Research & International Relations 2000-2001 Report 2001-2002 Plans



University of Toronto

TABLE OF CONTENTS

VICE-PRESIDENT'S MESSAGE	2
RESEARCH PERFORMANCE AT THE UNIVERSITY OF TORONTO	3
 I. Overall Research & International Performance II. Government Research & Infrastructure Programs (GRIP) III. Selected Scholarly Awards, Prizes & Honours IV. Technology Transfer 	3 5 19 23
SELECTED ACCOMPLISHMENTS, 2000-2001	24
PRIORITY PLANS, 2001-2002	28
APPENDIX A: ORGANIZATIONAL CHART	
APPENDIX B: RIR SERVICE UNITS	
APPENDIX C: GLOSSARY OF ABBREVIATIONS	

I

The mandate of Research and International Relations is to support the strategic development and efficient, accountable administration of research and international resources, activities, and partnerships to serve the University of Toronto's mission to be among the leading public research universities in the world.

Dear Colleagues and Friends,

In the year 2000-2001, the University of Toronto strengthened its national leadership position in research and scholarship where it counts:

- #1 in awards from the three federal granting councils the Canadian Institutes of Health Research, the Natural Sciences and Engineering Research Council, and the Social Sciences and Humanities Research Council
- #1 in major honours and prizes bestowed on our research community
- #1 in awards secured to date from competitions that comprise the Government Research & Infrastructure Programs (the Canada Research Chairs, the Canada Foundation for Innovation, the Ontario Research & Development Challenge Fund, the Ontario Innovation Trust, and the Premier's Research Excellence Awards)

These accomplishments are clear indications of the talent and creativity of our faculty. As always, our researchers and scholars are covering a comprehensive range of subject areas in all disciplines and, importantly, proving their leadership increasingly on an international scale. I am also pleased to note the growing innovation in research at the convergence of disciplines, which is crucial to understanding and influencing our complex world.

The University also made important progress in securing new investment in research, through the above-mentioned competitions and the granting councils, our Technology Transfer area, and through international agencies and foundations. Overall, the University and affiliated hospitals attracted \$424M in external research awards and contracts, compared to \$334M the year before.

To support this leadership position, the Research & International Relations (RIR) portfolio took important steps to strengthen service to faculty and to increase strategic opportunities to grow our research impact. We made significant advances in increasing the scope and depth of activities related to our primary investors, the federal and provincial governments. These initiatives, and our plans for the coming year, are outlined on pages 24-34 of this report.

We will continue to strive for research and scholarship that are national and international in profile and impact. Notwithstanding the social and economic uncertainty following the tragic events of September 11, it is our belief that our top research policy objectives – achievement of full research cost recovery at the federal level and growth in the granting councils – are consistent with advancing our national security, our social and economic prospects, and Canada's progress in becoming one of the top five nations with respect to innovation.

More than ever before, the University of Toronto has a powerful and positive role to play in society. U of T is committed to realizing the highest possible research and international impact in an ever-changing world.

Sincerely,

Heather Munroe-Blum, Ph.D.

Vice-President, Research & International Relations

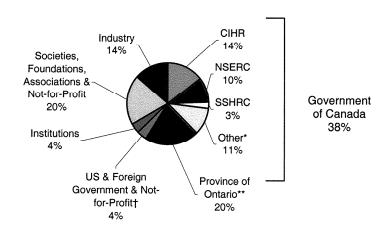
RESEARCH PERFORMANCE AT THE UNIVERSITY OF TORONTO

I. Overall Research & International Performance

 Research funds awarded to the University of Toronto and affiliated hospitals for use in 1999-2000 totalled \$424M. This represents a \$90M increase over 1998-1999. Funding from the newer government research programs – the Canada Foundation for Innovation, the Ontario Research and Development Challenge Fund, the Ontario Innovation Trust, and the Premier's Research Excellence Awards – for use in 1999-2000 totalled \$70M.

Research Funds Awarded

U of T and Affiliated Hospitals
April 1999-March 2000



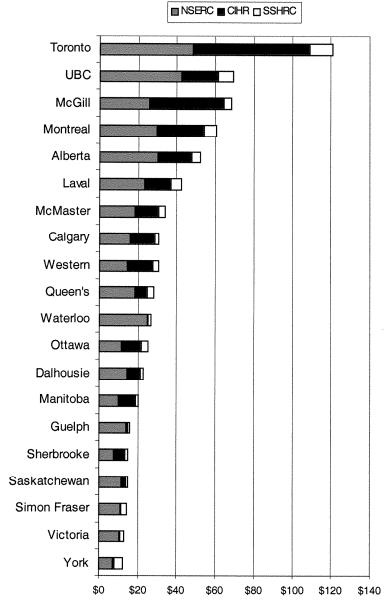
^{*}Includes Health Canada, Public Works & Government Services Canada, Canada Foundation for Innovation, and Networks of Centres of Excellence

^{**} Includes Ministry of Health & Long-Term Care, Ontario Centres of Excellence, Ontario Research and Development Challenge Fund, Ontario Innovation Trust, and Research Performance Fund

†Includes National Institutes of Health

U of T continued to perform well in the major competitions of the three federal granting councils, maintaining our #1 position for the seventh consecutive year.

Federal Research Council Payments Top Twenty* Canadian Universities, 1999-2000 (\$million)



^{*}Top twenty universities determined by total funding from the three councils in 1999-2000 (NSERC: Natural Sciences and Engineering Research Council; CIHR: Canadian Institutes of Health Research; SSHRC: Social Sciences and Humanities Research Council). Payments to affiliated institutions were counted with the relevant lead university. Figures exclude funding for the federal Networks of Centres of Excellence.

Source: Councils' annual reports. At press time, 1999-2000 figures were the latest available for all councils.

II. Government Research & Infrastructure Programs

The University of Toronto continued to excel in the Canada Foundation for Innovation (CFI), Ontario Innovation Trust (OIT), Ontario Research and Development Challenge Fund (ORDCF), and Premier's Research Excellence Awards (PREA) programs. These programs provide research funding for both established and newer faculty and their graduate students.

An exciting addition to this portfolio of funding initiatives is the Canada Research Chairs (CRC) program, introduced by the federal government in 2000 to retain and attract exceptional research faculty in the full range of disciplines.

CFI, OIT, CRC, ORDCF and PREA awards May I, 2000 – April 30, 2001*

TOTAL External Funding	\$143.6M
Private Sector Matching Funds Leveraged	\$13.4M [†]
TOTAL Awards	\$130.2M
PREA	\$3.6M
ORDCF	\$47.4M
OIT	\$13.3M ³
CFI	\$7.3M ² **
CRC	\$58.6M ¹

Awards from September 2000, December 2000 and March 2001 submission dates. Assumes \$200K/year for seven years for Tier I and \$100K/year for five years for Tier II awards. To date, 56 awards have been granted out of the 271 we expect to attract over the next five years.

²Includes New Opportunities awards (\$2.4M) and infrastructure awards to CRC holders from September 2000, December 2000 and March 2001 submission dates (\$4.9M).

³Includes four non-CFI matching awards (\$6M), CFI New Opportunities matching awards (\$2.4M), and CFI infrastructure awards to CRC holders from September 2000, December 2000, and March 2000 submission dates (\$4.9M).

^{*}Includes awards to affiliated hospitals.

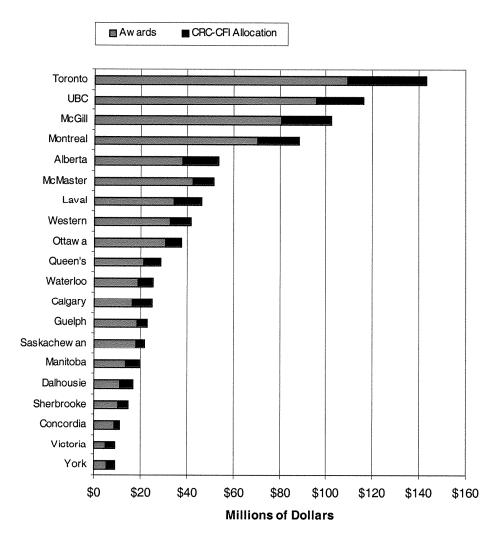
^{**}Due to the 18-month gap between CFI Innovation Fund competitions, no new Innovation Fund awards have been received during this fiscal year. We expect to have the results of the May 2001 competition in January 2002.

[†]Excludes the private sector matching funds component in awards to affiliated hospitals. Includes contributions from hospital foundations for U of T-led awards.

U of T's GRIP SUCCESS IN PERSPECTIVE

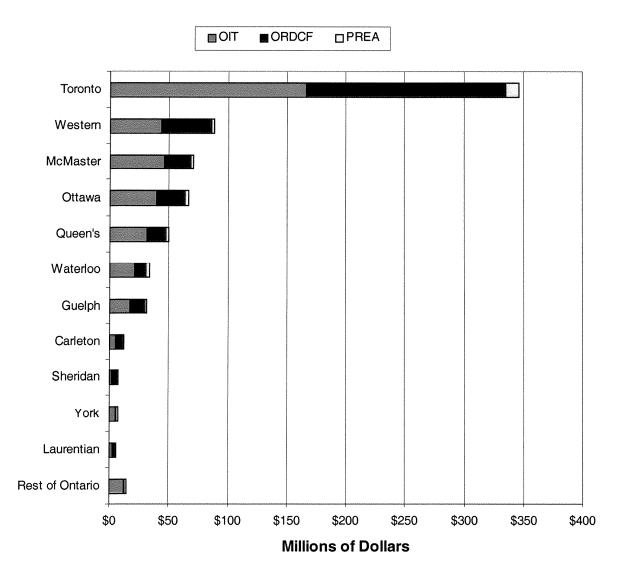
Canada Foundation for Innovation

Awards from Inception to March 2001 and Funds Allocated to Top 20 Institutions



Source: CFI web site Awards to March 2001, Funds allocated for CRC-CFI program Excludes National Strategy Awards (Canadian Light Source, National Site Licence, Canadian Microelectronics Projects, Research Data Centres) Affiliates counted with Parent Institutions

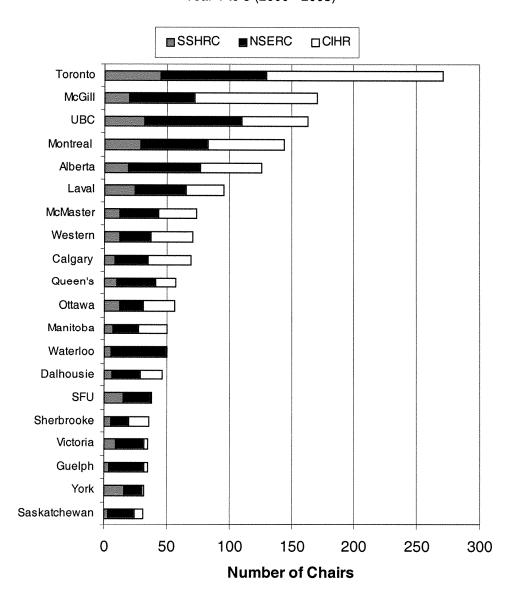
Ontario Research Programs Awards to Date*



^{*}Source: OIT, ORDCF, PREA web site, ORDCF Annual Report 1998, 1999, 2000; PREA Round 1-5, Estimate awards of \$100,000 each; ORDCF awards since inception to December 31, 2000; OIT awards since inception to April 2001. Affiliates counted with parent institutions.

Canada Research Chairs

Allocations to Top 20 Universities Year 1 to 5 (2000 - 2005)*



^{*}The Chair allocations indicated in this table are firm for Year 1 & 2 and are projections for Years 3 to 5. Actual allocations after Year 1 & 2 depend on the granting agency awards received by the institution in the three previous years.

AWARDEES BY PROGRAM

Canada Foundation for Innovation (CFI)

CFI's mandate is to increase the capability of Canadian universities, colleges, hospitals, and other not-for-profit institutions to conduct important world-class scientific research and technology development.

Established by the federal government in 1997, CFI has a current budget of \$3.15B to fund research infrastructure projects that meet key research needs through a competitive process.

New Opportunities – June 2000 Competition

Facility for the Integrative Study of Plant Responses to Pathogens and Herbivores: Genes, Individuals & Populations

Anurag Agrawal – Botany

Applying DNA Microarrays to Study Mammalian Gene Expression in Response to Interferons and Virus Infection

Sandy Der - Laboratory Medicine & Pathobiology

New Opportunities – September 2000 Competition

Modelling the Evolution of Mating Systems: Multi-level Analyses of Black Widow Spider Behaviour Maydianne Andrade – Zoology (University of Toronto at Scarborough)

Information Processing in Miniature Auditory Systems

Andrew Mason – Life Sciences (University of Toronto at Scarborough)

New Opportunities – December 2000 Competition Dedicated Characterization Facility for Quantum & Disordered Materials Robert Birgeneau – Physics

Regulation of Central Synaptic Transmission by Neurotrophins & Cytokines Wei-Yang Lu – Anesthesia; Sunnybrook & Women's College Health Sciences Centre

High-Performance Systems-on-Chip: Design, IP Reuse, and CAD
Farid Najm, Deepa Kundur, Khoman Phang, Ali Sheikholeslami, Andreas Veneris, Jianwen
Zhu – Electrical & Computer Engineering

Upgrading the Orthopaedic Biomechanics Laboratory for Clinically Translational Research Cari Whyne – Surgery; Sunnybrook & Women's College Health Sciences Centre

New Opportunities – March 2001 Competition High Throughput Proteomics Facility Keith Ashman – Biochemistry

Establishment of a Molecular Biology Laboratory for Research into Cytoskeletal/Plasma Membrane Interactions Using Drosophila as a Model Organism

Julie Brill – Medical Genetics & Microbiology; The Hospital for Sick Children

Research Facility for the Application of Ultraviolet Light in Water Disinfection and Purification Ramin Farnood - Chemical Engineering & Applied Chemistry

Molecular Genetic Epidemiology of Complex Psychiatric Disorders Fabio Macciardi - Psychiatry; Centre for Addiction & Mental Health

Design Principles for New Optical Materials Greg Scholes – Chemistry

Quantitative Magnetic Resonance Assessment of Neural Tissues

Gregory Stanisz – Medical Biophysics; Sunnybrook & Women's College Health Sciences

Nancy Lobaugh - Medicine; Sunnybrook & Women's College Health Sciences Centre

Multi-component Facility for Studies of Plant Pollinator Interactions: Implications for Evolutionary Ecology, Agriculture, and Conservation James Thomson – Zoology

Cyrogenic Scanning Tunneling Microscopy and Epitaxial Thin-Film Fabrication Facilities for the Nanoscale Study of Novel Superconductors and Ferromagnets John Wei – Physics

Ontario Innovation Trust (OIT)

Established in March 1999, OIT is an arm's-length research body funded by the Ontario government. Its purpose is to assist in the development of important research infrastructure projects in Ontario by providing matching funding for successful submissions to CFI. More recently, OIT has demonstrated an interest in considering infrastructure requests independent of CFI applications. OIT's current budget is \$750M.

All of the above CFI awards were made possible, in part, by the matching funding provided through OIT in the amount of \$2.4M.

In addition, OIT held a "non-CFI matching" competition during 2000-2001 through which they provided leveraged support to a range of priority infrastructure projects. U of T received nine of 14 such awards. Five of those awards, reported in our 1999-2000 annual report, constituted the R. Samuel McLaughlin Centre. The remaining four projects, which received funding in the current reporting year, were:

The Toronto Carnegie Magellan Observatory Collaboration Raymond Carlberg – Astronomy

Land Development Impacts on Water Quality and Ecological Sustainability: Choices for Remediation in an Urbanized Lake Ontario Watershed and Wetland Nick Eyles – Geology (University of Toronto at Scarborough)

Molecular Design and Information Technology Centre Lakshmi Kotra – Pharmacy

A Human Communication Research Facility
Bruce Schneider – Psychology (University of Toronto at Mississauga)

Ontario Research & Development Challenge Fund (ORDCF)

ORDCF is designed to promote research excellence in the province by increasing the R&D capacity of Ontario universities and other research institutions through private and public sector partnerships. Through a partnership among five provincial ministries (Energy, Science & Technology; Training, Colleges & Universities; Economic Development & Trade; Finance; and Agriculture, Food & Rural Affairs), ORDCF will commit over \$500M to R&D projects over the next 10 years.

May 2000 Competition

Centre and Testbed' for Intelligent Transportation Systems (ITS) Research & Development Baher Abdulhai – Civil Engineering

Ontario Consortium in Image-Guide Therapy and Surgery
Walter Kucharczyk – Medical Imaging; University Health Network*
Michael Sherar – Medical Biophysics; University Health Network*

Program in Applied Ethics and Biotechnology Peter Singer – Joint Centre for Bioethics

Research in Organic and Polymer Optoelectronics

Peter Smith – Electrical & Computer Engineering

Consortium for Cardiac Imaging

Graham Wright – Medical Biophysics; Sunnybrook & Women's College Health Sciences Centre*

Ontario Centre of Excellence in Breast Cancer Imaging Research

Martin Yaffe – Medical Imaging; Sunnybrook & Women's College Health Sciences Centre*

March 2001 Competition

Centre for Genomics Computing, Phase II
Jamie Cuticchia – Medical Biophysics; The Hospital for Sick Children*

Program in Blasting Technology
Bibhuti Mohanty – Civil Engineering

Centre for the Study of Polymer Thin Films with Advanced Properties Mitchell Winnik – Chemistry

*Submitted through affiliated teaching hospitals

Premier's Research Excellence Awards (PREA)

PREA was introduced by the Ontario government in 1998 to help Ontario's world-class researchers attract talented people to their research teams. Over a 10-year period, the province will contribute \$85M. Research institutions and the private sector are expected to match this contribution by providing an additional \$42.5M, for a total of \$127.5M.

May 2000 Competition (Round #4)

Denise Belsham – Physiology; University Health Network Molecular Mechanisms Involved in the Hypothalamic Control of Reproduction

Michelle Bendeck - Laboratory Medicine & Pathobiology; St. Michael's Hospital Smooth Muscle Cell Response to Extracellular Matrix in Atherosclerosis and Restenosis

Leslie Buck – Zoology Cellular Adaptation to Hypoxia

Hue Sun Chan – Biochemistry Energetics of Protein Folding

Daniel Dumont - Medical Biophysics; Sunnybrook & Women's College Health Sciences Centre

Controlled Expression of the Angiopoietins During Angiogenesis

Clinton Groth – Institute for Aerospace Studies

Development of New Parallel Solutions-Adaptive Methods for Multiphase, Reactive, and Combusting Flows of Aerospace Propulsion Systems

Mingyao Liu – Surgery; University Health Network Cellular and Molecular Mechanisms of Acute Lung Injury

Robert McCann – Mathematics

Variational Problems in Physics, Economics, and Geometry

JoAnne McLaurin – Laboratory Medicine & Pathobiology Aging, Immune Response and Neurodegeneration

Howard Mount – Medicine

Cellular, Neurochemical, and Sensorimotor Analyses of an Animal Model of Ataxia-Telangiectasia

Norman Murray – Canadian Institute for Theoretical Astrophysics Planet Formation

Paula Rochon - Medicine; Baycrest Centre for Geriatric Care Optimizing Drug Therapy for Older Women

Robert Rottapel - Medicine; University Health Network

On the Road to Destruction: Suppression of Protein Tyrosine Kinase Signalling by SOCS Family Proteins

Jennifer Thaler – Botany

Tradeoffs and Synergisms in Plant Defense Against Herbivores and Pathogens

Yu Tian Wang – Laboratory Medicine & Pathobiology; Hospital for Sick Children Regulation of GABAa Receptor-Mediated Synaptic Inhibition by Dopamine Stimulation

Donna Wells – Nursing

Developing and Testing Instruments for Assessments and Evaluating Interventions for the Caregiving of Persons with Dementia

Kim Woodhouse - Chemical Engineering & Applied Chemistry; Sunnybrook & Women's College Health Sciences Centre

Novel Materials for Tissue Engineering: Synthetic/Recombinant Protein Based Polymers for Soft Tissue Reconstruction

September 2000 Competition (Round #5)

Jing M. Chen – Geography

Spatial Distribution of Carbon Sources and Sinks Using Satellite Measurements

John Glover – Biochemistry

Molecular Chaperones: Determining the Fate of Aggregation-prone Proteins

Walid A. Houry – Biochemistry

Role of Molecular Chaperones in Protein Folding and Degradation

Chi-Chung Hui - Medical Genetics & Microbiology; Hospital For Sick Children Mouse Models of Congenital Malformations and Cancer

Keith P. Ireton – Medical Genetics & Microbiology

Identification and Characterization of Host Proteins that Participate in Entry of Listeria Monocytogenes

Daniel A. Lidar – Chemistry

Overcoming Noise Limitations to the Functioning of Quantum Computers

Anthony Randal McIntosh – Psychology; Baycrest Centre for Geriatric Care Large-Scale Neural Systems in Human Cognition

Eckhard Meinrenken - Mathematics

Moment Maps and Moduli Spaces

Michael Molloy - Computer Science

Probabilistic Graph Theory

James E. Mungall – Geology

Phase Relations of Sulphide Melts in the Upper Mantle

Jay Pratt – Psychology Distribution of Visual Attention

F. Helen Rodd – Zoology

Frequency Dependent Selection and the Maintenance of Genetic Variation in the Guppy (Poecilia Reticulata)

Gregory Scholes – Chemistry Opto-Electronic Response of Complex Organic Assemblies

Craig Smibert – Biochemistry Regulation of Translation During Development

Andrew Woolley – Chemistry Photo-Control of Proteins

Burton B. Yang - Laboratory Medicine & Pathobiology; Sunnybrook and Women's College Health Sciences Centre

The Role of Proteoglycan Versican in Chondrocyte Morphogenesis

Andrei K. Yudin – Chemistry

New Stereoselective Methods for the Synthesis of Biologically Active Compounds

Konstantine Zakzanis – Life Sciences (University of Toronto at Scarborough) The Anatomical Locus of Visual Memory

Li Zhang – Laboratory Medicine & Pathobiology; University Health Network Molecular Mechanisms involved in Anti-Leukemia and Inhibiting Graft versus Host Disease by Novel White Blood Cells

Canada Research Chairs Program (CRC)

The CRC program was established by the federal government in 2000 to enable Canadian universities and affiliated research institutes and hospitals to become world-class research centres by retaining and attracting exceptional research faculty in the full range of disciplines. The program, with a \$900M budget, will establish 2000 Canada Research Chairs across the country by 2005, with 271 at the University of Toronto. Recruitment is taking place from both within and outside Canada.

September 2000 Competition

Benjamin Alman - Surgery; Hospital For Sick Children* Canada Research Chair in Vascular and Metabolic Biology

Charlie Boone - Banting and Best Department of Medical Research* Canada Research Chair in Proteomics, Bioinformatics, and Functional Genomics

Monica Boyd – Sociology

Canada Research Chair in Social and Ethical Context of Health

Ian Brown – Zoology (University of Toronto at Scarborough)* Canada Research Chair in Neurobiology of Stress

Patricia Brubaker - Physiology*

Canada Research Chair in Vascular and Metabolic Biology

Hue Sun Chan - Biochemistry*

Canada Research Chair in Proteomics, Bioinformatics, and Functional Genomics

Richard Collins – Medical Genetics & Microbiology*

Canada Research Chair in Proteomics, Bioinformatics, and Functional Genomics

Dennis Cvitkovitch - Dentistry*

Canada Research Chair in Tissue Engineering and Regeneration

Karen Davis – Surgery; University Health Network

Canada Research Chair in Brain and Behaviour

Gregory Downey - Medicine*

Canada Research Chair in Inflammation Responses and Traumatic Injury

Ross Ethier - Mechanical & Industrial Engineering

Canada Research Chair in Computational Bioengineering

Mark Henkelman – Medical Biophysics; Sunnybrook and Women's College Health Sciences Centre

Canada Research Chair in Imaging Technologies in Human Diseases and Preclinical Models

Brad Inwood - Classics

Canada Research Chair in Ancient Philosophy

David Jenkins – Nutritional Sciences*

Canada Research Chair in Vascular and Metabolic Biology

Sajeev John – Physics

Canada Research Chair in Optical Sciences

Shitij Kapur - Psychiatry; Centre for Addiction and Mental Health*

Canada Research Chair in Imaging Technologies in Human Diseases and Preclinical Models

Lewis Kay – Medical Genetics & Microbiology*

Canada Research Chair in Proteomics, Bioinformatics, and Functional Genomics

Frank Kschischang - The Edward S. Rogers Sr. Department of Electrical and Computer Engineering

Canada Research Chair in Communications Algorithms

Gary Lewis – Medicine; University Health Network Canada Research Chair in Vascular and Metabolic Biology

Tak Mak – Medical Biophysics; University Health Network Canada Research Chair in Inflammation Responses and Traumatic Injury

Norman Murray – Canadian Institute for Theoretical Astrophysics Canada Research Chair in Astronomy and Astrophysics

John Myles – Sociology Canada Research Chair in Social and Ethical Context of Health

Geoffrey Ozin - Chemistry Canada Research Chair in Materials Chemistry

Josef Penninger – Medical Biophysics; University Health Network* Canada Research Chair in Inflammation Responses and Traumatic Injury

Régis Pomès – Biochemistry; Hospital For Sick Children* Canada Research Chair in Proteomics, Bioinformatics, and Functional Genomics

Martin Post – Paediatrics; Hospital For Sick Children* Canada Research Chair in Fetal, Neonatal, and Maternal Health

Susan Elizabeth Quaggin – Medicine; St. Michael's Hospital Canada Research Chair in Vascular and Metabolic Biology

Brian Robinson – Biochemistry; Hospital For Sick Children Canada Research Chair in Vascular and Metabolic Biology

Edward Sargent – The Edward S. Rogers Sr. Department of Electrical and Computer Engineering* Canada Research Chair in Emerging Technologies

Barry Sessle - Dentistry Canada Research Chair in Dental and Craniofacial Pain Research

Philip Sherman – Paediatrics; Hospital For Sick Children Canada Research Chair in Inflammation Responses and Traumatic Injury

Molly Shoichet – Chemical Engineering & Applied Chemistry* Canada Research Chair in Tissue Engineering

Marla Sokolowski – Zoology (University of Toronto at Mississauga)* Canada Research Chair in Genetics and Behavioural Neurobiology

Elis Stanley – Physiology; University Health Network Canada Research Chair in Brain and Behaviour

Rosemary Sullivan – English (University of Toronto at Mississauga) Canada Research Chair in Literature, Culture, and Discourse

Michael Tyers - Medical Genetics & Microbiology; Mount Sinai Hospital* Canada Research Chair in Proteomics, Bioinformatics, and Functional Genomics

Jack Ven Tu – Medicine; Sunnybrook and Women's College Health Centre* Canada Research Chair in Health Systems and Knowledge Transfer

Christopher Yip - Chemical Engineering & Applied Chemistry* Canada Research Chair in Molecular Imaging

Peter Zandstra – Institute of Biomaterials & Biomedical Engineering* Canada Research Chair in Stem Cell Bioengineering

Mei Zhen - Medical Genetics & Microbiology; Mount Sinai Hospital* Canada Research Chair in Brain and Behaviour

December 2000 Competition Spencer Barrett – Botany Canada Research Chair in Evolutionary Genetics

Yannick Portebois - French Canada Research Chair in Literature, Culture, and Discourse

Jack Uetrecht – Pharmacy Canada Research Chair in Immunotoxicology

David Zingg – Institute for Aerospace Studies Canada Research Chair in Computational Aerodynamics

March 2001 Competition Sean Cutler - Botany* Canada Research Chair in Plant Functional Genomics

Daniel Durocher - Medical Genetics & Microbiology; Mount Sinai Hospital* Canada Research Chair in Proteomics, Bioinformatics, and Functional Genomics

George Elliott – Mathematics Canada Research Chair in Mathematics Barbara Haggh-Huglo – Music Canada Research Chair in Medieval Music and Liturgy

Robert Kerbel - Medical Biophysics; Sunnybrook and Women's College Health Sciences Centre*

Canada Research Chair in Molecular Biology, and Applied Genomics

Stephen Lye – Obstetrics & Gynaecology; Mount Sinai Hospital* Canada Research Chair in Improvement in Health and Function

Ian Manners – Chemistry Canada Research Chair in Inorganic, Polymer, and Materials Chemistry

Pamela Ohashi – Medical Biophysics; University Health Network* Canada Research Chair in Inflammation, Infection, Trauma, and Repair

Christo Pantev - Medicine; Baycrest Centre For Geriatric Care* Canada Research Chair in Human Cortical Plasticity

Joyce Slingerland - Medicine; Sunnybrook and Women's College Health Centre* Canada Research Chair in Molecular Biology & Applied Genomics

Rachel Tyndale - Pharmacology; Centre For Addiction And Mental Health Canada Research Chair in Pharmacogenetics

Hubert Van Tol – Psychiatry; Centre For Addiction And Mental Health* Canada Research Chair in Neurobiology

*These awardees also received additional infrastructure funding from CFI and OIT

III. Selected Scholarly Awards, Prizes & Honours Received by U of T Faculty

ROYAL SOCIETY OF LONDON

Fellowship in the U.K.-based Society, which admits only six foreign members each year, is offered to scientists who have made a distinguished achievement in their fields. Fellowship in the Royal Society of London is internationally recognized as one of the highest honours in science.

New Fellows 2000 Richard Bond, Theoretical Astrophysics Robert Birgeneau, Physics

KING FAISAL INTERNATIONAL PRIZE FOR SCIENCE

Given by the Saudi Arabia-based King Faisal Foundation, this prize honours scientists and scholars who make significant advances in areas that benefit humanity.

Sajeev John, Physics

ALFRED P. SLOAN RESEARCH FELLOWSHIP

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

Barth Netterfield, Astronomy

ROYAL SOCIETY OF CANADA

The Society's "Fellows" are Canadian women and men selected by their peers for outstanding contributions to the arts and the sciences.

New Fellows 2000

Sylvia Bashevkin, Political Science

Charles Deber, Biochemistry; Hospital for Sick Children

Mark Lautens, Chemistry

Ian Manners, Chemistry

Roderick McInnes, Medical Genetics & Microbiology; Hospital for Sick Children

Cheryl Misak, Philosophy

Keith Oatley, Ontario Institute for Studies in Education

Nancy Reid, Statistics

Jeffrey Reitz, Sociology; Centre for Industrial Relations

André Salama, Electrical & Computer Engineering

KILLAM MEMORIAL PRIZE

Awarded by the Canada Council for the Arts, these prizes honour eminent Canadian scholars in engineering, health sciences and natural sciences.

Werner Kalow, Pharmacology

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 an outstanding reputation in their area of research.

Timothy Barnes, Classics Heather Jackson, English Thomas Tidwell, Chemistry

STEACIE PRIZE

This prize is Canada's most prestigious research award for young scientists and engineers.

Ian Manners, Chemistry

MOLSON PRIZE IN THE SOCIAL SCIENCES & HUMANITIES

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

Ian Hacking, Philosophy

HENRY MARSHALL TORY MEDAL

Given by the Royal Society of Canada, this medal is awarded for outstanding research in astronomy, chemistry, mathematics, physics, or an allied science.

John Bryan Jones, Chemistry

3M TEACHING FELLOWSHIP

This fellowship, co-sponsored by 3M Canada and the Society for Teaching and Learning in Higher Education, recognizes individuals who excel in teaching and demonstrate an exceptionally high degree of leadership and commitment to the improvement of university teaching across the country.

Brian Hodges, Psychiatry Martin Wall, Psychology

FRIESEN-RYGIEL PRIZE

Created by the Canadian Medical Discoveries Fund, this prize is awarded annually to a company in the field of human health that advances an outstanding discovery generated in a Canadian academic institution through the creation of a commercial enterprise.

This year's prize was awarded to GLYCODesign Inc., with a citation to the University of Toronto and Mount Sinai Hospital for their contribution in transferring the technology from academe into the private sector.

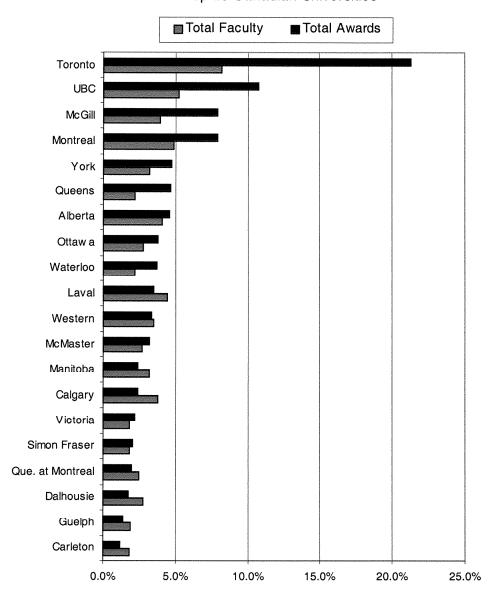
NSERC DOCTORAL PRIZE

This prize, four of which are awarded annually, recognizes high-quality research conducted by researchers completing their doctoral degrees in science and engineering at Canadian universities.

Cameron Currie, Botany

Faculty Honours, 1980-2001

Institutional Share Compared to Faculty Size Top 20 Canadian Universities



Source: Total awards from award announcements from Steacie, Killam, Royal Society, Sloan, Gerhard Herzberg Canada Gold Medal, and Guggenheim, 1980-2001. Total faculty data from Statistics Canada, 1999-2000.

Awards to faculty appointed to affiliated institutions were counted with the relevant lead university. Figures for Steacie Prize and G.H. Canada Gold Medal are for 1980-2000.

IV. University of Toronto Technology Transfer (All figures in \$ millions)

INDUSTRIAL CONTRACTS & GRANTS (APRIL '99 – MARCH '00)*

Contracts Grants	38.65 19.79
Total industrial research revenue	58.44
GOVERNMENT FUNDING LEVERAGED BY INDUSTRIAL COLLABORATION*	
Networks of Centres of Excellence (April '99 – March '00) U of T participated in 16 of 18	7.56
Ontario Centres of Excellence (April '99 – March '00) U of T participated in 4 of 4	8.45
NSERC ('00 – '01) University/Industry programs †	3.42
CIHR ('00 –'01) University/Industry programs †	1.30
SSHRC ('00 –'01) University/Industry programs †	0.06
ORDCF ('99 –'00) University/Industry programs †	18.44
Total government funding leveraged by industrial collaboration	39.23
COMMERCIALIZATION	
Licensing Revenue	3.69
Spin-Off Company Revenue (as of April 2001) # 94 active spin-off companies and 4,264 employees were reported	640.00
Cumulative Venture/Seed Capital Investment in U of T Research (January 1998 - August 2001)	36.50
*Includes affiliated teaching hospitals	

[†]Excludes NCEs

[#] Excludes affiliated teaching hospitals

SELECTED ACCOMPLISHMENTS

I. Increased Federal and Provincial Research Support and Investment

Strengthened ties with the federal and provincial governments through a range of initiatives, including hosting key leaders on campus to expose them to our research activities and talent, and publicly acknowledging the importance of government research and innovation policy initiatives.

2. Increased Research and International Resources

- Supported university faculty and researchers in securing for the seventh year running the largest number and value of awards from the three federal granting councils, and the Canada Research Chairs, Ontario Research & Development Challenge Fund, and Premier's Research Excellence Awards programs
- Increased faculty participation in the three federal granting councils, resulting in \$132.5M in funding from these sources – an \$11.8M increase over the previous year
- Developed a consolidated strategy to increase research investment from foundations for social sciences and humanities research and international development activities
- Increased research and international funding from key foundations from \$9.5M to \$11M
- Secured \$1M in new international development support from a number of funding sources, including the Canadian International Development Agency, the International Development Research Centre, the Ford Foundation, the Gorbachev Foundation, the Canadian Society for International Health, United Nations Agencies, and the World Bank
- Eleven new projects valued at \$10M in the pipeline with funding agencies supporting international development activities and research
- Conducted a series of Strategic Research Implementation meetings involving all academic divisions to identify major research initiatives consistent with the University's Strategic Research Plan which might be supported through GRIP or other major research funding programs
- Secured 185 awards across the range of GRIP competitions
- Developed over 300 new GRIP proposals
- Developed the first three cohorts of institutional nominations for Canada Research Chairs, representing 57 nominations to date

Supported 131 graduate scholarships and 187 faculty research initiatives across all disciplines for a total investment of \$4.7M through the University's Connaught Fund and Connaught Miscellaneous Fund

3. Increased Services for Research and International Activities

Communications. Education and Information

- Held NSERC, SSHRC and CIHR grants application workshops for faculty
- Re-engineered and expanded the Ethics Review Unit Web site to improve navigation through administrative policies and processes
- Held CIDA Programs Information Workshop for faculty interested in developing international projects in developing countries
- Communicated international funding opportunity information to over 200 faculty members via regional listservs and 70 targeted announcements
- Held PREA and CFI information workshops for faculty, which included presentations from PREA and CFI representatives

Services and Support

- Launched "My Research Online" pilot project to provide researchers with Web access to the status of their grant applications, funding history, grant terms and conditions, financial reporting and history, and ethical protocols
- Implemented improved research, financial and management reporting for researchers and administrative staff; new reports are more timely, more informative, and easier to understand
- Developed strategy for Web-based course on the use of human subjects
- Launched International Programs Development Office Web site targeted to external visitors, which profiles U of T international projects, demonstrates the University's capacity and expertise in international research and development, and provides information on partnering with U of T

- Through the International Programs Steering Committee, advanced a set of recommendations for improving the support structure for developing international programs at U of T
- Developed application tips for CFI and ORDCF to assist faculty members and their teams in developing highly competitive proposals for funding

4. Enhanced Intellectual Property Management and Technology Transfer

- Developed and obtained Governing Council approval for University support in the establishment of MARS, a major multi-science, multi-technology convergence facility adjacent to the St. George campus; and supported the development of the MARS business plan
- Launched a number of initiatives through the Innovations Foundation, including an annual \$500,000 business plan competition and a seed fund to support spin-off companies in the information technology sector
- Facilitated the creation of six new spin-off companies: Spectral Diagnostics, Cytophotonics, Photothermal Diagnostics Inc., Motion Playground Inc., Virtek Engineering Science Inc., and Molecular Templates Inc.
- With Mount Sinai Hospital, successfully nominated one of the University's spin-off companies, GlycoDesign, for the Friesen-Rygiel Prize for effective technology transfer
- Established an internship program at UTech Services in response to the growing need for experienced technology transfer personnel
- Realized continued growth of the University's overhead revenues, from \$4.9M in 1995 to \$9.75M, plus \$8.8M in new overhead revenue through the Ontario Research Performance Fund
- Established a Task Force on Intellectual Property relating to Instructional Media
- With the Vice-Provost Relations with Health Care Institutions, achieved a Research Policy Harmonization Agreement with the affiliated teaching hospitals, which will lead to a coordinated approach to ethics review, conflict of interest, and other important research policy issues
- Launched with Laval University/Université Laval the CD-ROM version of the *Dictionary* of Canadian Biography/Dictionnaire biographique du Canada, and distributed 12,000 copies free of charge to public, school, and university libraries throughout the country

5. Enhanced the University's Research and International Profile

- Participated in the Team Canada Trade Mission to China to promote the University of Toronto's research and international relations and to support the development of a number of collaborative research projects with Chinese partners
- Created a brochure to highlight the University of Toronto's research, teaching, and collaboration in China
- Earned the Gold Award from the Canadian Council for the Advancement of Education (CCAE) for Edge magazine
- Earned the Bronze Award from CCAE for the RIR "Visitors" Web site
- Created promotional print package and Web site for Innovations Foundation
- Created full-page advertisement in the Globe & Mail ("42 Reasons for your kids to make Canada their future") to recognize federal government research investment, and in the National Post ("Who says talent, knowledge and innovation are important?") to recognize provincial government research investment
- Continued to support strong nominations for major research prizes, leading to successes in the Killam Prize and Molson Prize competitions
- Supported 15 International Symposia/Colloquia awards across all disciplines for a total contribution of over \$79,000 through the University's Connaught Fund (examples included "The Symposium on the Legacy of John Charles Fields", held in Toronto in June 2000, and "Canada and Korea: Into the New Millennium", held in Toronto in May 2000)
- Supported the SSHRC Humanities Conference, "Alternative Worlds: The Humanities in 2010", held in Toronto in October 2000, with a contribution of \$25,000 through the University's Connaught Fund

PRIORITY PLANS

As priorities change from year to year, themes under which we organize our plans also shift slightly, as reflected in the following new headings.

1. Government Research and International Relations

Federal Government: In support of optimal policy framework for research, graduate students, and internationalization

- Continue to work toward our highest priority policy objective full research cost recovery - in tandem with growth in the federal granting councils
- Enhance communications and interaction with key government contacts:
 - > Stewardship of federal MPs, senior bureaucrats, and senior related officials, including members of the Opposition
 - > Create support for our mission that the University become one of the world's 10 leading public research-intensive universities (WP-10)
- Contribute to the shaping of active federal research, higher education, and international policy initiatives, including formulation of a University response to the federal government's White Paper on Innovation, consistent with our institutional goals
- Create closer involvement of federal MPs and federal senior officials in the life of the University through opportunities to bring key federal government representatives to U of T-based events, seminars and conferences to strengthen exposure, knowledge and cooperation with decision-makers

Provincial Government: In support of optimal policy for research and internationalization

- Further strengthen our relations with senior Ontario politicians, civil servants, and appointees in support of research investment and effective public policies to enhance research, graduate student support and internationalization, in particular:
 - > Expansion of the Ontario Innovation Trust
 - > Renovation and expansion of the Ontario Research and Development Challenge Fund and the Centres of Excellence
 - Growth of the PREA programs and graduate student support
 - Support for technology transfer and commercialization
- Work to realize:
 - > Substantial impact of the Premier's Platinum Awards
 - > Creation of an Ontario Health Research Council
 - > Creation of new programs of support for internationalization of university research and students
- Create closer involvement in the life of the University through opportunities to bring key provincial government representatives to U of T-based events, seminars and conferences to strengthen exposure, knowledge and cooperation with decision-makers

2. Research and International Performance and Impact

National

- Increase resource generation in support of priority research and international activities, including: further growth in successes with the three granting councils, CFI, Genome Canada, and Canada Research Chairs programs; and federal government lab support
- Building on successes to date, work with government to further enhance the maturation, effectiveness and stability of planning and administration of the CFI, Genome Canada, and CRC competitions and awards

Provincial

- Increase successes in ORDCF, OIT, and PREA programs
- Achieve success in the first round of the Premier's Platinum Awards
- Work with government to further enhance the maturation, effectiveness and stability of funding, planning and administration of the ORDCF, OIT, PREA, and OCE competitions and awards

Research and International Ranking

 Advance benchmarking of U of T research and internationalization performance against that of leading U.S. and other international public research-intensive universities

Scholarly Awards, Prizes & Honours

- Promote University nominations for prestigious international and national research prizes and honours:
 - > In international competitions, target Fellowships in the American Academy of Arts and Sciences and the Royal Society of London, and successes in attracting the Lasker Prize, the Sloan Prize, Howard Hughes Scientist Awards, the Japan Prize, and the Nobel Prize, among others
 - > In Canadian competitions, target the Herzberg Medal, the Killam Prizes, the Premier's Platinum Medals for Research Excellence, and the Molson Prize

Foundation Support

Increase profile and support for social sciences and humanities research through increased funding from targeted U.S. and international foundations

International Agencies

- Increase participation in top-flight international research networks
- Increase success with international research funding agencies
- Increase success in competitions of international development programs and create highimpact international development consortia in support of our institutional mission

- Advance successfully projects in the pipeline with international funding agencies
- Create opportunities to invite international funding agencies and consortia partners to U of T-based events, seminars and conferences to strengthen relations, resources, and profile with key decision-makers
- Create a report for the Canadian International Development Agency to summarize results and impact of selected international development projects

3. Research and International Services to the University Community

University of Toronto Research Services (UTRS)

- Enhance the research information package provided in support of new faculty recruitment, for example, by adding information on services in support of technology transfer and dissemination of research through commercial and other means
- Following successful "My Research Online" pilot project, roll out full program to provide U of T research investigators with Web access to status of grant applications, grant terms and conditions, financial reporting and history, and the status of ethical protocols
- Streamline ethics review procedures and implement information systems to support efficient and effective training and administration processes
- With School of Graduate Studies, finalize and introduce a guide for graduate students on the use of human subjects in research
- Create two new university advisory committees: Ethical Conduct in Research, and Intellectual Property and Technology Transfer
- Advance the harmonization of research policies with the hospitals

Government Research and Infrastructure Programs (GRIP) Strategic Research Planning

- Building on the inter-divisional collaborative potential of the University's Strategic Research Plan and harnessing the coordinating capacity of the graduate centres and institutes, generate proposals for growing strategic new research areas, such as: Nanophotonics, Neurosciences, Bioinformatics, Environment, and Complex Systems
- Develop a strategy to optimize interdivisional collaborations and synergies within the University, and, with the Dean of Medicine and the Vice-Provost, to advance significantly the collaborative planning activities and harmonization of research programs between the University and the affiliated teaching hospitals to achieve maximum national and international research success and impact for the Toronto system

- Support faculty in the social sciences and humanities to participate more fully in the range of federal and provincial research funding programs, through specialized advocacy on behalf of and service delivery to this constituency (e.g. special "GRIP Tips", identification and elimination/mediation of particular barriers to participation, consultation/negotiation with GRIP and other research sponsors and agencies)
- Support the identification and development of flagship GRIP proposals in conjunction with the SRP planning process and lead investigators from key areas, and build in stronger ties to UTech Services and IF to promote effective leveraging, research partnerships, and economic, social and cultural impact
- Consult on, plan and implement new mechanisms for Connaught Fund support of graduate student fellowships and humanities and social science research and scholarship, and explore the possibility of creating new programs in support of transformative research projects and special initiatives to enhance teaching-research synergies at the undergraduate level

Administration

- Revisit GRIP structure and organization to determine optimal use of personnel and resources
- Evaluate and improve internal GRIP review process for competitions
- Examine and streamline GRIP post-award administration processes

Capacity Building

Improve U of T/GRIP performance analysis and benchmarking by creating a stable, continuous database of GRIP awards and awardees, adding capacity for timely compilation and analysis of accurate data; consult with relevant constituencies within and outside U of T to determine which statistics should be routinely assembled and reported

Outreach and Follow-up

- Create and disseminate wider variety of support/information documents and ensure easy access through an enhanced GRIP Web site
 - Expand library of "GRIP Tips" to other programs: CRC, CRC/CFI, OIT, ORDCF, PREA, and Premier's Platinum Medals for Research Excellence
 - Expand number of budget templates to facilitate development of application budgets across the range of GRIP programs
- Work with GRIP sponsors and other universities to improve program delivery (e.g. consultation and communication regarding policy and guideline "evolution")

Canada Research Chairs (CRC)

Update the Strategic Research Plan, consistent with University mission and objectives, and iterate to achieve full integration with the divisional recruitment and advancement plans across the University

- Streamline/clarify processes in CRC application and award administration
- Work with divisions and DUA to realize greater leveraging of resources and more strategic impact of the CRC program on research and faculty retention and recruitment
- Monitor progress in growing successes to achieve increased allocation of CRCs

Strategic Communications

- Complete "U of T Community" portion of RIR Web site to provide our research community with essential information regarding:
 - GRIP opportunities and contacts
 - > Technology Transfer programs and assistance
 - > Development of international projects and cooperative agreements, with links to funding sources, travel advisories, and information about cultural protocols and
 - Applications/post-award processes and contacts; finding funding; ethical review; forms; policies; and information for new faculty, administrators, staff, students, postdocs

Research Environment for Graduate Students

- Enhance services to effectively orient and support graduate students with respect to research and international awards, programs, collaborative research opportunities, services, policies, and procedures
- Support graduate supervisors in the context of research and international opportunities, services, policies, and procedures with respect to graduate students
- With the Vice-Provost, Students, review the policy on Safety in Field Research and create guidelines and procedures regarding safety of students and faculty travelling on University programs abroad

4. Intellectual Property Management and Technology Transfer

Further Enhance the Technology Transfer Process

- Support the implementation of the MARS Discovery District and the related integration of the Innovations Foundation and Biotechnology incubators
- Ensure optimal coordination and synergies of GRIP planning with the operation of IF and UTech Services
- Assist the Innovations Foundation in securing working capital for the next stage of IF development and for the Exceler@tor, a new centre for business development that provides entrepreneurs with access to the University's research and expertise and the services of UTech and IF

Further Enhance University Research Policies

- Bring forward through governance any required policy changes coming out of the work of the Task Force on Intellectual Property Relating to Instructional Media
- Develop guidelines on spin-off companies

Further Enhance Technology Transfer Strategic Relationships and Revenues

- Negotiate a licensing agreement for publication of an on-line version of the Dictionary of Canadian Biography
- Negotiate renewal of agreements with two major industrial partners
- Advance business development initiatives, including alternative energy and molecular nutrition fields
- Obtain renewal and expansion of the Intellectual Property Management grant from **NSERC**

5. Internationalization of the University

- Complete the work of the Strategic Task Force on University Internationalization
- Support the implementation of recommendations of the University's Task Force on Internationalization & Strategic International Partnerships:
 - > Foster strategic research collaborations that could be supported by trans-national funding programs
 - Encourage the development and sharing of major research facilities
 - Work towards the creation of fellowships and bursaries to foster graduate student and faculty mobility related to participation in international research activities
 - > Facilitate strategic access to national and/or regional research and academic networks and consortia on a reciprocal basis
- Advance strategies recommended by the International Programs Development Steering Committee to improve the University's ability to reach its internationalization goals:
 - Encourage broader public recognition of the value of international engagement of faculty and students and integration of international dimensions into research, teaching, and service
 - Persuade the federal and provincial governments that outstanding Canadian universities must be internationally competitive in recruiting students, in providing top-quality teaching and research, and in attracting international investment in research

- > Encourage and initiate engagement with select international universities, nongovernmental agencies, the private sector, and foreign governments to advance the University's mission through international interests
- Foster strategic partnerships with recognized research and academic programs of excellence around the world
- Monitor U of T standards and quality in internationalization against the best international practices and use best practices to build U of T capacity
- > Promote effective and efficient internal U of T policies and support services for international activities

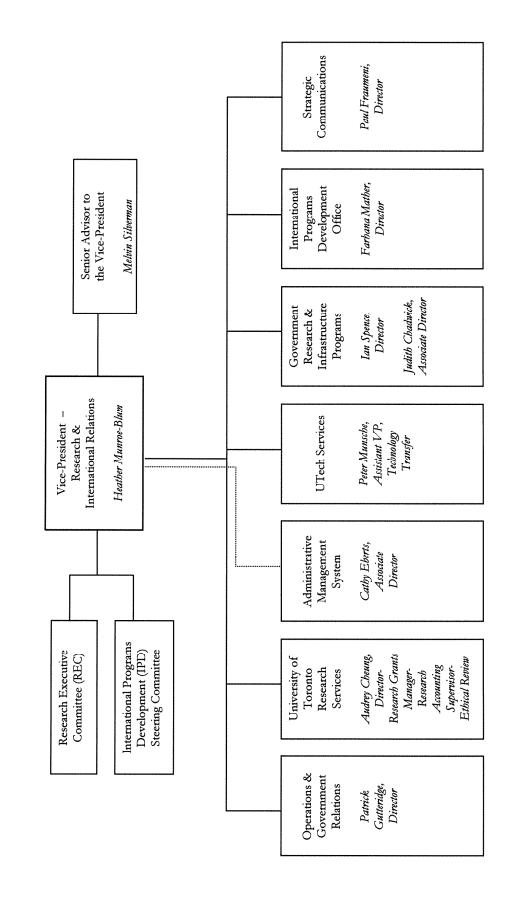
6. Research Capacity in Capital Planning and Implementation

- Ensure that ongoing University capital planning consistently advances priority research
 facilities and includes appropriate consideration to optimizing the co-location of research
 and teaching space
- Target speedy completion of major research facilities, including CCBR, CCIT at UTM, ECAN, and implementation of those in the competition pipeline

7. Research and International Profile

- Support U of T lead and participation in selected conferences and symposia of international impact to heighten the University's profile with key constituencies, including:
 - > Host a conference on the role of universities in contributing to international economic development, in partnership with government agencies, foundations, and partner universities in selected regions around the world
 - Participate in BIO2002 conference, held in Toronto, June 2002
 - ➤ Host the 2002 Congress of the Social Sciences and Humanities, May 25 to June 1, 2002 (co-hosted by York and Ryerson Universities)
- Enhance further strategic communications to government, foundations, and agencies, making a case for the importance of sustained commitment to international competitiveness and excellence in research and higher education
- Continue to showcase the benefits of full research cost recovery to both external audiences and the University community
- Increase communications strategies and activities to promote effective dissemination of U of T research, including commercialization, through print materials, *Edge* magazine, the U of T *Bulletin*, external media, and the RIR Web site

APPENDIX A
Office of the Vice-President – Research & International Relations
September 2001



APPENDIX B RIR Business Units

RESEARCH SERVICES & RESEARCH ACCOUNTING

University of Toronto Research Services (UTRS) provides faculty members with information about funding sources; processes applications for support; assists in the negotiation of research and intellectual property agreements; establishes successful awards on Administrative Management Systems (AMS); administers the review and approval of research involving human and animal subjects; supports high standards of ethical conduct and financial accountability in research; and provides financial reports to sponsors. UTRS also administers a number of internal sources of support, notably the Connaught Fund.

UTECH SERVICES

UTech Services provides faculty with an integrated storefront of services relating to research partnerships with companies, technology transfer and commercialization. The office includes specialists in contracts, agreements and negotiation, a team of Business Development Officers, and the staff of the Innovations Foundation, which specializes in licensing technology and fostering new spin-off companies. This office also supports the University in nominating faculty for major scholarly prizes.

INTERNATIONAL PROGRAMS DEVELOPMENT OFFICE (IPD)

The IPD Office seeks to develop a broader international presence and profile for the University. This is achieved through promotion and supporting international program and project development; enhancing strategic international relations and agreements in support of divisional goals; and combining practical project activities with active identification of research and other academic resource opportunities.

GOVERNMENT RESEARCH AND INFRASTRUCTURE PROGRAMS (GRIP)

The GRIP office promotes, coordinates and facilitates all University of Toronto proposals directed towards the Canada Foundation for Innovation (CFI), the Canada Research Chairs (CRC), the Ontario Research & Development Challenge Fund (ORDCF), the Ontario Innovation Trust (OIT), the Premier's Research Excellence Awards (PREA), and the Premier's Platinum Award.

STRATEGIC COMMUNICATIONS

RIR's Strategic Communications team promotes the University's research and international talent, strengths, and opportunities. The team works closely with all RIR service units to develop and implement communications and marketing strategies, and works closely with various offices throughout the University, including U of T's central Public Affairs office. Ongoing priority projects include support to GRIP applications, editorial management of Edge magazine and the RIR Web site.

RESEARCH INFORMATION SYSTEM (RIS)

RIS automates all major business functions associated with processing research grants and contracts, and integrates research application information with award information located within U of T's financial system (FIS). Through this system, the University can efficiently monitor and report this information and identify performance indicators.

APPENDIX C Glossary of Abbreviations

AMS Administrative Management System

CCAE Canadian Council for the Advancement of Education

CCBR Centre for Cellular & Biomolecular Research

CCIT Communication, Culture & Information Technology

CIDA Canadian International Development Agency
CIHR Canadian Institutes for Health Research
CFI Canada Foundation for Innovation

CRC Canada Research Chairs

DUA Division of University Advancement

ECAN Energenius Centre for Advanced Nanotechnology

FIS Financial Information System

GRIP Government Research Infrastructure Programs
MARS Medical and Related Science Discovery District

MP Member of Parliament

NCE Networks of Centres of Excellence

NSERC Natural Sciences Research Council of Canada

OCE Ontario Centres of Excellence
OIT Ontario Innovation Trust

ORDCF Ontario Research & Development Challenge Fund

PREA Premier's Research Excellence Awards
RIR Research & International Relations
RIS Research Information System
SRP Strategic Research Plan

SSHRC Social Sciences & Humanities Research Council of Canada