

## Excellence, Innovation, Leadership







## **BY THE NUMBERS**

# Global Reach

43% of U of T research involves collaboration with researchers outside of Canada – a number that has increased steadily and has kept well ahead of other Canadian universities.

## **Global Reach of Research**

Proportion of Research Paper Co-Authorship by Continent, University of Toronto and Partner Hospitals



# Productivity

U of T researchers publish more than all but two other universities in the world.



Source: Academic Rankings of World Universities 2007, Institute of Higher Education, Shanghai Jiao Tong University

# Impact

Our researchers are among the most highly-cited in the world.



U of T has the highest number of ISI Highly-Cited Researchers in Canada – one of the best indicators of research influence.



ISI Highly-Cited Researchers Distribution Among Canadian G13 Universities

> **Source:** http://isihighlycited.com May 2007

Number of researchers

# Federal Funding

**Federal Research Council Payments** 

U of T consistently leads all other Canadian universities in investment from federal granting agencies.



Figures include funding to partner institutions. Figures exclude funding for the Networks of Centres of Excellence, the Canada Research Chairs program, and the Indirect Costs program.

Source: Councils' statistical tables.

### **Canada Research Chairs Allocations Canadian G13 Universities** 2007



Source: CRC Program website www.chairs.gc.ca, September 2007

# Federal Funding

## Canada Foundation for Innovation Canadian G13 Universities

From Inception (1998) to September 2007



Source:

CFI website September 2007; national projects excluded; partners counted with each university

# Provincial Funding

U of T, with its partner hospitals, leads all Ontario universities in funding from the Ministry of Research and Innovation.





Top Ten Universities (with affiliates)

Main competitive programs results as per MRI January 10, 2008: Early Researcher Award, Ontario Research Fund (Research Excellence Award and Research Infrastructure Award), Premier's Discovery Award, Premier's Summit Award, Postdoctoral Fellowship Award, Ontario Research Chair.

## Innovation

U of T is among North America's leaders in creating spin-off companies.

U.S. and Canadian Universities

### New Spin-off Companies (2003-2005)



#### Notes:

Source: Published AUTM Survey FY 2005, 2004, and 2003. Data received directly from partner hospitals for Toronto if not reporting to AUTM.

Partner hospitals counts are reported with each university.

# Industry Partners

Our partners in industry invest in research across all disciplines.

## **Research Sponsorship by Industry**

U of T and Partner Hospitals (2005-06)



Does not include charitable contributions from individuals, corporations and foundations

# Hospital Partners

The combination of U of T and the 10 partner hospitals affiliated with the university creates one of the world's largest and most innovative health research forces. More than 1,600 researchers and 3,000 graduate students and post-doctoral fellows pursue the next vital steps in every area of health research imaginable. This community of scholars enables our students to learn from, and collaborate with, world-renowned leaders and experts. And the global community benefits from a stunning array of new developments, findings and inventions.



# Connaught Fund Investment

The Connaught Fund originated from the sale of U of T's Connaught Laboratories in 1972 for approximately \$29 million. Since then, the University has grown the fund to become the largest of its kind in Canada. Using Connaught funds, we have invested more than \$100 million in U of T scholars and their research through a variety of programs:

- Connaught Graduate Scholarships support top international students
- The Start-Up grant program helps defray the cost of initiating research for new tenure-stream or tenured faculty
- The New Staff Matching program assists junior scholars with grants of up to \$30,000
- The International Symposia/Colloquia program aims to advance knowledge in matters of public interest and raise U of T's international profile
- Research Fellowships enable scholars to work full-time on their research
- Each year, \$50,000 is matched to create the \$100,000 McLean Award. It provides one faculty member in the basic physical sciences or engineering with the means to attract and support graduate students and post-doctoral fellows

The Connaught Committee also oversees the Mary Gertrude l'Anson Fund, which is dedicated to research in the medical sciences. It is currently valued at \$3.2 million.



### Total \$3,362,323

- 1. In addition to the Social Science Fellowships, four Chancellor Jackman Fellowships in the Humanities were supported by a combination of the Jackman and Connaught Funds.
- 2. The 81 Scholarships comprise 26 new and 55 continuing awards.
- 3.\$50,000 matching funding is contributed from the McLean Endowment to enable an award of \$100,000.

# Faculty Honours

# Selected Honours and Awards in the past five years

## INTERNATIONAL AWARDS AND HONOURS

### AMERICAN ACADEMY OF ARTS AND SCIENCES

Foreign Honorary Members Recognizes outstanding intellectual achievement, leadership and creativity in all fields.

### 2005

Richard Borshay Lee, Anthropology Tak Mak, Medical Biophysics Janice Gross Stein, Political Science

2004 Anthony J. Pawson, Molecular Genetics

### 2003

James G. Arthur, Mathematics J. Richard Bond, Canadian Institute for Theoretical Astrophysics Geoffrey E. Hinton, Computer Science Linda Hutcheon, Centre for Comparative Literature Janet Rossant, Molecular Genetics

### AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE (AAAS)

Fellows are recognized by their peers for efforts to advance science.

Cristina Amon, Faculty of Applied Science and Engineering Harold Atwood, Physiology James Donaldson, Physical and Environmental Sciences, UTSC Donald A. S. Fraser, Statistics Barbara Lee Keyfitz, Mathematics Ronald H. Kluger, Chemistry Linda Kohn, Botany, UTM Ping Lee, Pharmacy Howard D. Lipshitz, Molecular Genetics Albert E. Litherland, Physics Susan McCahan, Mechanical and Industrial Engineering Morris Moscovitch, Psychology **K. Sandy Pang,** Pharmacy John R. Percy, Astronomy, UTM Nancy M. Reid, Statistics Robert Reisz, Biology, UTM Keren Rice, Linguistics Janet Rossant, Molecular Genetics John W. Sender, Mechanical and Industrial Engineering Sara L. Shettleworth, Psychology Donald Stuss, Medicine Thomas T. Tidwell, Chemistry, UTSC Peter Zandstra, Institute of Biomaterials and **Biomedical Engineering** 

## Jean Zu, Mechanical and Industrial Engineering

### THE GAIRDNER FOUNDATION

Gairdner International Award Recognizes medical research scientists for outstanding discoveries or contributions.

2005 Endel Tulving, Psychology

### JOHN SIMON GUGGENHEIM MEMORIAL FOUNDATION

Provides fellowships across the disciplines for advanced professionals who have demonstrated exceptional accomplishment.

2007 Michael Goldstein, Mathematics Jerry Mitrovica, Physics Peter Zandstra, Institute of Biomaterials and Biomedical Engineering

2006 Thomas Hurka, Philosophy

2005 Alexander R. Jones, Institute for the History and Philosophy of Science and Technology

2004 David Zingg, Aerospace Studies 2003 Lynne Viola, History

### ISI HIGHLY-CITED RESEARCHERS

The ISI rankings represent 250 of the most highly-cited researchers over the last 20 years in the articles indexed by the Institute for Scientific Information (ISI) in 21 categories.

### **Biology and Biochemistry**

Sergio Grinstein, Biochemistry David H. MacLennan, Banting and Best Department of Medical Research

### Chemistry

Lewis Edward Kay, Molecular Genetics Mitchell A. Winnik, Chemistry

### **Computer Science**

Radford M. Neal, Statistics and Computer Science Subbarayan Pasupathy, Electrical and Computer Engineering Charles Rackoff, Mathematical and Computational Sciences, UTM Kenneth C. Sevcik, Computer Science

### Ecology/Environment

Peter A. Abrams, Ecology and Evolutionary Biology Wan-Ying Shiu, Centre for Environment

### Engineering

**Bruce Allen Francis,** Electrical and Computer Engineering

Geosciences W. Richard Peltier, Physics

Immunology Pamela Ohashi, Immunology

### Immunology, Molecular Biology and Genetics Tak Mak, Medical Biophysics

### Materials Science

Karl T. Aust, Materials Science and Engineering Neil Coombs, Materials Science and Engineering Geoffrey A. Ozin, Chemistry

Mathematics Nancy Reid, Statistics

### Mathematics and Engineering

W. M. Wonham, Electrical and Computer Engineering

### Molecular Biology and Genetics

Anthony J. Pawson, Molecular Genetics Johanna M. Rommens, Molecular Genetics Janet Rossant, Molecular Genetics Jeffrey L. Wrana, Molecular Genetics

### Pharmacology

Werner Kalow, Pharmacology Philip Seeman, Pharmacology Edward M. Sellers, Pharmacology

Plant and Animal Science Stephen S. Tobe, Cell and Systems Biology

### **Psychology/Psychiatry**

R. Michael Bagby, Psychiatry Paul E. Garfinkel, Psychiatry Janet Polivy, Psychology, UTM Endel Tulving, Psychology

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

### Space Sciences

J. Richard Bond, Canadian Institute for Theoretical Astrophysics Raymond G. Carlberg, Astronomy and Astrophysics Howard K.C. Yee, Astronomy and Astrophysics

### LASKER FOUNDATION

Albert Lasker Award For Basic Medical Research 2005 Ernest McCulloch and James Till, Medical Biophysics

### MASSACHUSETTS INSTITUTE OF TECHNOLOGY

World's Top 35 Innovators Under the Age of 35

2005 Parham Aarabi, Electrical and Computer Engineering Aaron Hertzmann, Computer Science

### MIT TECHNOLOGY REVIEW

Top 100 Young Innovators

2003 Edward E. Sargent, Electrical and Computer Engineering

## THE NATIONAL ACADEMIES (U.S.)

Foreign Associate Members, unless otherwise indicated Membership in the Academies (or for those outside of the U.S., Foreign Associateship) is one of the highest honours accorded to a scientist or engineer, recognizing distinguished and continuing achievement in research.

### Institute of Medicine

2007 Peter St George-Hyslop, Centre for Research in Neurodegenerative Diseases

2005 David Naylor, Medicine

National Academy of Engineering 2006 Cristina Amon (member), Faculty of Applied Science and Engineering 2005

W. M. Wonham, Electrical and Computer Engineering National Academy of Sciences 2004 Robert J. Birgeneau, Physics

Anthony J. Pawson, Molecular Genetics Lap-Chee Tsui, Molecular Genetics

2002 Tak Mak, Medical Biophysics

### THE ROYAL SOCIETY

Fellowship in the Royal Society is awarded to scientists who have made a distinguished achievement in their fields.

### 2004

Spencer Barrett, Ecology and Evolutionary Biology Peter St George-Hyslop, Centre for Research in Neurodegenerative Diseases

### 2001

**Robert J. Birgeneau**, Physics **J. Richard Bond**, Canadian Institute for Theoretical Astrophysics

### 2000

Janet Rossant, Molecular Genetics James Till, Medical Biophysics

1999 Ernest McCulloch, Medical Biophysics

## THE ROYAL SOCIETY OF LITERATURE

2003 Margaret MacMillan, History

### ALFRED P. SLOAN FOUNDATION

**Sloan Research Fellowship** These U.S.-based awards enhance the careers of the best young faculty members in specific fields of science.

#### 2007

Ravin Balakrishnan, Computer Science Deborah Zamble, Chemistry

### 2006

Aaron Hertzmann, Computer Science Arun Paramekanti, Physics

2005 Sam Roweis, Computer Science

2004 Gregory Scholes, Chemistry Balint Virag, Mathematics, UTSC

### 2003

Peter Andolfatto, Zoology James Ellis Colliander, Mathematics Kentaro Hori, Physics Hae-Young Kee, Physics Daniel A. Lidar, Mathematics

## **NATIONAL HONOURS**

### THE CALDWELL PARTNERS Top 40 Under 40

2006

Tom Chau, Institute of Biomaterials and Biomedical Engineering Brendan J. Frey, Electrical and Computer Engineering Vivek Rao, Surgery Aaron Schimmer, Medicine

2005 Brenda Banwell, Paediatrics Philip Zelazo, Psychology

### 2003

Peter Dirks, Surgery David Jaffray, Medical Biophysics Edward E. Sargent, Electrical and Computer Engineering

### 2002

Adalsteinn Brown, Health Policy, Management and Evaluation

Aled Edwards, Banting and Best Department of Medical Research Christopher Hogue, Biochemistry Michael Sherar, Medical Biophysics Molly Shoichet, Chemical Engineering and Applied Chemistry

### CANADA COUNCIL FOR THE ARTS Killam Prize

Honours eminent Canadian scholars in engineering, health sciences, natural sciences, social sciences and humanities.

### 2007

**J. Richard Bond,** Canadian Institute for Theoretical Astrophysics

2005 Linda Hutcheon, Centre for Comparative Literature

### 2004

James G. Arthur, Mathematics Janet Rossant, Molecular Genetics

2003 Edward J. Davison, Electrical and Computer Engineering Tak Mak, Medical Biophysics

2002 Ian M. Hacking, Institute for the History and Philosophy of Science and Technology Lap-Chee Tsui, Molecular Genetics

### CANADIAN INSTITUTES OF HEALTH RESEARCH The Michael Smith Prize in

### Health Research

Given annually to a Canadian researcher who has demonstrated a high degree of innovation, creativity, leadership and dedication in health research.

2007 Peter Singer, Medicine 2005 Janet Rossant, Molecular Genetics 2004 Sergio Grinstein, Biochemistry

2002 Anthony J. Pawson, Molecular Genetics

### KILLAM RESEARCH FELLOWSHIP

Recognizes and supports distinguished Canadian scholars who have established outstanding reputations in their areas of research.

2007 Lynne Magnusson, English

2005 Virginia Brown, Medieval Studies (Renewed in 2006)

2004 Ian Lancashire, English (Renewed in 2006)

### 2003 John B. Friedlander, Mathematics, UTSC

Barbara Sherwood Lollar, Geology (Renewed in 2005) Lynne Viola, History (Renewed in 2005)

2002 J. Edward Chamberlin, English Victor Ivrii, Mathematics Thomas L. Pangle, Political Science

### **MOLSON PRIZE**

Recognizes an outstanding lifetime contribution to the cultural and intellectual life of Canada.

2005 Ramsay Cook, History

2003 Janice Gross Stein, Political Science

2002 Ian M. Hacking, Institute for the History and Philosophy of Science and Technology

### NATURAL SCIENCES AND ENGINEERING RESEARCH COUNCIL OF CANADA

Brockhouse Canada Prize for Interdisciplinary Research in Science and Engineering 2005

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

### Gerhard Herzberg Canada Gold Medal For Science and Engineering

Given annually to a scientist or engineer who has demonstrated excellence and influence in research for work that has advanced the natural sciences or engineering fields.

### 2006

**J. Richard Bond,** Canadian Institute for Theoretical Astrophysics

### Steacie Memorial Fellowship Award

Given annually to university researchers for outstanding scientific or engineering achievement.

### 2007

Eckhard Meinrenken, Mathematics Gregory Scholes, Chemistry Aephraim Steinberg, Physics

2006 Locke Rowe, Zoology

### 2005 Roberto Garcia Abraham, Astronomy and Astrophysics Peter Zandstra, Chemical Engineering and Applied Chemistry

### 2004

George Eleftheriades, Electrical and Computer Engineering Lisa Jeffrey, Mathematics

2003 Molly Shoichet, Chemical Engineering and Applied Chemistry **Kim J. Vicente,** Mechanical and Industrial Engineering

### Synergy Award For Innovation 2007 Luis Seco, Mathematical and Computational

Sciences, UTM

2005

**Joseph Paradi,** Mechanical and Industrial Engineering

### 2004

**Douglas Reeve,** Chemical Engineering and Applied Chemistry

### ONTARIO MINISTRY OF RESEARCH AND INNOVATION

Premier's Catalyst Award Best Young Innovator

Recognizes excellence in commercially successful innovations.

2007 Parham Aarabi, Electrical and Computer Engineering

### Premier's Discovery Award

Recognizes excellence in internationally recognized research.

2007 Spencer Barrett, Ecology and Evolutionary Biology Andreas Mandelis, Mechanical and Industrial Engineering

### Premier's Summit Award in Medical Research

Given to leaders in medical research who have made a major impact in their field and a substantial contribution to medical science.

2007 John E. Dick, Molecular Genetics Tak Mak, Medical Biophysics Anthony J. Pawson, Molecular Genetics Peter St George-Hyslop, Centre for Research in Neurodegenerative Diseases

### THE ROYAL SOCIETY OF CANADA

### Fellowships

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

### 2007

James Robert Brown, Philosophy Gary Crawford, Anthropology, UTM Lisa Jeffrey, Computer and Mathematical Sciences, UTSC Eugenia Kumacheva, Chemistry lan Lancashire, English Kenneth Leithwood, Theory and Policy Studies in Education, OISE/UT Peter Martin, Canadian Institute for Theoretical Astrophysics John Mylopoulos, Computer Science J. Robert Prichard, Law **Theodore Shepherd,** Physics Peter Singer, Medicine Barry Wellman, Sociology R. Paul Young, Civil Engineering

### 2006

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

### 2005

Peter Abrams, Ecology and Evolutionary Biology Brenda Andrews, Banting and Best Department of Medical Research Charles M. Boone, Banting and Best Department of Medical Research James Alan Dainard, French Ronald de Sousa, Philosophy James Drummond, Physics Monica Heller, Sociology and Equity Studies in Education, OISE/UT Mark R. Henkelman, Medical Biophysics John M. Kennedy, Psychology, UTSC Alexander M. Leggatt, English John F. MacDonald, Physiology Alberto O. Mendelzon, Computer and Mathematical Sciences. UTSC Freda Miller, Molecular Genetics **Robert Morris,** Chemistry **G. Peter Richardson,** Centre for the Study of Religion Michael Salter, Centre for the Study of Pain Michael Sefton, Chemical Engineering and **Applied Chemistry** John Edward Sipe, Physics

### 2004

Daniel Brooks, Ecology and Evolutionary Biology Gregory M. Brown, Psychiatry Stephen Clarkson, Political Science John E. Dick, Molecular Genetics Alison Fleming, Psychology, UTM John Myles, Sociology David Naylor, Medicine Barbara Sherwood Lollar, Geology Richard Simeon, Political Science Donald Stuss, Medicine Rosemary Sullivan, English

### 2003

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

### Jason A. Hannah Medal

2007 Michael Bliss, Health Policy, Management and Evaluation

### The Mclaughlin Medal

2007 John R. G. Challis, Physiology

2006 Michael D. Tyers, Molecular Genetics

2002 Sergio Grinstein, Biochemistry

### **E.W.R. STEACIE FOUNDATION**

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

2003 Stephen Scherer, Molecular Genetics

### **CONNAUGHT COMMITTEE**

CHANCELLOR JACKMAN RESEARCH FELLOWSHIPS IN THE HUMANITIES 2006-2007 Suzanne Akbari, English Alana Johns, Linguistics James Retallack, History Marleen Rozemond, Philosophy

### CONNAUGHT RESEARCH FELLOWSHIPS IN THE SOCIAL SCIENCES

2006-2007 Joseph M. Bryant, Religion Simone Chambers, Political Science Kelly Hannah-Moffat, Sociology, UTM Jack Sidnell, Anthropology, UTM

### MCLEAN AWARD

Since start of program in 1996

James Colliander (2007), Mathematics Aephraim Steinberg (2006), Physics Yael Karshon (2005), Mathematics Molly Shoichet (2004), Chemical Engineering and Applied Chemistry Eckhard Meinrenken (2003), Mathematics Kim J. Vicente (2002), Mechanical and Industrial Engineering Jerry Mitrovica (2001), Physics Lisa Jeffrey (2000), Mathematics, UTSC Boris Khesin (1999), Mathematics Lewis Kay (1998), Molecular Genetics Ian Manners (1997), Chemistry Sajeev John (1996), Physics





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