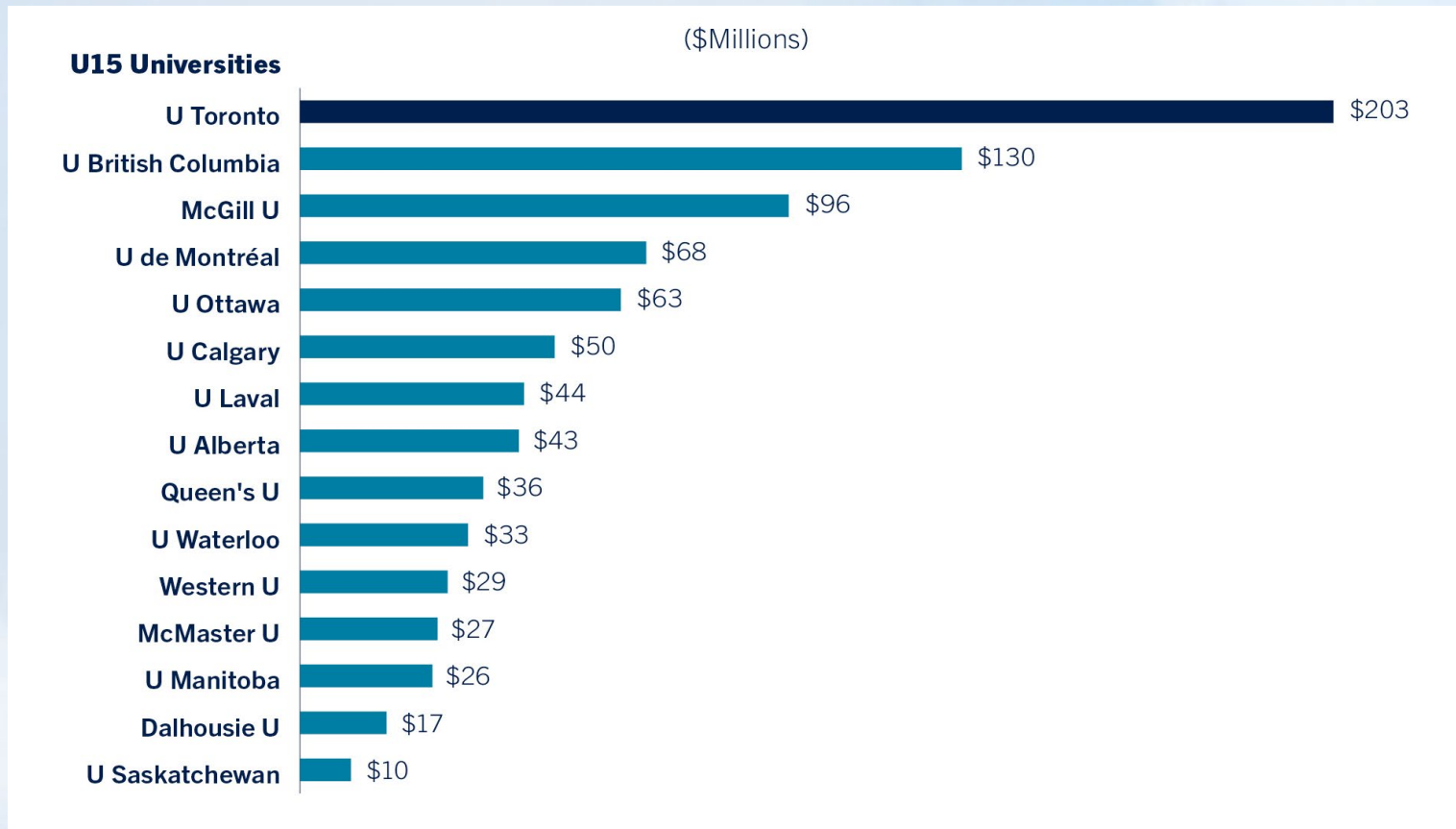


# Projected Industry Funding 2018-2019 to 2023-2024 (Excluding Partner Hospitals)



VPRI Strategic Goal, 2020-2024: Double industry-sponsored research from \$24M to \$48M.

# Canada Foundation for Innovation (CFI) Funding to U15 Universities 2014-2015 to 2019-2020



U of T holds 16.6% of CFI funding among the U15 Universities.

VPRI Strategic Goal, 2020-2024: Develop a 10-year research infrastructure plan and lead nationally in the CFI Innovation Fund.

# Canada Research Chairs (CRC)



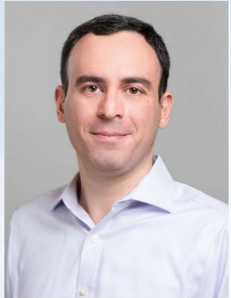
**Vasenti Malik**

CRC in nutrition and chronic disease prevention,  
Department of Nutritional Sciences



**Jennifer Adesse**

CRC in Métis Women, Politics and Community, Department of Sociology, UTM



**Ali Hooshyar**

CRC electric power systems,  
Edward S. Rogers Sr.  
Department of Electrical and Computer Engineering

U of T's current allocation of 315 CRCs is the largest number of any university in the country and 71 more than the next closest university.





# Connaught Fund Amounts Awarded (2019-2020)

| <b>Program</b>                         | <b>Amount Awarded</b> | <b># of Awards</b>   |
|----------------------------------------|-----------------------|----------------------|
| <b>Global Challenge Award</b>          | \$1,035,289           | 4 awards + 1 partial |
| <b>New Researcher Award</b>            | \$999,272             | 56 awards            |
| <b>Innovation Award</b>                | \$499,880             | 10 awards            |
| <b>Toronto Covid Action Initiative</b> | \$1,700,000           | 40 awards            |
| <b>McLean Award</b>                    | \$62,500              | 1 award              |
| <b>Graduate Scholarship</b>            | \$1,176,513           | 119 awards           |
| <b>Total</b>                           | <b>\$5,473,454</b>    |                      |



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# Connaught Community Partnership Research Program – Indigenous Stream

- Launched in 2020 to ensure Indigenous research conducted at U of T is **community-driven and incorporates Indigenous worldviews, principles, and community needs**
- **Indigenous communities across Canada were invited to participate**
- **Funded \$450K in projects**



# Research Partnerships and Collaborations

## 2020 Highlights:

- **Community Partnerships:** Professor Shelley Stagg Peterson (OISE) SSHRC Partnership Grant for Indigenous language
- **Industry Partnerships:** CLUE initiative partners with industry to improve deliveries across GTA
- **International Partnerships:** Launch of the Binational Great Lakes Higher-Education Consortium





# Responding to COVID-19

- **Toronto COVID-19 Action Fund**
  - Investment of **\$10M+** into **40** COVID-related research projects across the campuses, hospitals, and many disciplines
  - 338 applications were peer reviewed in under 30 days
- **Research Restart Steering Committee**
  - The VPRI is heavily involved in developing University-wide implementation principles and guidance documents
- **The Temerty Faculty of Medicine EPIC Facilities**
  - The VPRI developed protocols to meet higher demands for the secure facility enabling work with relevant biological agents



# COVID-19 Research Funding

| <b>COVID-19 Research Funding</b>                                            | <b>FY19-20</b>    | <b>FY20-21 to date</b> | <b>Total</b>      |
|-----------------------------------------------------------------------------|-------------------|------------------------|-------------------|
| <b>COVID-19 -Specific Programs</b>                                          | <b>9,417,661</b>  | <b>24,954,678</b>      | <b>18,549,538</b> |
| U of T led Toronto COVID-19 Action Initiative                               | -                 | 10,350,421             | 10,350,421        |
| Ontario Rapid Research Fund<br>[Ontario Together Fund]                      | 1,122,000         | -                      | 1,122,000         |
| Canada Foundation for Innovation COVID-19<br>Exceptional Opportunities Fund | 2,450,000         | -                      | 2,450,000         |
| Federal and Provincial COVID-19<br>Rapid Research Response                  | 2,198,200         | 2,428,917              | 4,627,117         |
| <b>Other COVID-19 Related Research</b>                                      | <b>5,327,117</b>  | <b>2,617,117</b>       | <b>7,944,234</b>  |
| <b>All Funded Research Related to COVID-19</b>                              | <b>14,744,778</b> | <b>27,571,795</b>      | <b>42,316,573</b> |





# INNOVATION AND ENTREPRENEURSHIP



## U of T is an Innovation and Entrepreneurship Powerhouse

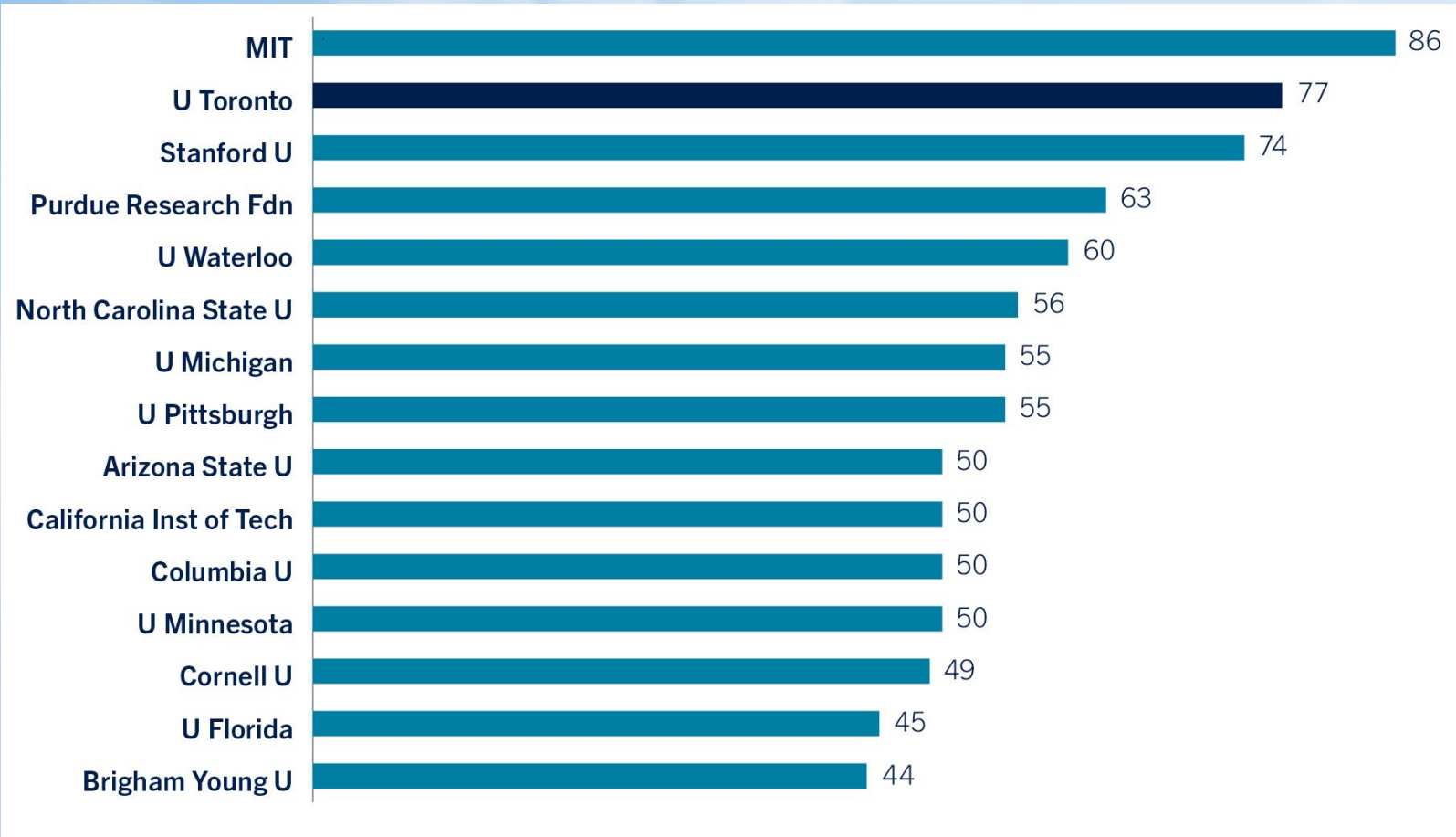
U of T entrepreneurs are responsible for the creation of **500+ startups** that have secured more than **\$1.5 billion** in investment over the past 10 years, with **\$450 million in investment, merger and acquisition activity in the last year alone**. This year, U of T entrepreneurship programs will support over **400** teams and startups across our 3 campuses.



VPRI Strategic Goal, 2020-2024: Ensure that startups created by the U of T community double their average external investment.



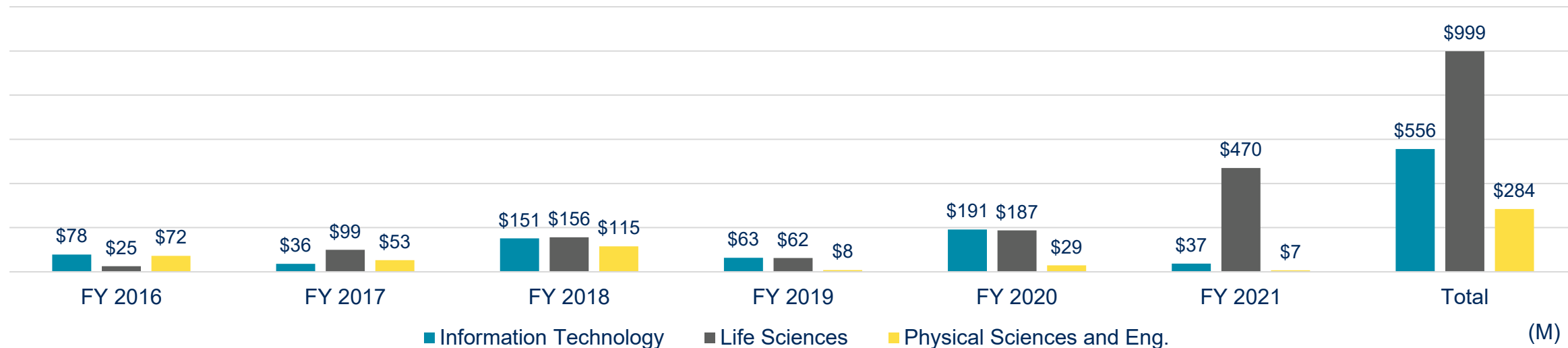
# New Startup Companies at US and Canadian Universities (2016-2017 to 2018-2019)



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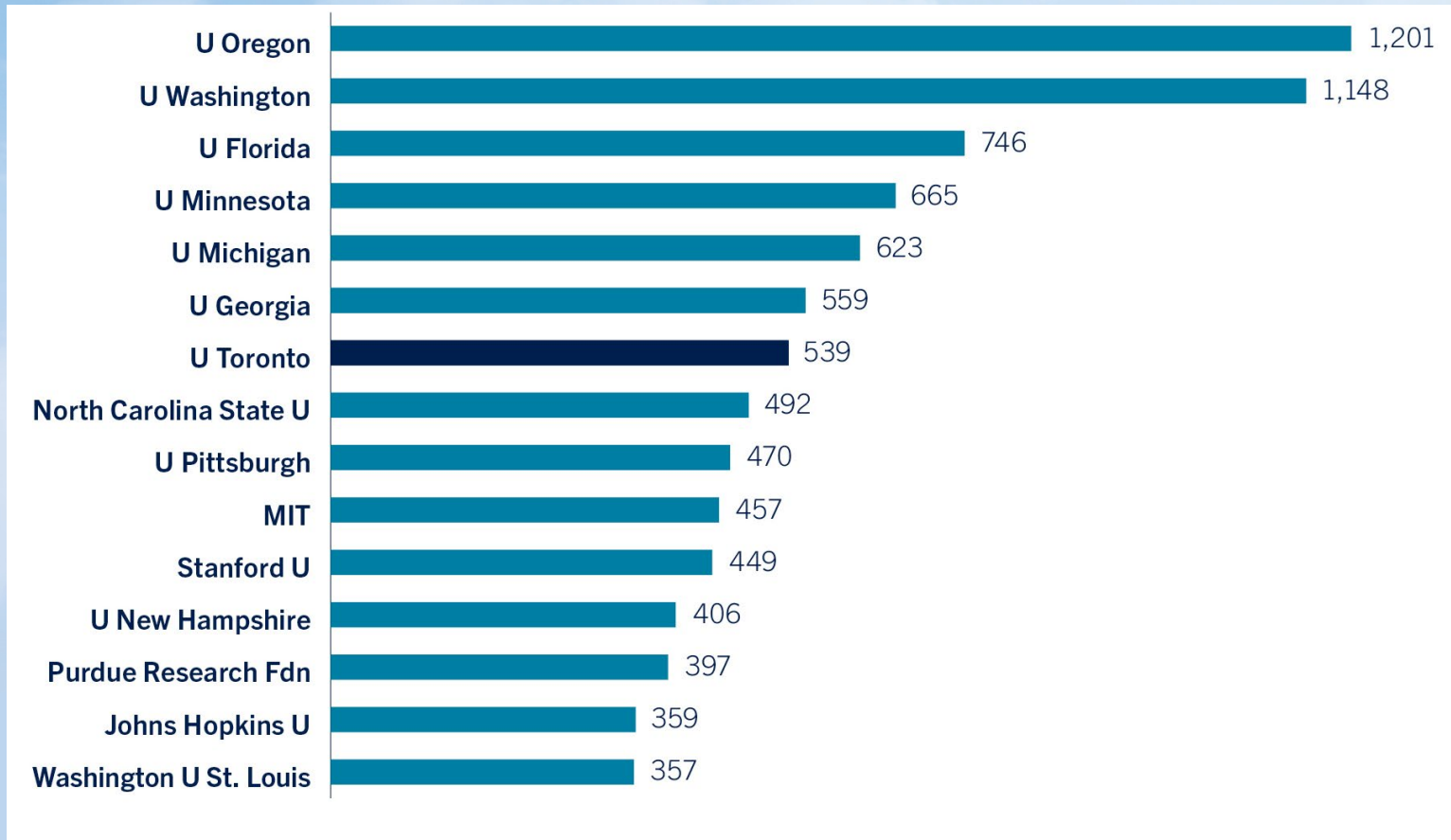
# IP-Based Startups: Investment and M&A Activity



| SECTOR                     | FY 2016      | FY 2017      | FY 2018      | FY 2019      | FY 2020      | FY 2021      | Total          |
|----------------------------|--------------|--------------|--------------|--------------|--------------|--------------|----------------|
| Information Technology     | \$78         | \$36         | \$151        | \$63         | \$191        | \$37         | \$556          |
| Life Sciences              | \$25         | \$99         | \$156        | \$62         | \$187        | \$470        | \$999          |
| Physical Sciences and Eng. | \$72         | \$53         | \$115        | \$8          | \$29         | \$7          | \$284          |
| <b>Total</b>               | <b>\$175</b> | <b>\$188</b> | <b>\$422</b> | <b>\$133</b> | <b>\$407</b> | <b>\$514</b> | <b>\$1,839</b> |

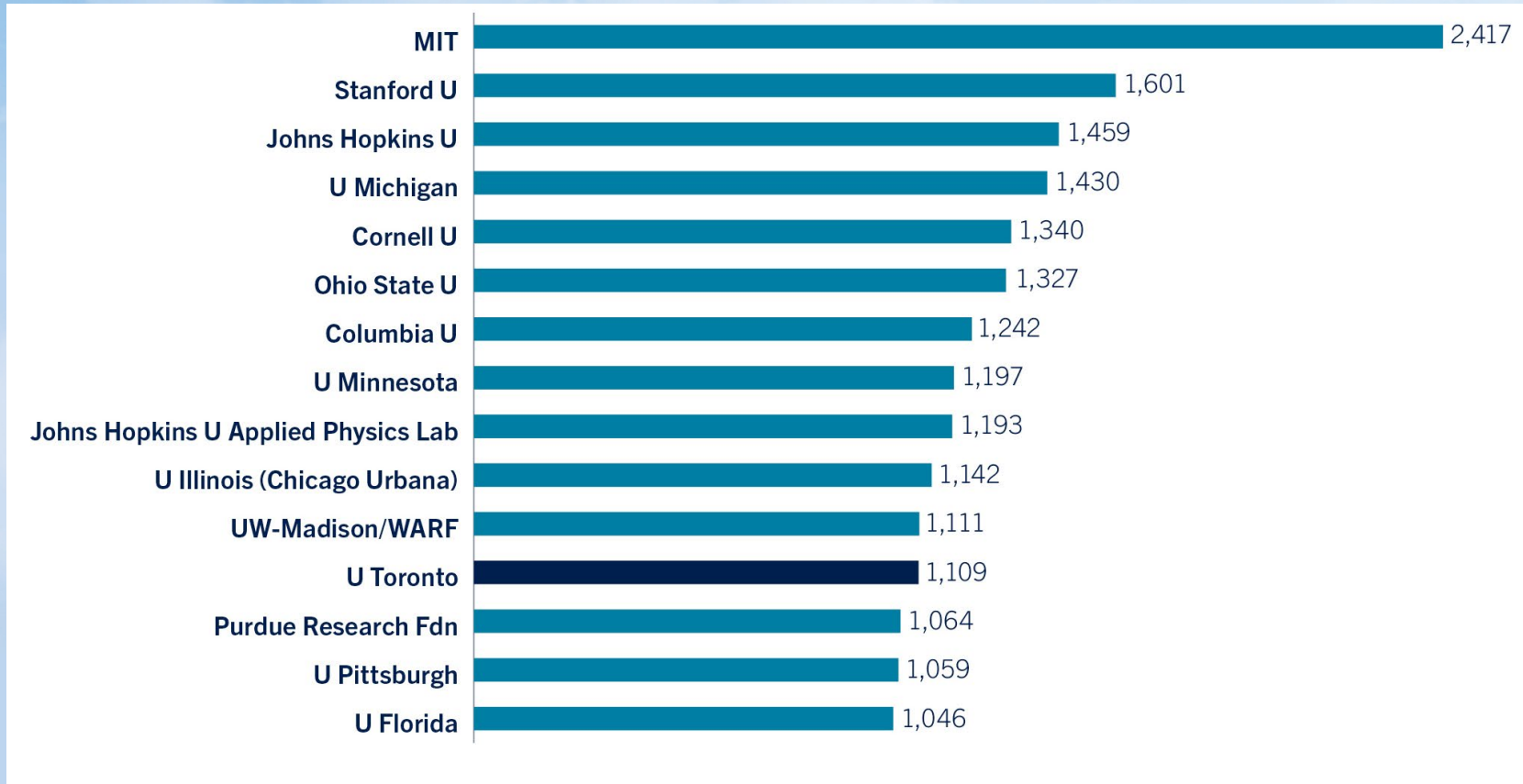


# New Licenses and Options at US and Canadian Universities (2016-2017 to 2018-2019)

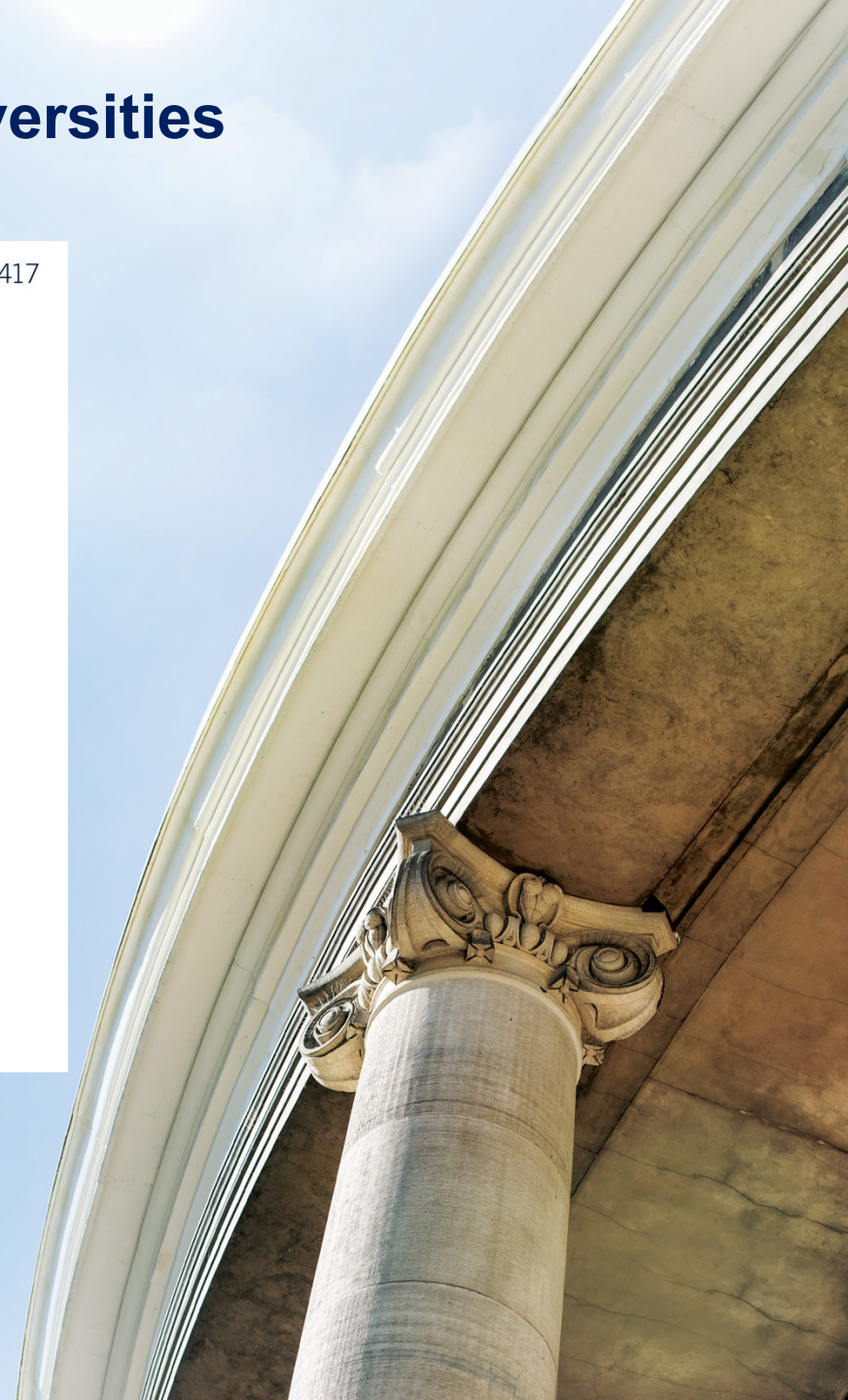




# New Invention Disclosures at US and Canadian Universities (2016-2017 to 2018-3019)



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## Institutional Strategic Initiatives



**Black Research Network**

**Critical Digital Humanities Network**



**Student and Youth  
Mental Health  
Research Initiative**

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

The challenges we face  
don't fall into one category.  
Neither does our research.

VPRI Strategic Goal, 2020-2024: Transform several ISIs into major research institutes by securing new investments.

# Medicine by Design Awards (2019-2020)

A project funded by the Canada First Research Excellence Fund

| <b>Program</b>                          | <b>Amount Awarded</b> | <b>Funded PIs</b> |
|-----------------------------------------|-----------------------|-------------------|
| 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>\$15,686,706</b>   | <b>114</b>        |

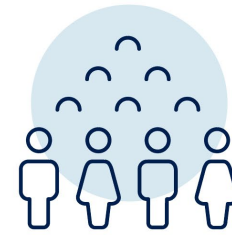




# ENGAGEMENT AND IMPACT



# Equity, Diversity and Inclusion in Research and Innovation



**U of T is surpassing the equity targets for Canadian Research Chairs (CRCs) in all four federally designated groups.**

VPRI Strategic Goal, 2020-2024: Implement the recommendations of the EDIRI Working Group and achieve or exceed CRC diversity targets for 2029.



# Research and Innovation Support

## In 2020:

- Through the **Centre for Research & Innovation Support (CRIS)**, the VPRI supported **100+ workshops** and info sessions for over **5,000 registrants**.
- Through the **Strengthening Administration of Research (STAR) program**, the VPRI connected with over **400 staff** via digital communications, sharing best practices and tips for managing research and innovation funds and hosted approximately **350 staff** in CFI-focused workshops and the STAR conference.





# VPRI Serving the U of T Community

## Research Funding

2,700

principal  
investigators

4,100

new funding  
applications

\$525M

in funding  
awarded

9,200

research  
funds

1,000

sponsors

360

private sector  
partners

1,600

funding  
programs



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# VPRI Serving the U of T Community

## Innovation & Entrepreneurship

190

invention disclosures

75

priority patent applications

40+

licensing and option agreements

270

commercialization projects

300+

student-led startup teams/companies

\$150M

annual startup investment



# VPRI Serving the U of T Community

## Oversight & Compliance

30+

external audits

8,400

financial reports  
and related oversight

1,600

human ethics  
protocols

1,300

animal ethics  
protocols

45+

post-approval  
reviews

80

lab assessments  
for animals

12,600

personnel trained in  
EH&S programs

1,200+

lab safety  
inspections

1,200

worksite  
assessments

2,300

occupational health  
assessments



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