TABLE OF CONTENTS

The mandate of the **Office of the Vice-President, Research and Associate Provost** is to create a research environment that is supportive of the highest quality research stature by maximizing opportunities for funding, recruiting the highest calibre faculty, staff and trainees, and providing an infrastructure and environment conducive to outstanding individual and interdisciplinary investigation and to opportunities for broad application.

VICE-PRESIDENT'S MESSAGE

Dear Colleagues,

It gives me great pleasure to present the 2005-2006 Research Report for the University of Toronto. This has been an outstanding year in which we have made significant impact and progress. We have seen the University's research enterprise strengthened and opportunities to enhance the academic life of the university expand.

Over the past year, U of T has continued its leadership role as Canada's top research-intensive university. U of T led all other Canadian universities in overall tri-council support, in support from the individual councils - the Canadian Institutes of Health Research (CIHR), the Social Sciences and Humanities Research Council (SSHRC) and the Natural Sciences and Engineering Research Council (NSERC) - and from the Canada Foundation for Innovation (CFI) and in our numbers of Canada Research Chairs. We are thankful to the federal government, the Province of Ontario, and the various funding organizations for this generous level of support. It has allowed us to carry out world-leading research that puts us among an elite group of public universities in North America.

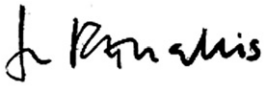
At the same time, the University has fortified that important relationship between world-leading research and undergraduate teaching. As you will read, we have documented some of the ways in which this has been carried out over the past year, including the development of a roadmap for undergraduate students. This roadmap will provide students with a continuous opportunity for research experiences beginning at the end of high school, when they accept admission to the University of Toronto, through regular course work and summer experiences until the point of graduation.

Some other highlights of the past year include:

- The establishment of Innovations at U of T, which brings together researchers and businesses to capitalize on the ideas developed at U of T and our affiliated hospitals, where more than $2 million worth of research is conducted daily. Under the direction of Dr. Tim McTiernan, executive director of IUT and assistant vice-president in the Office of the Vice-President, Reseach and Associate Provost, IUT holds great promise in bringing research to life.
- The restructuring of our awards programs from the Connaught Fund that will help create dedicated time for research or pursuing a research-based sabbatical for our humanities-based researchers.
- Strengthening our close relationships with our partner institutions, particularly the 10 affiliated teaching hospitals.
- Re-organizing the Office of the Vice-President, Research & Associate Provost to both increase interaction, and better fulfill our mandate of enhancing the resources available for research, developing individual researchers and research teams, and maximizing the output and recognition of the research enterprise at the University of Toronto.

This has truly been a remarkable year. Our achievements in research and our focus on students and partnerships give us a great place from which to continue to build the research enterprise at the University of Toronto.

Sincerely,



John R.G. Challis

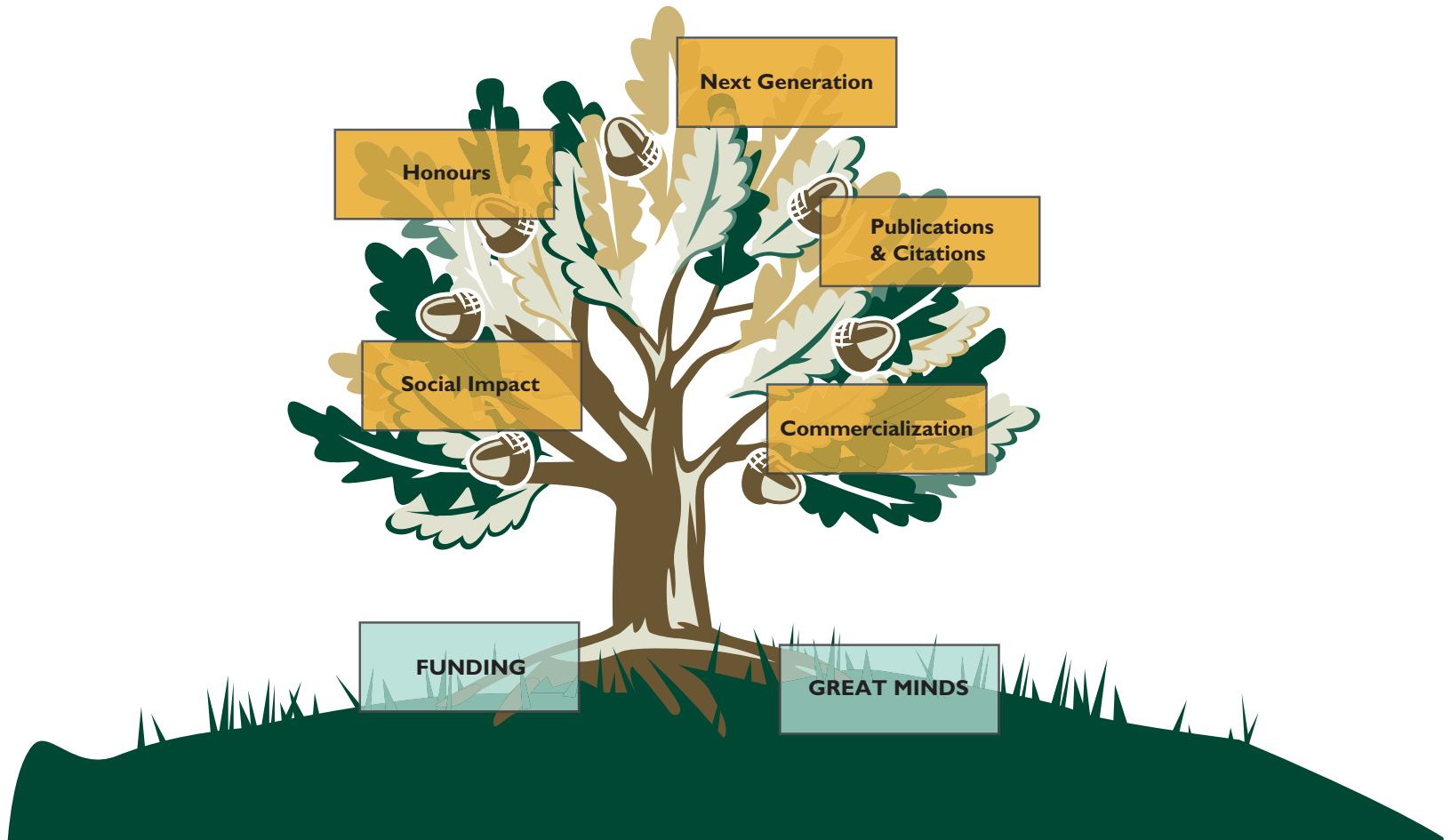
RESEARCH PERFORMANCE AT THE UNIVERSITY OF TORONTO

Preamble

Research performance can be measured by a variety of indicators. Traditionally, we have used input measures, focusing on how much research funding the University of Toronto receives. Increasingly, we want to focus on output measures such as the honours conferred on our faculty members, the publications resulting from their research, the citations that follow when the research is influential, the commercial applications of the research, the development of highly qualified personnel, and the social impact of research.

We are adding a new group of input measures for the great minds without which none of this research would be possible. We are focusing on how the University attracts and retains outstanding faculty through salary support and designation programs, such as the Canada Research Chairs and Endowed Chairs.

We have chosen to illustrate these dynamics with the oak tree on the University of Toronto crest, showing the inputs at the roots, and the outputs on the branches.

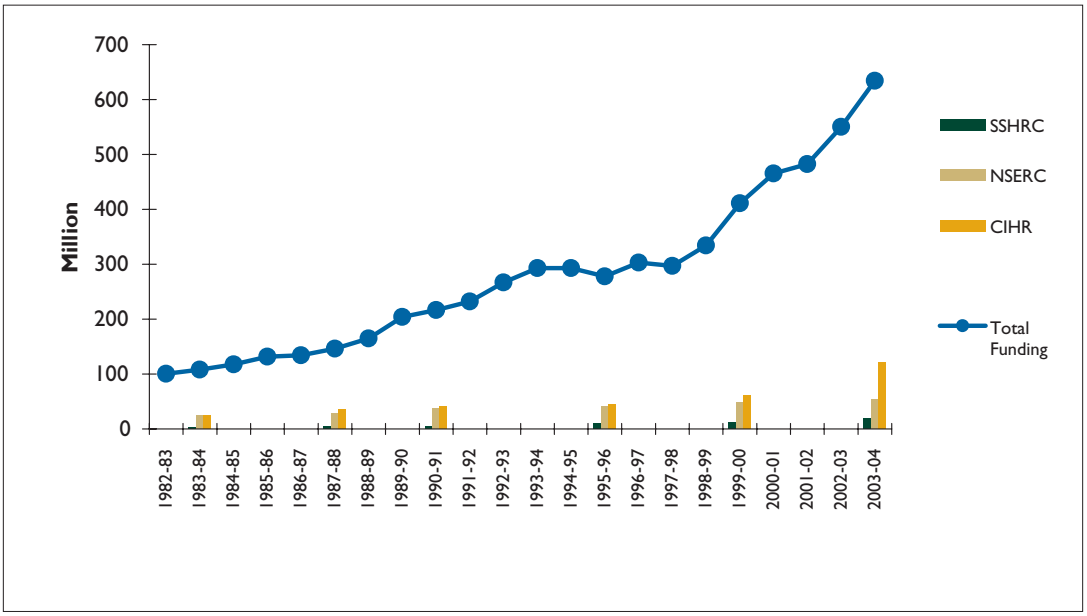


RESEARCH FUNDING

Trend

Research funding at the University of Toronto is currently in a phase of accelerated growth compared to the past couple of decades (see Figure 1). This acceleration is due particularly to research infrastructure programs introduced by both the federal and provincial governments at the end of the last millennium. Meanwhile, the contribution to research funding made by the federal granting councils has dropped from as high as 50 per cent of the total in the 1980s, to 31 per cent in 2004-05, despite large increases to the budget of the Canadian Institutes of Health Research during the early years of its transformation from the Medical Research Council of Canada.

FIGURE 1
Research Funds Awarded* 1982-83 to 2004-05
University of Toronto and Affiliated Hospitals



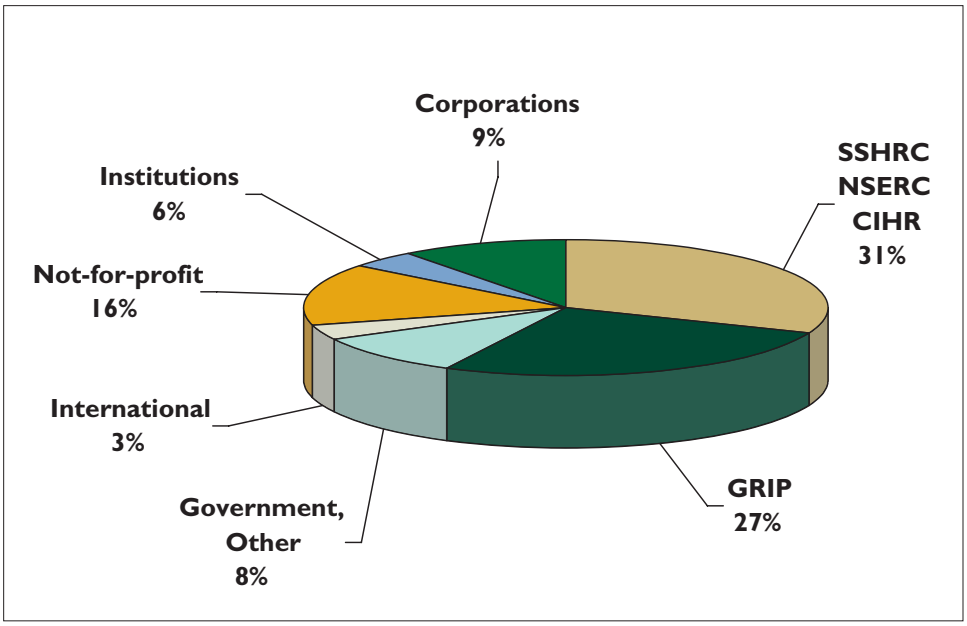
* Research funds awarded are exclusive of funding from the Research Performance Fund and the federal Indirect Costs program, but include other overhead amounts.
SSHRC, NSERC and CIHR (formerly MRC) funding exclude Networks of Centres of Excellence and Canada Research Chairs.
Sources: Councils' annual reports, and Office of the Vice-President, Research and Associate Provost.

RESEARCH FUNDING

Breakdown

Funds awarded to the University of Toronto and affiliated hospitals for the direct costs of research in 2004-05 totalled $699 million, of which $367 million was awarded through the affiliated hospitals and $332 million through U of T.

FIGURE 2
Research Funds Awarded by Sector
University of Toronto, including Affiliates, 2004-05
Total: $699M for Direct Costs*



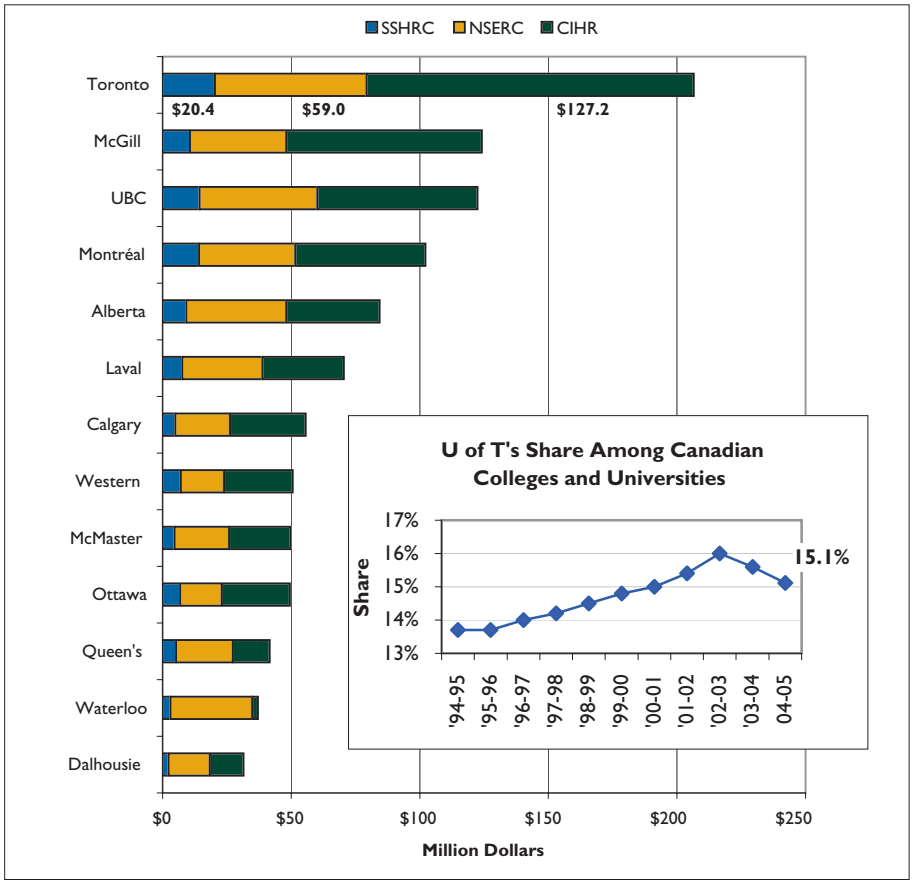
"GRIP" includes the Canada Research Chairs program, the Canada Foundation for Innovation, the Ontario Research Fund and the Ontario Genomics Institute.
"Government, Other" includes the Networks of Centres of Excellence, the Provincial Centres of Excellence, Health Canada, Public Works & Government Services Canada, and several other agencies.
"International" includes the National Institutes of Health.
"Not-for-profit" includes foundations, societies and associations.
* Research funds awarded are exclusive of overhead amounts for the U of T campuses but include these amounts for the affiliated hospitals (overhead data currently unavailable).

RESEARCH FUNDING

Federal Research Councils for G13 Universities

The University of Toronto continued to perform well in the major competitions of the three federal granting councils. The University maintained its number one ranking in overall funding from all three councils and from each individual council for the 12th consecutive year. U of T's share of funding relative to all Canadian colleges and universities stood at 15.1 per cent in 2004-05.

FIGURE 3
Federal Research Councils Payments
Canadian G13 Universities, 2004-2005



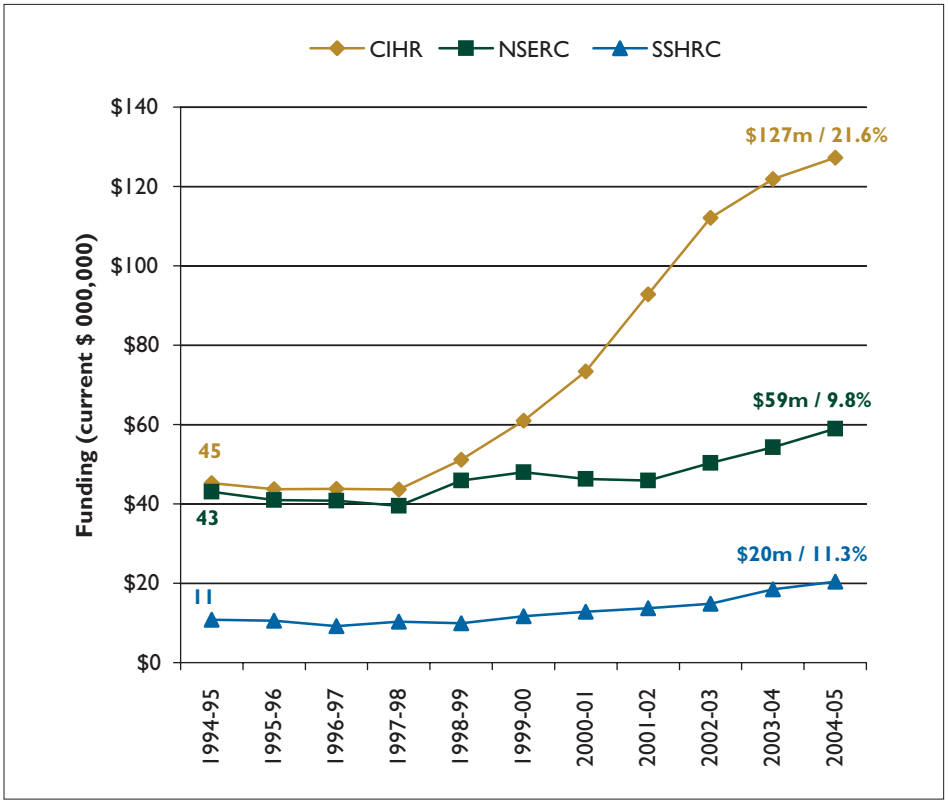
Figures include funding from affiliated and federated institutions. Figures exclude funding for the Networks of Centres of Excellence, the Canada Research Chairs program, and the Indirect Costs program.
Source: Councils' annual reports.

RESEARCH FUNDING

Federal Research Councils Payments

As illustrated in Figure 4, the total direct costs of research accruing to the University of Toronto from the federal granting councils have generally increased from year to year. Since 2000, these increases have been truly phenomenal for CIHR while remaining more moderate for the other two councils. Among all research sponsors, tri-council funding is, without a doubt, the gold standard in excellence and credibility. Tri-council funding earned by the University's researchers directly influences our allocations of indirect costs and numbers of Canada Research Chairs.

FIGURE 4
Share of Federal Research Councils Payments
University of Toronto and Affiliates, 1994-95 to 2004-05



Percentages represent shares of Canadian colleges and universities
Funding for the Networks of Centres of Excellence, the Canada Research Chairs program, and the Indirect Costs program are excluded.
Sources: Councils' annual reports

RESEARCH FUNDING

Federal Research Councils - U of T Demographics

The distributions of *number of grants* and of *funds awarded* as a function of faculty age produce very different patterns from one federal research council to the other.

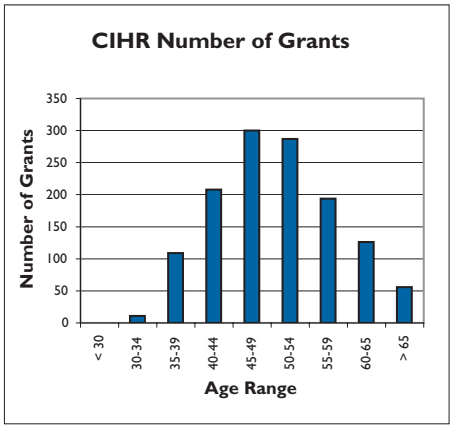
For CIHR (Figures 5a and 5b), the distributions are both essentially bell-shaped, with faculty in the 45-49 and 50-54 age ranges receiving the largest numbers of grants and the highest amounts awarded.

For NSERC (Figures 5c and 5d), there is a sudden drop in grant numbers and amounts awarded in the 50-54 and 55-59 age ranges; this has been traced to lower numbers of faculty members in these demographic segments.

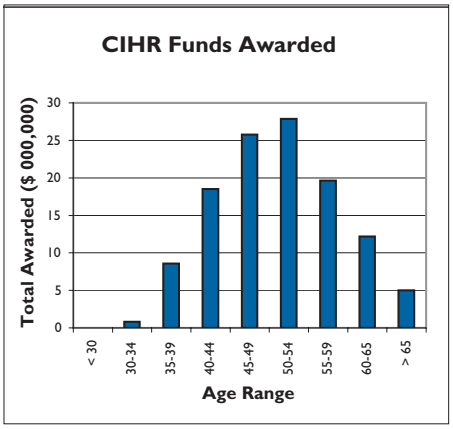
For SSHRC (Figure 5e and 5f), the grant number pattern is very different from the amounts awarded pattern. The number of grants is almost evenly distributed across six of eight age groups. By contrast, the funds awarded remain moderate between the 30-34 and 50-54 age ranges, and then increase quite dramatically in the next two age ranges. Additional data on number of faculty by age tell us that there are more faculty members in the higher age ranges. Taken together, this means that there is a large difference in the value of average SSHRC grants depending on age, and presumably experience, of the researcher. Note that grants from the SSHRC Institutional Grant (SIG) program were excluded from this analysis.

FIGURE 5
Distributions of Number of Grants and Funds Awarded by Faculty Age Range
University of Toronto and Affiliates, 2004-05

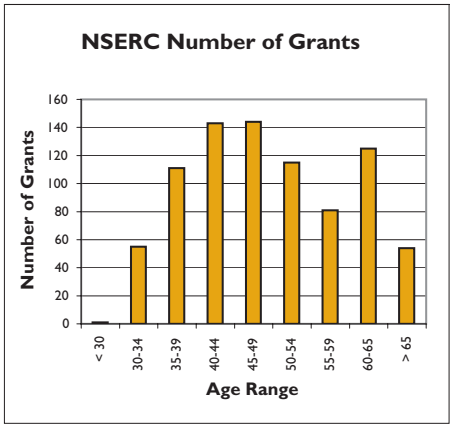
5a



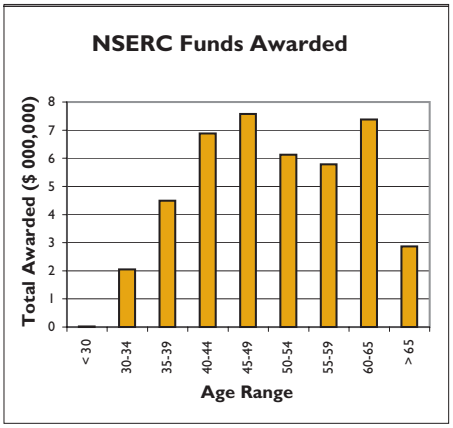
5b



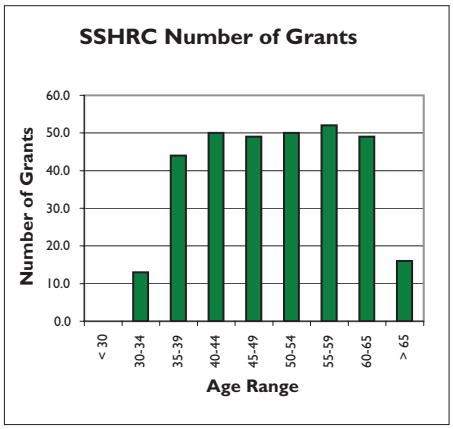
5c



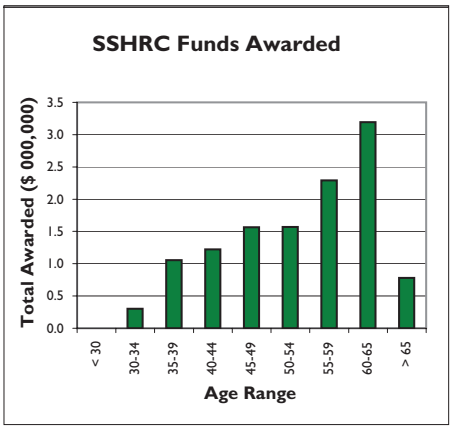
5d



5e



5f



RESEARCH FUNDING

Government Research Infrastructure Programs (GRIP)

The government research infrastructure programs are currently responsible for over one quarter of annual research revenues at the University of Toronto. Their introduction by the federal and provincial governments starting in 1998 is still the most significant factor in the accelerated growth in university research funding. U of T continues to lead all other universities in cumulative award totals from each of the sponsors where national statistics are available: Canada Research Chairs (CRC), Canada Foundation for Innovation (CFI), and the Ontario Research Fund (ORF). No national statistics are available for Genome Canada (GC) or the Ontario Genomics Institute (OGI).

The past year continued to be a time of transition, especially at the provincial level, where the ORF created successor programs to those of the Ontario Research and Development Challenge Fund, Ontario Innovation Trust and Premier's Research Excellence Awards. CFI also made changes to its suite of programs. In a number of cases, these changes delayed competitions and adjudications, resulting in fewer dollars awarded in 2005-06.

TABLE 1
GRIP Summary Table

CFI, CRC, GC/OGI, and ORF awards (in millions)

	May 2005 – April 2006	Cumulative
CRC	$43.70M[1]	$253.20M
CFI	$9.85M[2]	$340.87M
GC/OGI	$6.10M[3]	$78.07M
ORF	$3.23M[4]	$358.44M[5]
TOTAL Funding	**$62.88M**	**$1,030.58M**

1 Awards from April, September, December 2005 submission dates. Assumes $200K/year for seven years for Tier I and $100K/year for five years for Tier II awards. Includes renewal awards for these submission dates. To date 253 awards have been granted (out of the allocation of 267, based on University of Toronto granting council performance).

2 Includes New Opportunities awards ($4.90 M) from June, October 2005, Februrary 2006 submission dates and infrastructure awards to CRC holders ($4.79M) from April, September and December 2005 submission dates, and Infrastructure Operating Funds ($.157M). Cumulative figure includes awards to U of T & affilatied institutions.

3 GC/OGI figures includes awards directly to U of T as well as subgrants to U of T for projects administered elsewhere.

4 Includes matching awards for CFI New Opportunities ($1.637M) from June 2005, and April and some September 2005 submissions for Ontario Distinguished Researcher Awards ($1.59M).

5 ORF Cumulative figure includes previous awards through the ORDCF, OIT, PREA and ERA programs.

RESEARCH FUNDING

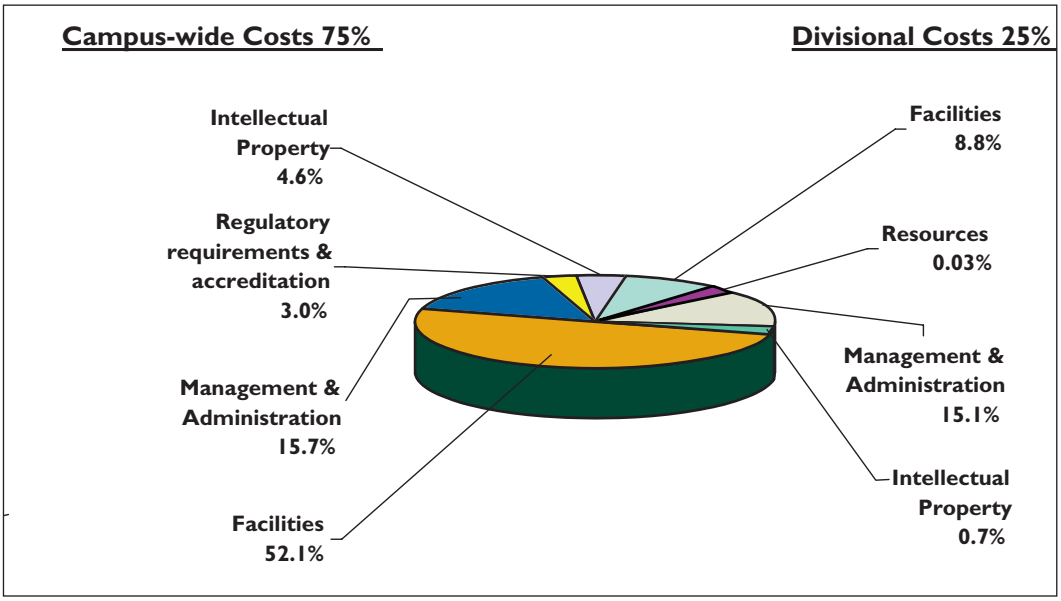
Indirect Costs of Research

The *direct costs* of conducting research can be related directly to each project's expenditures. These include salaries of research personnel, student stipends, equipment and supplies. Other costs, such as utilities, services provided by departments and central offices, administrative systems, libraries, space maintenance or renovation, and regulatory requirements cannot easily be accounted for on a project-by-project basis. They are known as *overhead* or *indirect costs*.

The federal government recognized the need to fund these costs first through a one-time only Indirect Costs program in 2001-02 and then through the introduction of a permanent Indirect Costs program in 2003-04. This program covers selected funding programs from the tri-councils (CIHR, NSERC, and SSHRC) and the networks of centres of excellence (NCEs). The rate is the result of a sliding scale constrained by the total funding allocated in each federal budget and benefiting smaller institutions. The formula is applied to an average of funding dating between four and two years from the current year. As a result, the University of Toronto received a rate of 20.9 per cent when calculated according to the distribution formula, but only 14.5 per cent when compared to all tri-council and NCE direct funding for 2004-05.

In actual dollars, the University of Toronto received $32.2 million in 2005-06 from the federal Indirect Costs program. Of this, $14.6 million was distributed to the affiliated hospitals, with no university surcharge. Twenty-five per cent of the remainder, or $4.3 million, was distributed to the faculties, and the rest, representing $13.2 million, was applied to support campus-wide services and facilities such as research labs and offices. Figure 6 illustrates the distribution of indirect costs monies at U of T. The largest proportion, by far, was for the cost of facilities, including utilities, and renovation and upgrade of research space. Regulatory requirements include the work done for animal care and human ethics protocol review. In 2005-06, the University reviewed 492 animal care protocols and over 3,000 human ethics protocols, an increase of 24 per cent over 2004-2005 in the case of the latter.

FIGURE 6
Use of Federal Indirect Costs 2005-06
University of Toronto, excluding Affiliates
Total $17.5M



Note: use of funding from the Indirect Costs program is restricted to costs considered new in relation to the start of the program and sustained thereafter.

GREAT MINDS

Personnel Awards and Designations

In 2004-05, over $69 million from sources other than the provincial operating grant contributed to funding nearly 800 faculty positions at the University of Toronto and affiliated hospitals. This is made up of 476 personnel awards earned through peer-reviewed competitions and 286 endowed chairs. All endowed chairs were created as a result of fundraising and reflect the generosity of individual and corporate donors, with 180 created by the University and 106 created jointly with the affiliated hospitals.

This funding was attracted on the basis of research and scholarly excellence, and allowed the University and affiliated hospitals to recruit and retain the very best minds from around the world during a period of severe erosion of provincial higher education budgets. These faculty members not only contributed to the University's stellar international research and scholarly reputation, but also to teaching and research training of undergraduate and graduate students. Most of the personnel awards and designations shown in Figure 7 have relatively stable numbers from year to year, except for the Canada Research Chairs, where the numbers will progressively increase to 267 by 2007-08, and the CIHR investigator awards where competitions in all but the new investigators category have been suspended.

FIGURE 7
Personnel Awards and Designations by Source
University of Toronto and Affiliates 2004-05

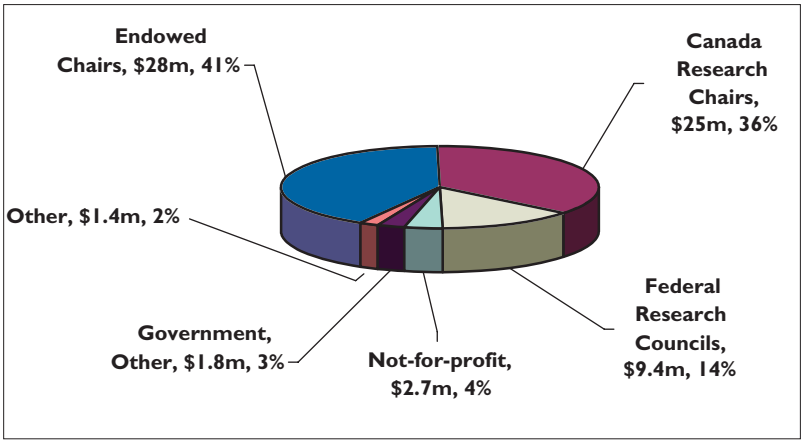
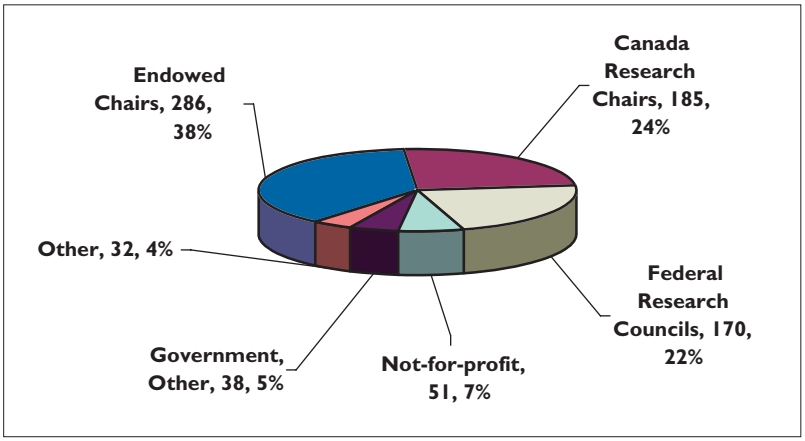


FIGURE 7a
Annual Value
Total $69M

FIGURE 7b
Annual Count
Total 762



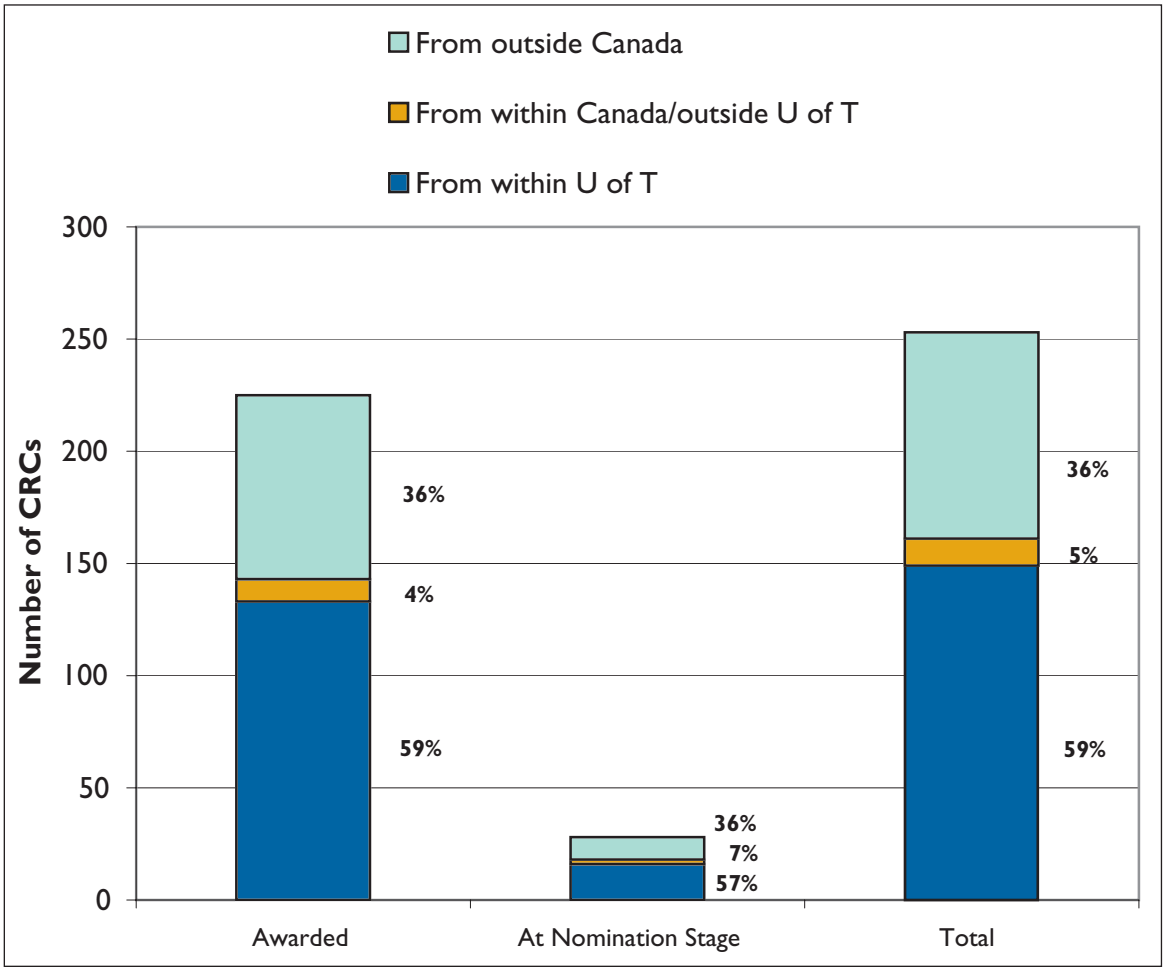
Notes: Among personnel awards from the federal research councils, 88% were from CIHR, 12% from NSERC, and none from SSHRC. The category "other" includes corporations, institutions and international organizations other than the U.S. government.

GREAT MINDS

Canada Research Chairs - Origin

The University of Toronto's current allocation of Canada Research Chairs stands at 267, the largest by far in Canada. To date, this has allowed the University to retain 149 great minds, representing 59 per cent of awards or nominations, and to recruit 104 new faculty members — with the majority, 92, coming from outside Canada and 12 coming from within Canada (see Figure 8). In addition to conducting leading-edge research and training graduate students, U of T's Canada Research Chairs are all expected to teach undergraduate students.

FIGURE 8:
Distribution of Canada Research Chairs by Origin
University of Toronto and Affiliates, June 2006
Total 253 Chairs



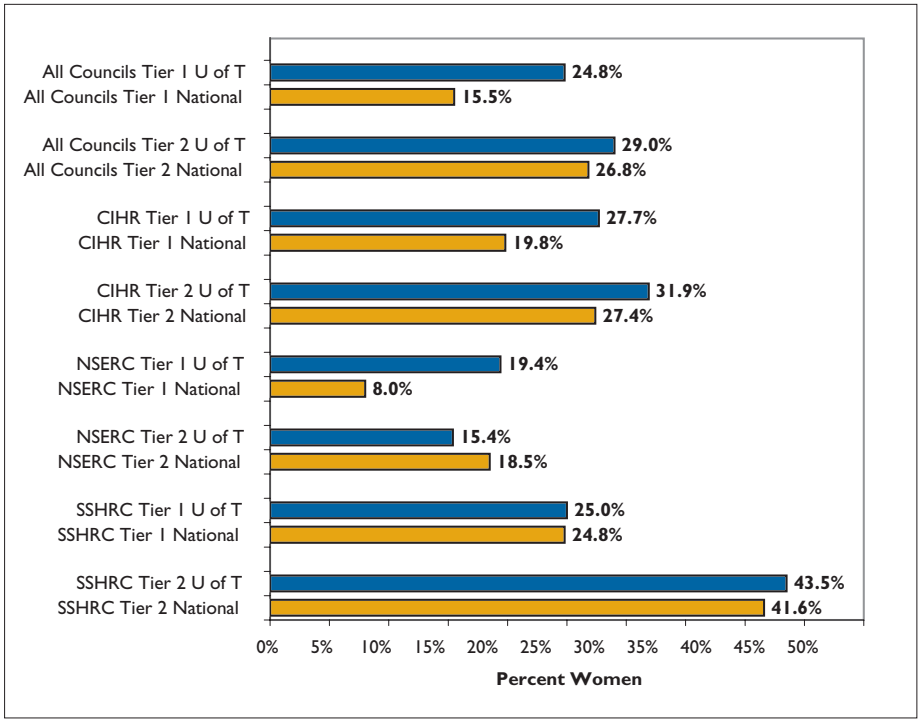
Source: Office of the Vice-President, Research and Associate Provost; excludes vacated Chairs

GREAT MINDS

Canada Research Chairs - Gender

The Canada Research Chairs program is, without a doubt, the most visible research personnel awards program in Canada and is attracting a considerable amount of international attention. Certainly, the advent of this visionary program has contributed to leveling the field for Canadian universities in recruiting the best minds. The University of Toronto, at 27 per cent, is well ahead of the current national average of 22 per cent women among chairholders. Comparative breakdowns are illustrated in Figure 9. It shows that U of T's proportion of women appointed as CRCs exceed national proportions in all but one category. In addition, as indicated previously (see Figure 7 on page 12), the CRC program is only one of several that provide salary support to outstanding faculty, and among CIHR awardees, for example, 37 per cent are women.

FIGURE 9
Comparison of Percentage Women Among Canada Research Chairs
University of Toronto and Affiliates vs National, 2006



Sources: Canada Research Chair Secretariat, updated July 2006 (excludes nominations pending decisions); Office of the Vice-President, Research and Associate Provost, updated June 2006 (includes nominations pending decisions).

GREAT MINDS

Canada Research Chairs - Clusters

In order to be eligible for Canada Research Chairs, each institution must submit a strategic research plan (SRP). The University of Toronto's SRP classifies its high research priorities into four areas, 24 themes, and 45 clusters. The list below illustrates how these are organized, how many CRCs are currently planned for each, and how many are occupied.

In addition to helping the University plan ahead for the deployment of its Canada Research Chairs allocation, the cluster list is very useful in identifying notable research strengths. In particular, within the SSHRC disciplines, literature, culture and discourse, as well as global development, health and prosperity, stand out. Similarly, in the NSERC disciplines, computational technology, and biomaterials, tissue engineering and regeneration, are two examples of exceptional research strength, as are neurobiology, and proteomics, bioinformatics and functional genomics, in the CIHR disciplines.

Canada Research Chairs by Cluster, University of Toronto and Affiliates

Canada Research Chairs by Cluster
University of Toronto and Affiliates

Area
Theme
Cluster (# filled/#planned)

Social Sciences
- Urban Environment
  - Urban Society and Culture (3/3)
- Public Policy
  - Social Justice, Diversity and Equity (1/2)
  - Education Policy (5/5)
  - Health and Public Policy (5/5)
  - Public Policy/Public Management (1/1)
  - Human Development and Life Cycle (1/1)
  - Innovation, Immigration and Democracy (1/1)
- Global Development
  - Global Development, Health and Prosperity (11/11)

Health & Life Sciences
- Molecular Biology and Applied Genomics
  - Proteomics, Bioinformatics, and Functional Genomics (25/26)
  - Molecular Medicine (23/23)
  - Membrane Biology (4/4)
  - Comparative and Evolutionary Genomics (16/16)
- Models and Mechanisms of Disease
  - Inflammation, Infection, Trauma, and Repair (17/17)
  - Vascular and Metabolic Biology (11/12)
- Neurosciences
  - Neurobiology (32/33)
  - Pain (3/3)
- Improvement in Health and Function
  - Improvement in Function, Participation, and Well-being (10/10)
  - Population Health (7/7)
  - Fetal, Neonatal and Maternal Health (1/1)
- Health Information and Knowledge Transfer
  - Health Systems and Knowledge Transfer (5/6)
- Medical Imaging
  - Imaging Technologies in Human Disease and Preclinical Models (6/6)

Humanities
- Literature, Arts and Culture
  - Literature, Culture and Discourse (9/9)
- Medieval Studies
  - Music in Medieval Society (1/1)
- History and Culture
  - Transitions in Ancient Thought (2/2)

Science and Technology
- Information Technologies
  - Computational Technology (9/9)
  - Human-Computer Interaction (3/3)
  - Information Processing Algorithms and Technologies (6/6)
  - Intelligent Infrastructure (1/1)
- Advanced Materials and Manufacturing
  - Advanced Materials (6/7)
  - Advanced Manufacturing with New Materials (4/4)
- Biotechnology
  - Biomaterials, Tissue Engineering and Regeneration (8/8)
- Nanoscience and Nanotechnology
  - Nanoengineering and Photonics (5/5)
  - Nanoscience and Photonics (5/5)
- The Planet Earth
  - Dynamic Earth: Physical and Biological Change (5/5)
- The Structure of the Universe
  - Astronomy and Astrophysics (4/4)
- Mathematical and Computational Sciences
  - Mathematical Foundations (7/7)

ALL (258/269)

Source: Office of the Vice-President, Research and Associate Provost, at November, 2006
Includes nominations awaiting decisions.

PUBLICATIONS & CITATIONS

Counts by Institution

Publications and citations are indexed by a number of organizations including Thomson ISI, whose data were used in the present analysis. Our goal was to rank the University of Toronto against members of two leading research-intensive university groups: the Canadian G13 group and the American Association of Universities (AAU). U of T is a member of both groups, as is McGill.

Note that the University of California, San Francisco, has all its four faculties in the health sciences and is a recognized leader in these fields, but is not a member of AAU.

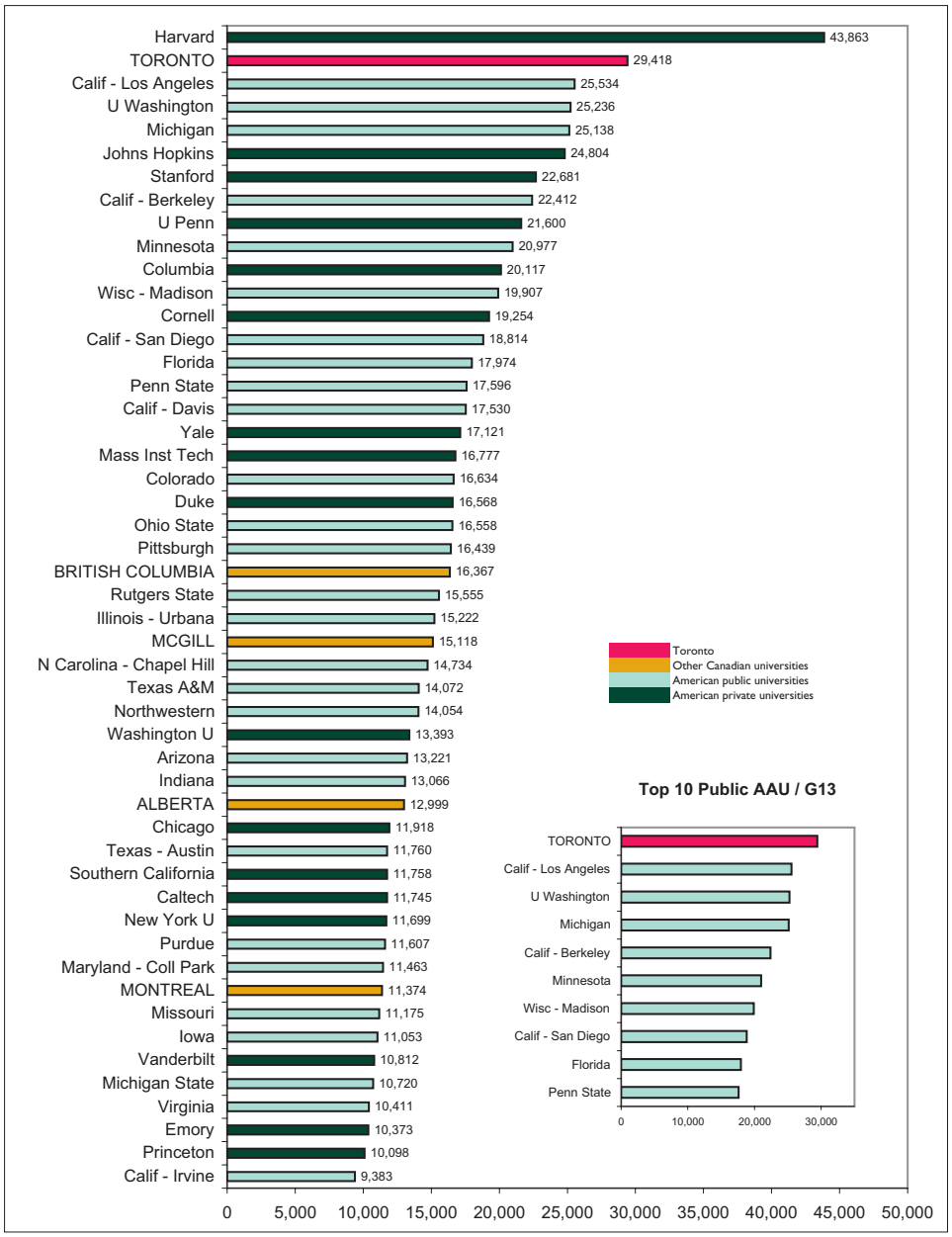


FIGURE 10
Number of Publications Indexed by Thomson ISI Top 50 AAU and/or G13 Institutions, 2001-2005 All Fields

Sources of primary data: Thomson ISI U.S. and Canadian University Indicators - Deluxe Edition 2005.

The University of Toronto is clearly a leader among North American multi-disciplinary universities even when private universities are included in the comparisons. In all categories, U of T consistently ranked well ahead of all other Canadian G13 universities, as exemplified by figure 11, shown here, and figure 10 on page 16.

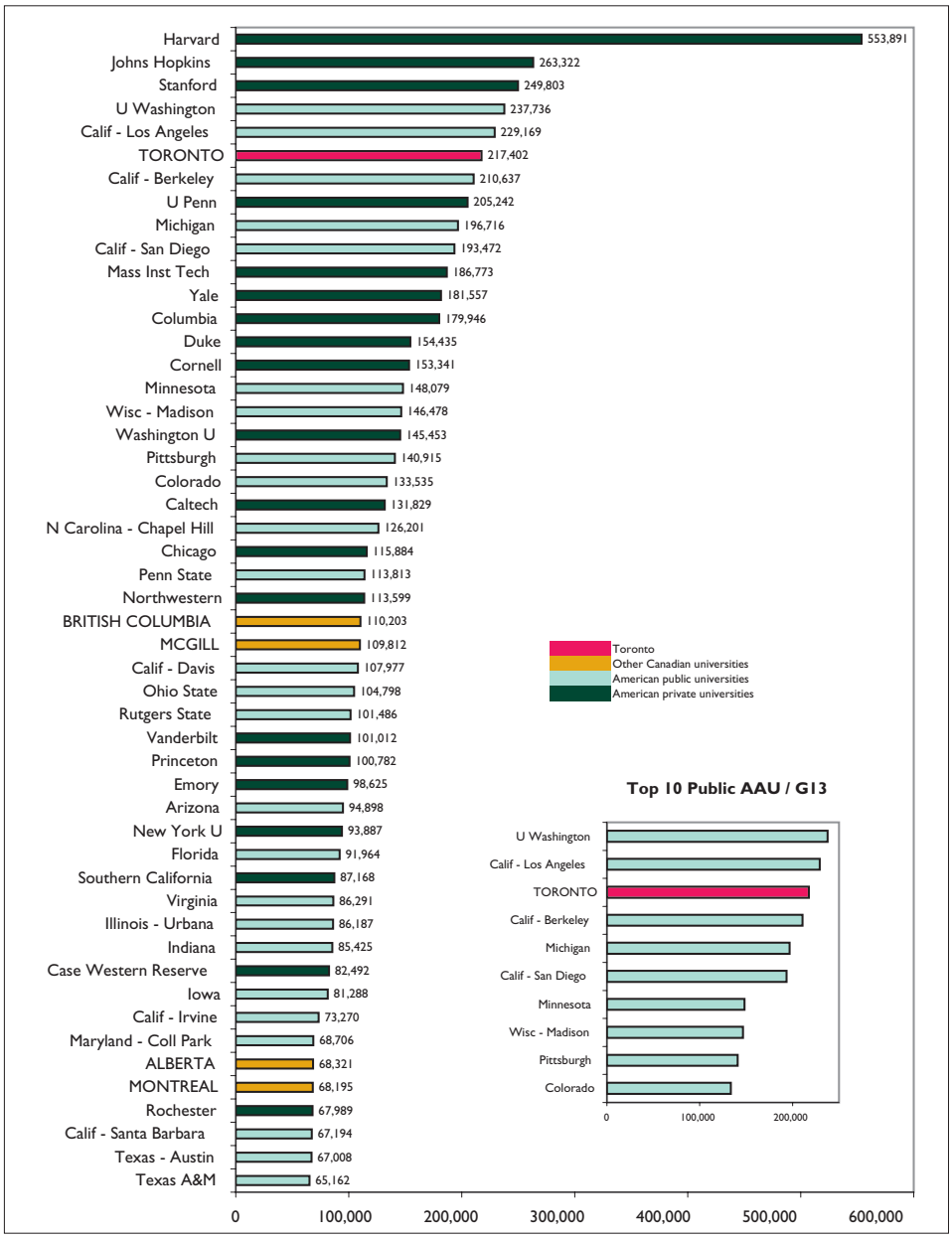


FIGURE 11
Number of Citations Indexed by Thomson ISI Top 50 AAU and/or G13 Institutions, 2001-2005 All Fields

Sources of primary data: Thomson ISI U.S. and Canadian University Indicators - Deluxe Edition, 2005.

PUBLICATIONS & CITATIONS

Rankings for the University of Toronto, including Affiliates

Similar analyses were conducted for an aggregate of all science fields (combining health sciences, other life sciences, computer science & engineering, and other physical sciences) as well as five discrete disciplinary groupings. The results for the latest five-year period, from 2001 to 2005, are summarized in Table 2. The first two columns focus on U of T's rank among 47 public universities as, arguably, private universities are advantaged in several respects relevant to research, including lower ratios of undergraduate students to faculty members. The last two columns show U of T's ranks when the analysis includes all 26 private universities. The inclusion of the private universities barely diminishes the predominance of U of T on these measures. The University's strength is particularly apparent in the health sciences, other life sciences, and social sciences.

TABLE 2
Summary of Rankings for the University of Toronto, 2001-2005
Among AAU and G13 Universities

University Type (number)	Public (47)		All (73)	
	Publications	Citations	Publications	Citations
All Fields	1	3	2	6
All Sciences Fields	1	3	2	6
Health Sciences	1	1	2	3
Other Life Sciences	3	1	5	3
Computer Science & Engineering	9	8	11	11
Other Physical Sciences	13	16	17	28
Social Sciences	3	8	6	16

Source of primary data: Thomson ISI U.S. and Canadian University Indicators -- Deluxe Edition and Standard Edition, 2005.

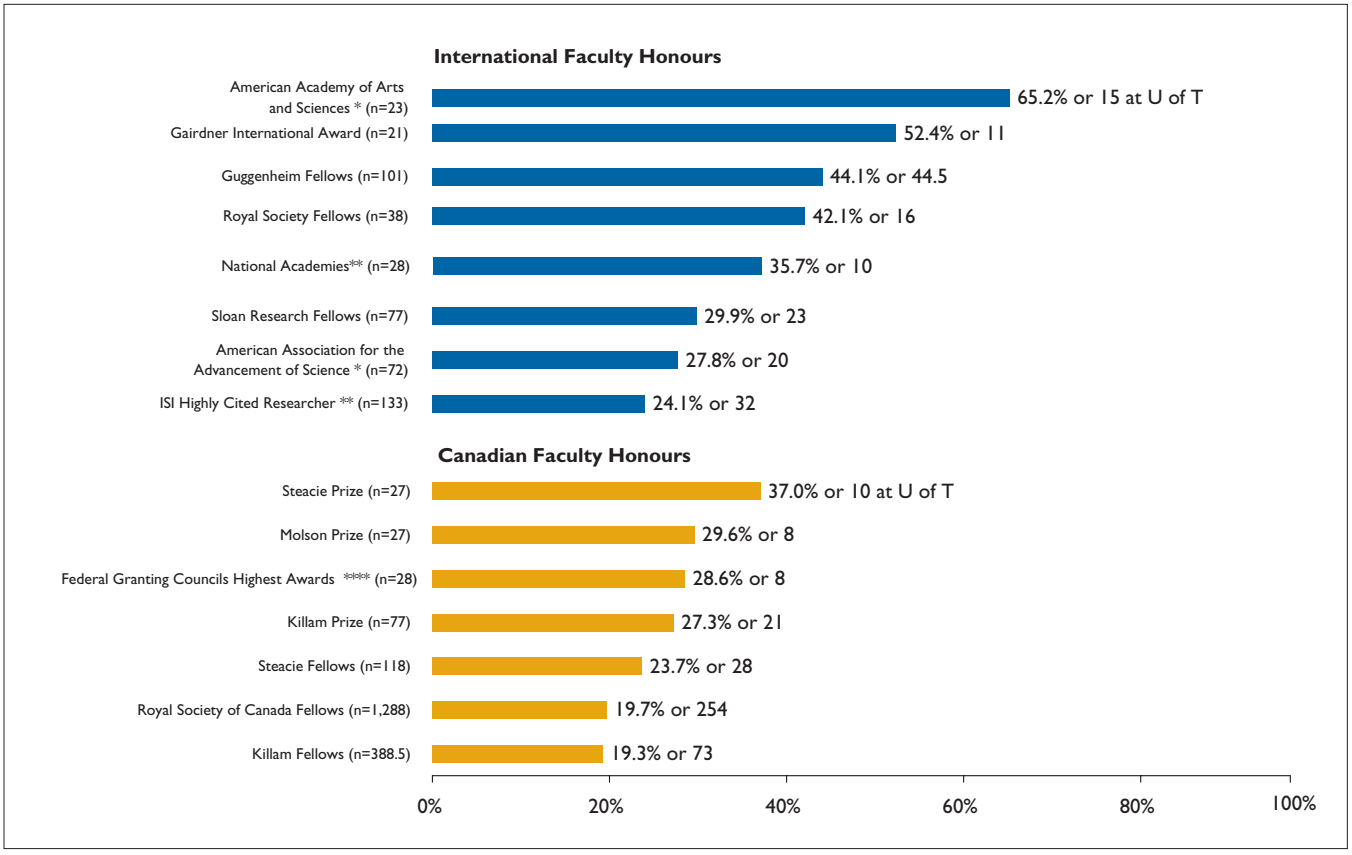
FACULTY HONOURS

U of T's Proportion

As illustrated in Figure 12, University of Toronto faculty members continued to receive honours and prizes, fellowships and election to groups recognizing outstanding scholarship and achievement, in proportions far exceeding U of T's proportion of faculty members in Canada (seven per cent excluding clinical faculty and those based in hospital research institutes, who are not reported to Statistics Canada).

The University is particularly encouraged to find that its faculty members are receiving an overwhelming proportion of international honours bestowed on very few researchers in Canada, such as membership in the American Academy of Arts and Sciences and the National Academy of Science, the Gairdner International Award, fellowship in the Royal Society and research fellowships from the Alfred P. Sloan Foundation. Indeed, our proportions of international prizes and awards exceed those from Canadian sources.

FIGURE 12
Faculty Honours by Award, 1980-2006
University of Toronto and Affiliates Compared to Canadian Universities



* Current members only
** The National Academies consist of: Institute of Medicine, National Academy of Engineering, and National Academy of Science
*** As of 2006
**** Federal Granting Councils Highest Awards: NSERC: Gerhard Hertzberg Canada Gold Medal for Science and Engineering (n=14); CIHR: Michael Smith Prize in Health Research (n=11); SSHRC: Gold Medal for Achievement in Research (n=3)
"n" refers to the number of honours held at all Canadian universities.
Sources: award announcements for each program.
The 2006 Steacie Prize and Royal Society of Canada Fellows not yet available.
For descriptions of each honour, see Awards and Honours section.

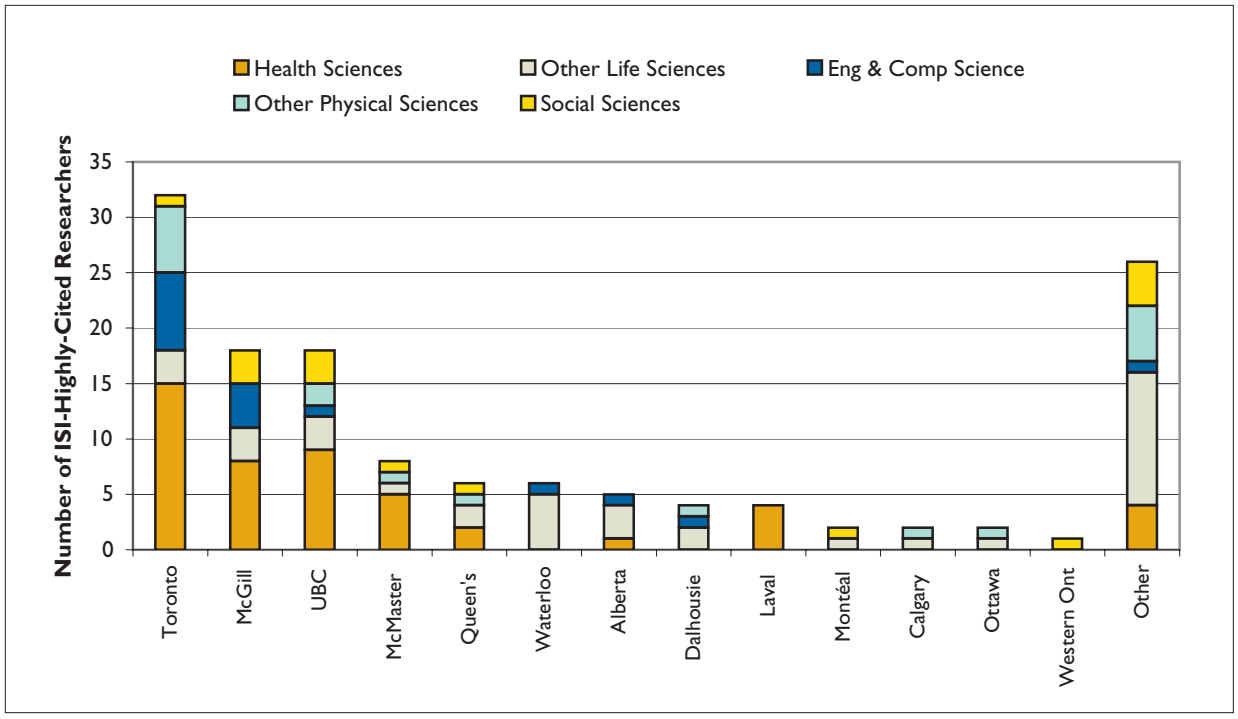
FACULTY HONOURS

ISI Highly-Cited Researchers

The Institute for Scientific Information's Highly Cited Researchers list is one of the best international indicators of research excellence. It identifies the 250 most highly cited (quoted in other publications) researchers in each of 21 broad subject areas.

In Canada, the University of Toronto has the highest number of researchers on the ISI Highly-Cited list for all fields, as well as for the health sciences, engineering & computer science, and other physical sciences, as illustrated in Figure 13.

FIGURE 13
ISI Highly-Cited Researchers Distribution Among G13 Canadian Universities



Source: http://isihighlycited.com/, May 2006

FACULTY HONOURS

Selected Honours and Awards in the past five years

INTERNATIONAL AWARDS AND HONOURS

This list is limited to the international Awards and Honours shown on Figure 12.

American Academy of Arts & Science

Membership in the American Academy - which includes more than 150 Nobel laureates and 50 Pulitzer Prize winners - recognizes outstanding intellectual achievement, leadership and creativity in all fields. The following U of T faculty members are the honorary members of the past few years:

2005

Tak Mak, Medical Biophysics, Faculty of Medicine
Richard Borshay Lee, Anthropology, Faculty of Arts and Science
Janice Gross Stein, Political Science, Faculty of Arts and Science

2004

Anthony J. Pawson, Medical Genetics and Microbiology, Faculty of Medicine, Samuel Lunenfeld Research Institute

2003

James G. Arthur, Mathematics, Faculty of Arts and Science
Richard J. Bond, Canadian Institute for Theoretical Astrophysics, Faculty of Arts and Science
Geoffrey E. Hinton, Computer Science, Faculty of Arts and Science
Linda Hutcheon, Centre for Comparative Literature, Faculty of Arts and Science
Janet Rossant, Molecular and Medical Genetics, Faculty of Medicine, Samuel Lunenfeld Research Institute

American Association for the Advancement of Science (AAAS)

Fellowship in the AAAS is an honour bestowed upon members by their peers. Fellows are recognized for meritorious efforts to advance science or its application. The following U of T faculty members are the AAAS Fellows in the past 6 years:

2006

Keren Rice, Linguistics, Faculty of Arts and Science
Donald Stuss, Medicine, Faculty of Medicine, Baycrest Centre for Geriatric Care.

2005

Harold Atwood, Physiology, Faculty of Medicine
D.A.S. Fraser, Statistics, Faculty of Arts and Science
Ping Lee, Pharmacy, Faculty of Pharmacy
Howard D. Lipshitz, Medical Genetics and Microbiology, Faculty of Medicine
Albert E. Litherland, Physics, Faculty of Arts and Science
Barbara Lee Keyfitz, Mathematics, Faculty of Arts and Science
Ronald H. Kluger, Chemistry, Faculty of Arts and Science
John R. Percy, Astronomy, UTM
John W. Sender, Mechanical and Industrial Engineering, Faculty of Applied Science and Engineering
Sara L. Shettleworth, Psychology, Faculty of Arts and Science
Thomas T. Tidwell, Chemistry, UTSC

2004

Linda Kohn, Botany, UTM

2003

Nancy M. Reid, Statistics, Faculty of Arts and Science

2000

Janet Rossant, Molecular and Medical Genetics, Faculty of Medicine, Samuel Lunenfeld Research Institute

Gairdner Foundation

These annual awards recognize the world's top medical research scientists.

2005 Gairdner International Award

Dr. Endel Tulving, Department of Psychology, Collaborative Program in Neuroscience, Rotman Research Institute of Baycrest Centre

John Simon Guggenheim Memorial Foundation Fellowship:

The U.S.-based John Simon Guggenheim Memorial Foundation provides fellowships across the disciplines for advanced professionals who have demonstrated exceptional accomplishment in their fields. The following U of T faculty members are the winners of the past six years:

2006

Thomas Hurka, Philosophy, Faculty of Arts and Science

2005

Alexander R. Jones, Classics and Institute for the History and Philosophy of Science and Technology, Faculty of Arts and Science

2004

David Zingg, Aerospace Studies, Faculty of Applied Science and Engineering

2003

Lynne Viola, History, Faculty of Arts and Science

2002

Peter Abrams, Zoology, Faculty of Arts and Science
Alan John Bewell, English, Faculty of Arts and Science

2000

James G. Arthur, Mathematics, Faculty of Arts and Science
Anthony Feinstein, Psychiatry, Faculty of Medicine
Sajeev John, Physics, Faculty of Arts and Science

ISI highly cited Researcher (at October 2006)

This list represents 250 of the most highly cited researchers over the last 20 years in the articles indexed by the Institute for Scientific Information (ISI) in each of 21 broad subject categories in life sciences, medicine, physical sciences, engineering and social sciences. These individuals comprise less than one-half of one per cent of all publishing researchers - truly an extraordinary accomplishment. The following is a list of U of T researchers as of October 2006 by discipline:

Biology & Biochemistry

Sergio Grinstein, Biochemistry, Faculty of Medicine, Hospital for Sick Children
David H. MacLennan, Banting and Best Department of Medical Research, Faculty of Medicine

Chemistry

Lewis Edward Kay, Medical Genetics and Microbiology, Faculty of Medicine

Computer Science

Radford M. Neal, Statistics and Computer Science, Faculty of Arts and Science
Subbarayan Pasupathy, Electrical and Computer Engineering, Faculty of Applied Science and Engineering
Charles Rackoff, Mathematics and Computer Science, UTM
Kenneth C. Sevcik, Computer Science, Faculty of Arts and Science

Ecology/Environment

Peter A. Abrams, Ecology and Evolutionary Biology, Faculty of Arts and Science

Engineering

Bruce Allen Francis, Electrical and Computer Engineering, Faculty of Applied Science and Engineering

Geosciences

W. Richard Peltier, Physics, Faculty of Arts and Science

Immunology

Pam S. Ohashi, Immunology, Faculty of Medicine, Ontario Cancer Institute

Immunology and Molecular Biology & Genetics

Tak Mak, Medical Biophysics, Faculty of Medicine, Ontario Cancer Institute

Materials Science

Geoffrey A. Ozin, Chemistry, Faculty of Arts and Science

Mathematics

Nancy Reid, Statistics, Faculty of Arts and Science

Mathematics & Engineering

W. M. Wonham, Electrical and Computer Engineering, Faculty of Applied Science and Engineering

Molecular Biology & Genetics

Anthony J. Pawson, Medical Genetics and Microbiology, Faculty of Medicine, Samuel Lunenfeld Research Institute

Johanna M. Rommens, Medical Genetics and Microbiology, Faculty of Medicine, Hospital for Sick Children

Janet Rossant, Medical Genetics and Microbiology, Faculty of Medicine, Samuel Lunenfeld Research Institute

Jeffrey L. Wrana, Medical Genetics and Microbiology, Faculty of Medicine, Samuel Lunenfeld Research Institute

Pharmacology

Werner Kalow, Pharmacology, Faculty of Medicine

Philip Seeman, Pharmacology, Faculty of Medicine

Edward M. Sellers, Pharmacology, Faculty of Medicine

Plant & Animal Science

Stephen S. Tobe, Cell and Systems Biology, Faculty of Arts and Science

Psychology/Psychiatry

R. Michael Bagby, Psychiatry, Faculty of Medicine, Centre for Addiction and Mental Health

Paul E. Garfinkel, Psychiatry, Faculty of Medicine, Centre for Addiction and Mental Health

Janet Polivy, Psychology, UTM

Endel Tulving, Psychology, Faculty of Arts and Science

Social Sciences

Keith E. Stanovich, Human Development and Applied Psychology, OISE/UT

Space Sciences

J. Richard Bond, Canadian Institute for Theoretical Astrophysics, Faculty of Arts and Science

Ray G. Carlberg, Astronomy and Astrophysics, Faculty of Arts and Science

Howard K.C. Yee, Astronomy and Astrophysics, Faculty of Arts and Science

The National Academies (U.S.)

The National Academies consists of the National Academy of Sciences, National Academy of Engineering, Institute of Medicine, and National Research Council. Membership in the Academies, or for those outside of the U.S. a Foreign Associate is one of the highest honours accorded to a scientist or engineer, recognizes distinguished and continuing achievement in original research. The following U of T faculty members were elected Foreign Associates:

Institute of Medicine - Foreign Associate Members:

2005

C. David Naylor, Medicine, Faculty of Medicine

National Academy of Engineering - Foreign Associates:

2006

Christina Amon, Faculty of Applied Science and Engineering

2005

Walter Murray Wonham, Electrical and Computer Engineering, Faculty of Applied Science and Engineering

National Academy of Sciences - Foreign Associates:

2004

Robert J. Birgeneau, President Emeritus

Lap-Chee Tsui, Medical Genetics and Microbiology, Faculty of Medicine

The Royal Society Fellows

Internationally recognized as one of the highest honors in science, fellowship in the Royal Society, which admits only six foreign members each year, is offered to scientists who have made a distinguished achievement in their fields. The following U of T faculty members were elected Foreign Members:

2004

Spencer Barrett, Botany, Faculty of Arts and Science
Peter St. George-Hyslop, Centre for Research in Neurodegenerative Disease, Faculty of Medicine

2001

Robert J. Birgeneau, Physics, Faculty of Arts and Science
J. Richard Bond, Canadian Institute for Theoretical Astrophysics, Faculty of Arts and Science

2000

Janet Rossant, Molecular and Medical Genetics, Faculty of Medicine, Samuel Lunenfeld Research Institute
James Edgar Till, Medical Biophysics, Faculty of Medicine

1999

Ernest McCulloch, Medical Biophysics, Faculty of Medicine

Alfred P. Sloan Foundation: Sloan Research Fellowship

These U.S. - based awards are intended to enhance the careers of the very best young faculty members in specific fields of science.

2006

Aaron Hertzmann, Computer Science, Faculty of Arts and Science
Arun Paramekanti, Physics, Faculty of Arts and Science

2005

Sam Roweis, Computer Science, Faculty of Arts and Science

2004

Gregory Scholes, Chemistry, Faculty of Arts and Science
Balint Virag, Mathematics, Faculty of Arts and Science

2003

Peter Andolfatto, Zoology, Faculty of Arts and Science
James Ellis Colliander, Mathematics, Faculty of Arts and Science
Kentaro Hori, Physics and Mathematics, Faculty of Arts and Science
Hae-Young Kee, Physics, Faculty of Arts and Science
Daniel A.Lidar, Chemistry, Faculty of Arts and Science

2002

Amanda Peet, Physics, Faculty of Arts and Science

2001

Kiriakos Kutulakos, Computer Science, Faculty of Arts and Science
Barth C. Netterfield, Physics and Astronomy, Faculty of Arts and Science

2000

Michael Molloy, Computer and Mathematical Sciences, UTSC

NATIONAL HONOURS

This list is limited to Canadian Awards and Honours graphed on Figure 13.

Federal Granting Councils Highest Awards

CIHR: The Michael Smith Prize in Health Research

Created by the Canadian Institute of Health Research, this prize is given annually to an outstanding Canadian researcher who has demonstrated a high degree of innovation, creativity, leadership and dedication in health research.

2005

Janet Rossant, Molecular and Medical Genetics, Faculty of Medicine, Samuel Lunenfeld Research Institute

2004

Sergio Grinstein, Biochemistry, Faculty of Medicine. Hospital for Sick Children

2002

Anthony J. Pawson, Medical Genetics and Microbiology, Faculty of Medicine, Samuel Lunenfeld Research Institute.

2000

Michael Tyers, Medical Genetics and Microbiology, Faculty of Medicine, Samuel Lunenfeld Research Institute.

Killam Prize

The Killam Prize honors eminent Canadian scholars in engineering, health sciences, natural sciences, social sciences and humanities.

2005

Linda Hutcheon, Centre for Comparative Literature, Faculty of Arts and Science

2004

James G. Arthur, Mathematics, Faculty of Arts and Science
Janet Rossant, Molecular and Medical Genetics, Faculty of Medicine, Samuel Lunenfeld Research Institute

2003

Edward J. Davison, Electrical and Computer Engineering, Faculty of Applied Science and Engineering
Tak Mak, Medical Biophysics, Faculty of Medicine

2002

Ian M. Hacking, Philosophy, Faculty of Arts and Science
Lap-Chee Tsui, Medical Genetics and Microbiology, Faculty of Medicine

2001

Werner Kalow, Pharmacology, Faculty of Medicine

2000

Paul Brumer, Chemistry, Faculty of Arts and Science
Fergus I. M. Craik, Psychology, Faculty of Arts and Science
Anthony J. Pawson, Medical Genetics and Microbiology, Faculty of Medicine

Killam Research Fellowship

Awarded by the Canada Council for the Arts, these fellowships recognize and support distinguished Canadian scholars, normally full professors at Canadian universities and research institutes, who have established outstanding reputations in their areas of research.

2005

Virginia Brown, Medieval Studies, Faculty of Arts and Science (Renewed in 2006)

2004

Ian Lancashire, English, Faculty of Arts and Science (Renewed in 2006)

2003

John B. Friedlander, Mathematics, UTSC
Barbara Sherwood Lollar, Geology, Faculty of Arts and Science (Renewed in 2005)
Lynne Viola, History, Faculty of Arts and Science (Renewed in 2005)

2002

J. Edward Chamberlin, English, Faculty of Arts and Science
Victor Ivrii, Mathematics, Faculty of Arts and Science
Thomas L. Pangle, Political Science, Faculty of Arts and Science

2001

Timothy D. Barnes, Classics, Faculty of Arts and Science
Heather Jackson, English, Faculty of Arts and Science
Pierre D. Milman, Mathematics, Faculty of Arts and Science (Renewed from 1999)
Thomas T. Tidwell, Chemistry UTSC
Stephen Waddams, Faculty of Law (Renewed from 1999)

Molson Prize

Awarded by the Canada Council for the Arts, this prize recognizes an outstanding lifetime contribution to the cultural and intellectual life of Canada.

2005

Ramsay Cook, History, Faculty of Arts and Science

2003

Janice Gross Stein, Political Science, Faculty of Arts and Science

2001

Ian M. Hacking, Philosophy of Science and Technology , Faculty of Arts and Science

E.W.R. Steacie Foundation Prize

The Steacie Prize is Canada's most prestigious research award for young scientists and engineers.

2003

Stephen Scherer, Medical Genetics and Microbiology, Faculty of Medicine

2001

Jerry Xhelal Mitrovica, Physics, Faculty of Arts and Science

2000

Ian Manners, Chemistry, Faculty of Arts and Science

Steacie Memorial Fellowship Award

Awarded by the Natural Sciences and Engineering Research Council, these fellowships are given annually to university researchers who are capturing international attention for outstanding scientific or engineering achievement.

2006

Locke Rowe, Zoology, Faculty of Arts and Science

2005

Roberto Garcia Abraham, Astronomy and Astrophysics, Faculty of Arts and Science
Peter Zandstra, Chemical Engineering and Applied Chemistry, Faculty of Applied Science and Engineering

2004

George Eleftheriades, Electrical and Computer Engineering, Faculty of Applied Science and Engineering
Lisa Jeffrey, Mathematics, Faculty of Arts and Science

2003

Molly Shoichet, Chemical Engineering and Applied Chemistry, Faculty of Applied Science and Engineering
Kim Vicente, Mechanical and Industrial Engineering, Faculty of Applied Science and Engineering

2002

Jerry Xhelal Mitrovica, Physics, Faculty of Arts and Science

Royal Society of Canada Fellows

Fellowship in the Royal Society is a prestigious honour recognizing outstanding contributions to the arts and sciences.

2006

Ronald Beiner, Political Science, Faculty of Arts and Science
Alan Bewell, English, Faculty of Arts and Science
Jing M. Chen, Geography, Faculty of Arts and Science
Joseph G. Culotti, Medical Genetics and Microbiology, Faculty of Medicine
Abdallah Daar, Public Health Sciences - Joint Centre for Bioethics, Faculty of Medicine
Hector Levesque, Computer Science, Faculty of Arts and Science
Lewis E. Kay, Medical Genetics and Microbiology, Faculty of Medicine
Andreas Mandelis, Mechanical and Industrial Engineering, Faculty of Applied Science and Engineering
Pamela Ohashi, Medical Biophysics, Faculty of Medicine
Terence W. Picton, Medicine, Faculty of Medicine
Janet Polivy, Psychology, UTM
Stephen Scherer, Medical Genetics and Microbiology, Faculty of Medicine
Demetri Terzopoulos, Computer Science, Faculty of Arts and Science
William Trimble, Biochemistry, Faculty of Medicine
Mariana Valverde, Criminology, Faculty of Arts and Science
Jeffrey Wrana, Medical Genetics and Microbiology, Faculty of Medicine

2005

Peter Abrams, Zoology, Faculty of Arts and Science
Brenda Andrews, Banting and Best Department of Medical Research, Faculty of Medicine
Charles M. Boone, Banting and Best Department of Medical Research, Faculty of Medicine
James Alan Dainard, French, Faculty of Arts and Science
Ronald de Sousa, Philosophy, Faculty of Arts and Science
James Drummond, Physics, Faculty of Arts and Science
Monica Heller, Sociology and Equity Studies in Education, OISE/UT
Mark R. Henkelman, Medical Biophysics, Faculty of Medicine
John M. Kennedy, Psychology, UTSC
Alexander Maxwell Leggatt, English, Faculty of Arts and Science
John F. MacDonald, Physiology, Faculty of Medicine

Alberto O. Mendelzon, Computer and Mathematical Sciences, UTSC
Freda Miller, Medical Genetics and Microbiology, Faculty of Medicine
Robert Morris, Chemistry, Faculty of Arts and Science
Peter Richardson, Centre for the Study of Religion, Faculty of Arts and Science
Michael Salter, Physiology, Faculty of Medicine
Michael Sefton, Chemical Engineering and Applied Chemistry
John Edward Sipe, Physics, Faculty of Arts and Science

2004

Daniel Brooks, Zoology, Faculty of Arts and Science
Gregory Brown, Psychiatry and Physiology, Faculty of Medicine
John Dick, Medical Genetics and Microbiology, Faculty of Medicine
Stephen Clarkson, Political Science, Faculty of Arts and Science
Alison Fleming, Psychology, UTM
John Myles, Sociology, Faculty of Arts and Science
C. David Naylor, Medicine, Faculty of Medicine
Barbara Sherwood Lollar, Geology, Faculty of Arts and Science
Richard Simeon, Political Science and Law
Donald Stuss, Medicine and Psychology, Faculty of Medicine
Rosemary Sullivan, English, Faculty of Arts and Science

2003

Ian Blake, Electrical and Computer Engineering, Faculty of Applied Science and Engineering
Roland Le Huenen, Centre for Comparative Literature, Faculty of Arts and Science
Meric S. Gertler, Geography, Faculty of Arts and Science
Allan Griffin, Physics, Faculty of Arts and Science
David J. A. Jenkins, Nutritional Sciences, Faculty of Medicine
Jill Levenson, English, Faculty of Arts and Science
Patrick Macklem, Faculty of Law
Yoshio Masui, Zoology, Faculty of Arts and Science
Adel Sedra, Electrical and Computer Engineering, Faculty of Applied Science and Engineering
Carolyn Tuohy, Political Science, Faculty of Arts and Science
Gordon F. West, Physics, Faculty of Arts and Science

2002

Robert J. Birgeneau, Physics, Faculty of Arts and Science
Janice Boddy, Anthropology, Faculty of Arts and Science
David Cameron, Political Science, Faculty of Arts and Science
Mitchell Halperin, Medicine, Faculty of Medicine
Sajeev John, Physics, Faculty of Arts and Science
Brian Merrilees, Victoria College
Morris Moscovitch, Psychology, Faculty of Arts and Science
Heather Munroe-Blum, Research and International Relations
Kent Roach, Faculty of Law
Michael Saary, Medical Genetics and Microbiology, Faculty of Medicine
Ben-Zion Shek, French, Faculty of Arts and Science
Peter St.George-Hyslop, Centre for Research in Neurodegenerative Disease, Faculty of Medicine
Cecil Yip, Vice-Dean of Research, Faculty of Medicine

2001

Sylvia Beth Bashevkin, Political Science, Faculty of Arts and Science
Charles M. Deber, Biochemistry, Faculty of Medicine
Tom Hurka, Philosophy, Faculty of Arts and Science
Mark Lautens, Chemistry, Faculty of Arts and Science
Ian Manners, Chemistry, Faculty of Arts and Science
Roderick McInnes, Paediatrics, Faculty of Medicine
Cheryl Misak, Philosophy, Faculty of Arts and Science
Keith Oatley, Human Development and Applied Psychology, OISE/UT
Nancy M. Reid, Statistics, Faculty of Arts and Science
Jeffrey G. Reitz, Department of Sociology, Faculty of Arts and Science
C. Andre T. Salama, Electrical and Computer Engineering, Faculty of Applied Science and Engineering

2000

William J. Callahan, History, Faculty of Arts and Science
J. Edward Chamberlin, English, Faculty of Arts and Science
Sergio Grinstein, Biochemistry, Faculty of Medicine
Alexander R. Jones, Classics, Faculty of Arts and Science
Amira Klip, Paediatrics, Faculty of Medicine
Michael Lambek, Anthropology, Faculty of Arts and Science
Alexander McLean, Metallurgy and Materials Science, Faculty of Applied Science and Engineering
Janet M. Paterson, French, Faculty of Arts and Science
James Woodgett, Medical Biophysics, Faculty of Medicine

ADDITIONAL AWARDS AND HONOURS

Lasker Foundation
Albert Lasker Award for Basic Medical Research
2005
Ernest A. McCulloch and **James Till**, Medical Biophysics, Faculty of Medicine

Massachusetts Institute of Technology
World's Top 35 Innovators Under the Age of 35
2005
Parham Aarabi, Electrical and Computer Science, Faculty of Applied Science and Engineering
Aaron Hertzmann, Computer Science, Faculty of Arts and Science

Top 100 Young Innovators
2003
Edward H. Sargent, Electrical and Computer Engineering, Faculty of Applied Science and Engineering

NSERC
Synergy Award for Innovation

2005
Joseph Paradi, Mechanical and Industrial Engineering, Faculty of Applied Science and Engineering

2004
Douglas Reeve, Chemical Engineering and Applied Chemistry, Faculty of Applied Science and Engineering
Brockhouse Canada Prize for Interdisciplinary Research in Science and Engineering

2005
Sajeev John (Physics) and **Geoffrey A. Ozin** (Chemistry)

Canada Council for the Arts

John D. Diefenbaker Award

2000
Joachim Fiebach, Victoria College

The Royal Society

The Glaxo Wellcome Prize

2000
David H. MacLennan, Banting and Best Department of Medical Research, Faculty of Medicine

The Royal Society of Literature
2003
Fellow
Margaret MacMillan, Provost, Trinity College

INNOVATION & COMMERCIALIZATION

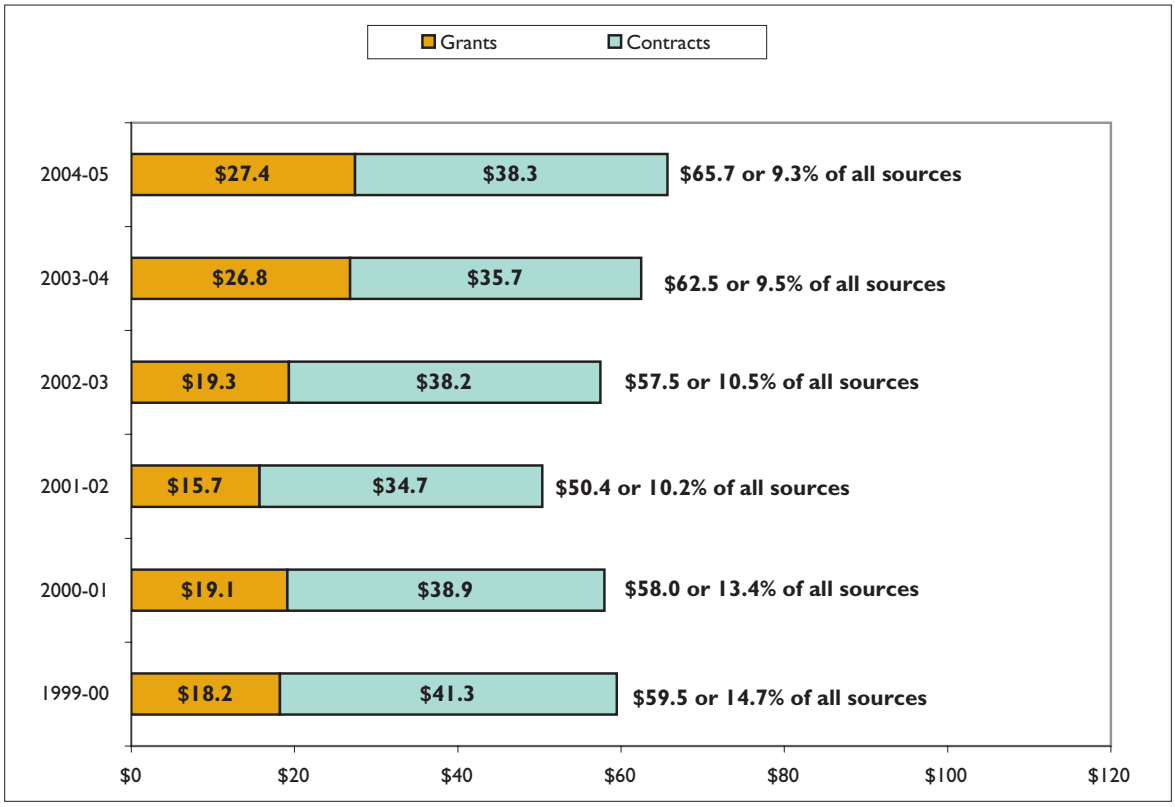
The most visible outcomes of research are often those linked with commercialization. Indeed, the increased investments in university and hospital research by both levels of government were made in the context of a clear commitment by universities to increase their commercialization of research threefold between 2002 and 2010.

To strengthen its ability to move research from the lab to society, U of T rejuvenated its research commercialization operation in 2005-06 through the creation of "Innovations at the University of Toronto", locating it at MaRS, a new $450-million convergence centre (of which U of T is a founding partner) that fosters collaboration between the sciences, business and capital communities.

One aspect of commercialization is the willingness of industry to invest in research conducted at a university. Figure 14 illustrates the fluctuations of these investments at the University of Toronto and affiliates over the past six years. Unlike investments from the government sector, there has been no dramatic increase. As a result, when expressed as a share of total funding, we observe a progressive decline. The decline in funding in 2001-2002 was likely related to the problems experienced in the high technology sector at that time.

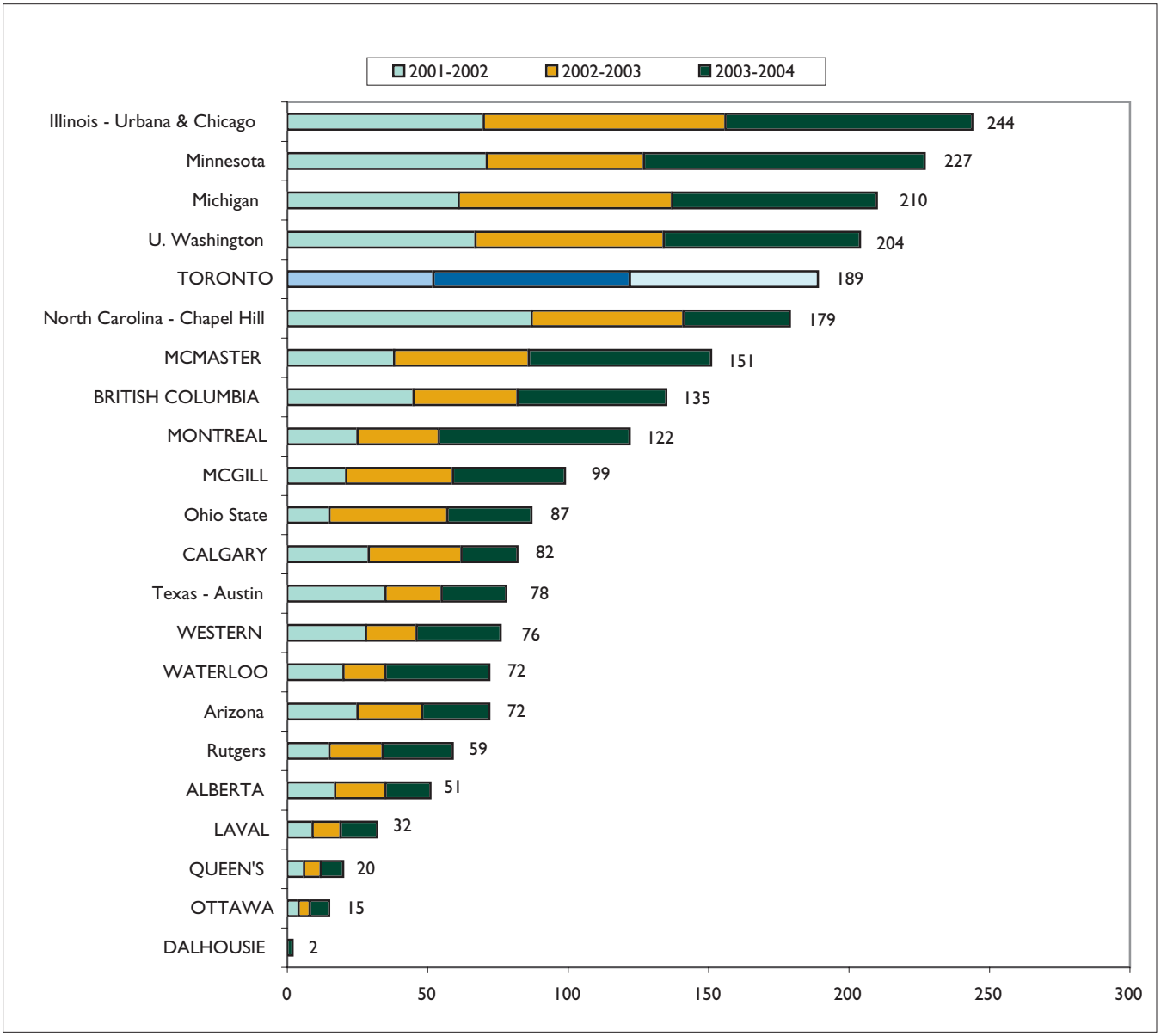
Another important aspect of commercialization is the licensing of inventions, some of which may generate commercialization revenue. The University of Toronto continues to lead Canadian universities in cumulative new licenses over the most recent three-year period. It ranks fifth among peers, as illustrated in Figure 15.

FIGURE 14
Research Funding from Industrial Sources, University of Toronto and Affiliates
1999-2000 to 2004-05 (Millions CDN)



Source: Office of the Vice-President, Research and Associate Provost

FIGURE 15
New Licenses
Canadian G13 and US Peer Institutions



Sources: AUTM Survey FY 2004, 2003, 2002, and supplementary data from missing U of T affiliates.

Note: G13 institutions are shown in capital letters.
University of Toronto includes all affiliated hospitals except for St. Michael's Hospital.
University of Washington includes Washington Research Foundation.
University of Ottawa includes Ottawa Heart Institte Research Corportation and Ottawa Health Research Inst. where available
Dalhousie data not available for 2001-02 and 2002-03.
Data for University of California at Berkeley only available as part of University of California system (not shown).

NEXT GENERATION

Highly Qualified Personnel

Research, scholarship and the generation of new knowledge and understanding create unique opportunities to mentor the great minds of tomorrow. This mentorship is particularly intensive in the case of doctoral stream graduate students and postdoctoral fellows. In 2005, the University conferred degrees to 1,922 in the former group, and was engaged in training 1,424 in the latter. In addition, 1,951 degrees were conferred to students in professional master's programs. The breakdowns between the four School of Graduate Studies divisions are shown in Table 3.

Eleven per cent of students who graduated in 2005 were international students, made up of 7 per cent in the professional masters programs, 11 per cent in the doctoral stream

TABLE 3
Breakdown of Highly Qualified Personnel
University of Toronto and Affiliates, 2005

	Graduated in 2005				At U of T in 2005
	Doctoral Stream			Professional Stream Masters	Postdoctoral Fellows
	Masters Programs	Doctoral Programs	Total Doctoral Stream		
Humanities	243	110	353	44	20
Social Sciences	310	221	531	1,278	26
Physical Sciences	382	152	534	177	287
Life Sciences	309	195	504	452	1,091
TOTAL	1,244	678	1,922	1,951	1,424

Not shown: count of students who earned graduate level diplomas or certificates.
Sources: Planning & Budget Office, and School of Graduate Study.

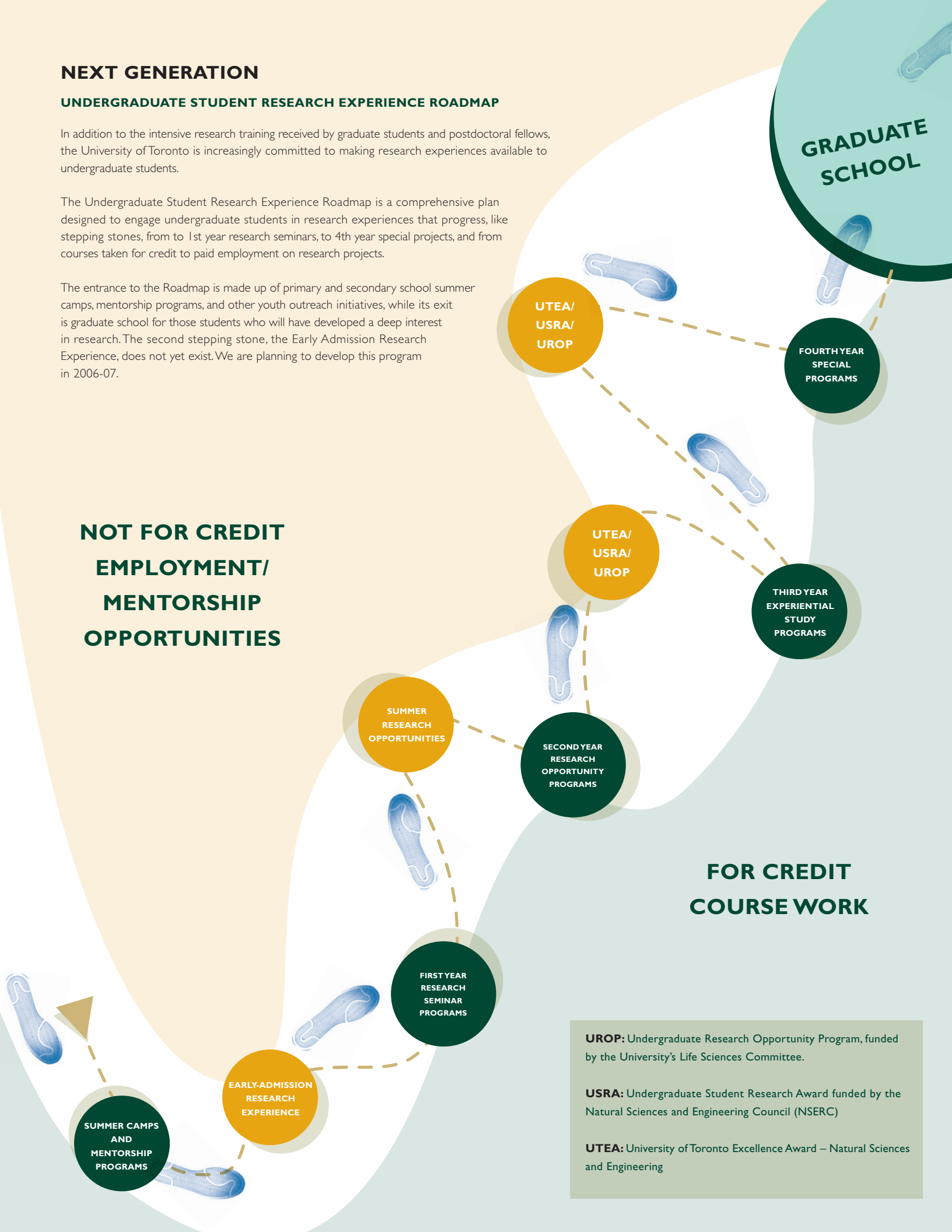
NEXT GENERATION

UNDERGRADUATE STUDENT RESEARCH EXPERIENCE ROADMAP

In addition to the intensive research training received by graduate students and postdoctoral fellows, the University of Toronto is increasingly committed to making research experiences available to undergraduate students.

The Undergraduate Student Research Experience Roadmap is a comprehensive plan designed to engage undergraduate students in research experiences that progress, like stepping stones, from to 1st year research seminars, to 4th year special projects, and from courses taken for credit to paid employment on research projects.

The entrance to the Roadmap is made up of primary and secondary school summer camps, mentorship programs, and other youth outreach initiatives, while its exit is graduate school for those students who will have developed a deep interest in research. The second stepping stone, the Early Admission Research Experience, does not yet exist. We are planning to develop this program in 2006-07.



UROP: Undergraduate Research Opportunity Program, funded by the University's Life Sciences Committee.

USRA: Undergraduate Student Research Award funded by the Natural Sciences and Engineering Council (NSERC)

UTEA: University of Toronto Excellence Award – Natural Sciences and Engineering

NEXT GENERATION

Undergraduate Student Research Experience as Paid Employment

This year, we have, for the first time, quantified the number of undergraduate students who have benefited from research experiences at the University of Toronto and affiliates. In many cases, these experiences represented summer studentships awarded on a competitive basis. Examples include the Undergraduate Student Research Award program funded by the Natural Sciences and Engineering Council (NSERC), which provided 304 opportunities; the Undergraduate Research Opportunity Program, funded by the University's Life Sciences Committee, which provided 130 opportunities; and the University of Toronto Excellence Awards (UTEA), which provided 25 opportunities in the Natural Sciences and Engineering and 10 in the Social Sciences and Humanities. We are very pleased to report that in our current fiscal year, 2006-07, we were able to increase the UTEA opportunities to 71 and 28 respectively.

At our affiliated hospitals, 473 undergraduate students participated in summer research projects. An additional 674 undergraduate students contributed to research projects and were supported through faculty members' operating grants from funding agencies including the federal granting councils, the Networks of Centres of Excellence, the Ontario Centres of Excellence, and the National Institutes of Health. A further 410 opportunities were made possible through sources such as trust funds and donations.

In total, more than 2,000 undergraduate students have taken part in these research experiences. The University is working with its partners to increase the number of opportunities provided in future years and we expect these efforts to be reflected in future annual reports.

SOCIAL IMPACT

One of the important outputs of research is beneficial impacts on society, whether in Canada or around the world. These may take the form of improvements in health, child care, education, human rights, transportation, safety, etc. and often start with policy changes. A very large number of faculty members and, by extension, the students they supervise, take part in exchanges with policy-makers on how to improve our society based on insights gained through their research. These exchanges can be informal or confidential, or appear in the public domain as books and articles, including those aimed at non-specialists, reports, expert commentaries, interviews, membership on commissions and task forces. Beyond counts of publications and citations in peer-reviewed journals, little has been done so far to quantify these activities and more importantly their potential for societal impact.

A starting point may be media coverage analysis reports like the ones published quarterly by Cormex Research comparing six research-intensive universities in Canada. Athough the primary goal is to assess public relations impacts, such as rating news stories from favourable to unfavourable, or estimating the equivalent advertising value of the coverage, one aspect is an analysis of media exposure of individual faculty members. The University of Toronto typically leads in numbers of professors in the top thirty. Nevertheless, this kind of study doesn't differentiate between exposure relating to internal university policy or to new knowledge or understanding, and whether there is genuine potential for societal impact in the latter two.

Despite the apparent intractability of the social impacts of research, we intend to explore new ways to assess this output over the coming year.

Listed below are just a few of the many examples of the ways in which University of Toronto researchers have an impact on society.

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masters programs, and 19 per cent in the doctoral programs. **Monica Boyd** of the Department of Sociology has spent 30 years studying the causes and consequences of groups who are socially vulnerable. As the Canada Research Chair in the Social and Ethical Context of Health, she is working on a comprehensive overview of the vulnerability risks of immigrants in Canada. Other projects have dealt with language training for immigrants the social and economic well-being of foreign-born senior citizens.

Cindy-Lee Dennis of the Faculty of Nursing is spearheading an Ontario-wide effort to combat post-partum depression by conducting a trial on the effectiveness of telephone-based, mother-to-mother support. She will screen 20,000 new mothers as part of this study and health planners will be able to implement the intervention in their own jurisdictions. She is also conducting a longitudinal study on why immigrant mothers are more susceptible to post-partum depression than their Canadian-born counterparts.

Mohammad Fadel of the Faculty of Law studies Islamic law using methods traditionally applied to secular legal systems. This approach removes the discussion of Islamic law from the narrow theological religious values of Islam and places it in the realm of comparative legal studies. His research provides a framework within which citizens and policymakers in liberal democracies can discus issues involving Islamic law without becoming entangled in the theological views of individual citizens.

Alana Johns of the Department of Linguistics, is trying to save Inukitut, the ancient language of the Inuit people, which is threatened across the Arctic. In addition to launching a U of T course in the language, she is working on a project to document and explain grammatical differences across Inukitut's various dialects and a dictionary of the Utkuiksalingmiutut dialect.

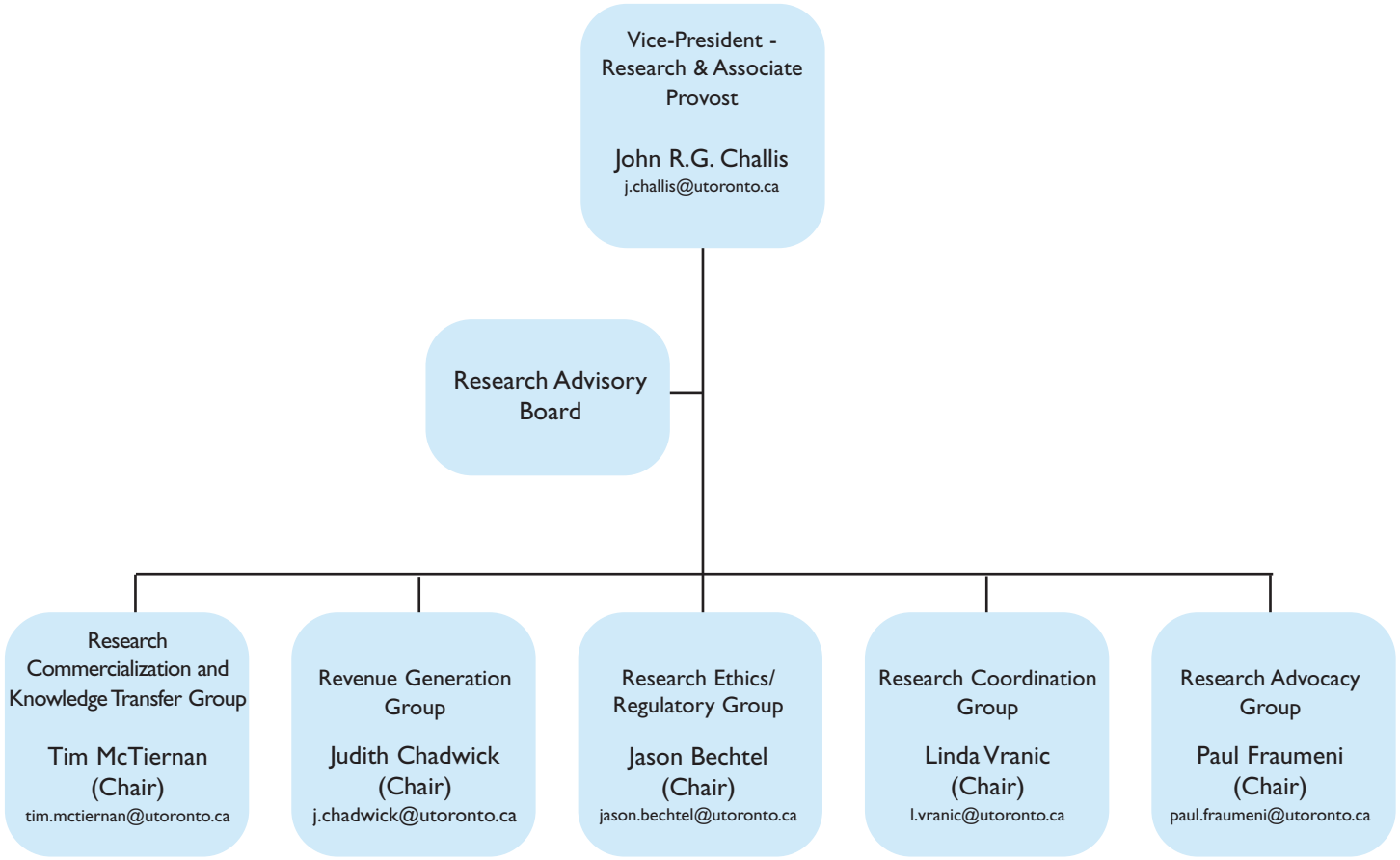
Faye Mishna of the Faculty of Social Work is undertaking a comprehensive research program on cyberabuse and online bullying. Together will colleagues she will survey and interview students, parents, teachers and administrators. The research program has attracted support from the Toronto Police Service and Kids Help Phone. The researchers will provide strategic advice and policy direction for intervention and prevention.

Daniel Trefler of the Rotman School of Management is a

member of the Ontario Task Force on Competitiveness, Productivity and Economic Progress. He researches how Canada's institutions affect its competitiveness and in turn, how international competition affects institutions.

Kathi Wilson, a geographer at UTM, is studying the links between neighbourhoods and health in Mississauga. In addition to conducting surveys, interviews and focus groups, her team at the Cities Helath and Neighbourhood Geomatics Laboratory uses Global Positioning Systems and cameras to monitor air quality and to inventory neighbourhood amenities like clinics. Agencies such as hospitals and school boards have been able to shape the research questions, so that the results will address the

APPENDIX A
Cross-functional groups in the Office of the Vice-President, Research & Associate Provost



Appendix A cont'd.

RESEARCH ADVISORY BOARD MEMBERS

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