

**REPORT OF THE
2006 RENEWAL
NETWORKS OF CENTRES OF EXCELLENCE
SELECTION COMMITTEE**

JUNE 2005

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Selection Committee
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TABLE OF CONTENTS

	Page
REMARKS FROM THE CHAIR	2
BACKGROUND	5
COMPETITION PROCESS	6
NCE SELECTION COMMITTEE RECOMMENDATIONS	7
SUMMARY OF NETWORKS RECOMMENDED FOR FUNDING	7
APPENDIX I NCE Program Criteria	9
APPENDIX II Terms of Reference: 2006 Renewal NCE Selection Committee	11
APPENDIX III Membership of the 2006 Renewal NCE Selection Committee	12
APPENDIX IV Biographical Notes of the 2006 Renewal NCE Selection Committee Members	13

Remarks from the Chair

Introduction

The 2006 Networks of Centres of Excellence Renewal Competition that just ended was designed to evaluate three networks applying for a second NCE funding cycle. The NCE Selection Committee was composed of 9 members from Canada and abroad who, in total, were able to represent areas covered by all competing networks. Each member of the Selection Committee (the chair excepted) evaluated the extensive materials provided for each of the networks, so as to be able to discuss each application and ultimately provide a recommendation to the NCE Steering Committee. Throughout the deliberations, each network was assessed against the five requirements of excellence established for the NCE program: excellence of the research program, development of highly qualified personnel, networking and partnerships, knowledge and technology exchange and exploitation, and the management of the network. The members of the Committee made individual evaluations of each application followed by several rounds of group discussions before making their recommendations.

Recommendations for networks applying for a second NCE funding cycle

The Selection Committee recognized the national importance of the research areas represented by the three renewing applications. It was clear that networks were, in general, composed of many high quality researchers who developed the proposed innovative research programs for each application. Overall, the Committee was impressed by the large number of researchers and partners from different sectors involved in each Network. It was also impressed by the quality of the training activities and personnel, and efforts made by most networks to retain highly skilled individuals in Canada.

The Selection Committee had access to networks' progress reports and future strategic plans, past Expert Panel reviews, and the reports of international Expert Panels that met each network. The Chair of each Expert Panel was consulted during deliberations to answer additional questions from the Selection Committee about the network.

As required, each network was evaluated against each of the five NCE program criteria. As these networks were applying for their last funding cycle, the Committee also examined each network's vision for this funding cycle, its integrated research and training strategies, and the network's strategy with regards to transfer of knowledge and technology of network results to users sector. The recommendations represent the Committee's judgment of the relative merits of each case against the established criteria and the potential value added by additional investments in the networks.

Following review by individual committee members and extensive committee discussions, the Selection Committee recommended that one Network be funded at the requested level for up to seven years. It is understood that the amounts recommended in years 5 to 7 are subject to successful reviews in year 4 and will be the subject of a future submission. The two other Networks are not recommended for a 2nd funding cycle.

To capitalize on the first cycle of funding investment and to maintain the networking momentum created during the first 7 years, the Committee encourages all researchers and partners involved in these two networks to continue to seek funding for their research program through the appropriate granting agencies and other sources of funds.

Conclusion

The recommendations from the Committee reflect the commitment of all members to the principle of Excellence that is trademark of the NCE program. As Chair, I would like to thank all members of the Selection Committee for their dedication and commitment ensuring that the goals of the NCE program are met through the recommended network. Finally, I would like to thank all members of the international Expert Panels for their contributions and the NCE Directorate for their support for the entire process.

Camille Limoges, Consultant

Chair, NCE Selection Committee 2006

Background

The Networks of Centres of Excellence (NCE) program seeks to mobilize Canada's best research talent in the university, private and public sectors, and to apply it to the task of developing the economy and improving the quality of life of Canadians. Networks are selected on the basis of their excellence in research, their inclusion of the best cross-country talents, the extent of their partnerships with the receptor community, and their potential for socio-economic benefits. Industry Canada and the three granting agencies (the Natural Sciences and Engineering Research Council, the Canadian Institutes for Health Research, and the Social Sciences and Humanities Research Council) jointly manage the program.

Since its inception in 1989, the NCE program has been linking Canadian researchers from the university, public and private sectors to work collaboratively on the advancement of research on the development of new technologies. Networks provide opportunities to develop innovative research approaches that cross traditional disciplinary and sectoral boundaries, and promote collaborations among social, physical and medical scientists and engineers. These collaborations have contributed significantly to accelerating the uptake of new knowledge and technologies by the industry and other receptor communities, and they have led to important socio-economic benefits.

The invitation to the three networks to submit Full Application for an NCE second funding cycle in the 2006 Renewal Competition was issued in March 2004. As an alternative, the three networks could also apply to the Research Management Funds. Networks could not apply for RMF and the NCE second funding cycle at the same time. All three networks chose to apply for the 2006 Renewal Competition.

The NCE program follows a rigorous peer-review process to evaluate the full proposals against the five criteria of the program:

- ◆ Excellence of the Research Program
- ◆ Development of Highly Qualified Personnel
- ◆ Networking and Partnerships
- ◆ Knowledge and Technology Exchange and Exploitation
- ◆ Management of the Network

Criteria are detailed in Appendix I. The Committee's mandate and membership are provided in the other appendices.

Each proposal was also subjected to a review by an Expert Panel responsible for performing an in-depth evaluation of the strengths and weaknesses of the proposed network. Face-to-face visits by Expert Panels were conducted in May 2005. Full applications and individual Expert Panel reports were submitted to the Selection Committee and were used in elaborating on the final recommendation to the NCE Steering Committee. A renewing network compared to a proposal for a new network had to demonstrate tangible achievements, and a higher level of maturity, efficiency and excellence in relation to each of the program criterion.

Competition Process

March 31, 2004	Instructions and application forms available to the applicants.
August 3, 2004	Inform the NCE Directorate of the network's intention to apply for RMF or to 2 nd funding cycle.
April 5, 2005	Deadline for submission of the application including the network progress report and future strategic plan.
May 2005	Expert Panel reviews of each renewing group.
June 9, 2005	Meeting of the NCE Selection Committee to review the full applications and make final recommendations on funding to the NCE Steering Committee.
June 29, 2005	Meeting of the NCE Steering Committee to review funding recommendations of the NCE Selection Committee and make a final decision.
Early July 2005	Public announcement of awarded second funding cycle network.

NCE Selection Committee Funding Recommendations

The 2005 NCE Selection Committee identified the proposal that exceeds the threshold of excellence for the NCE Program. The NCE Selection Committee recommended support for the following network: Canadian Stroke Network (CSN)

Funding this network, now, is a high priority for Canada. This network is recommended for funding through the point of mid-term review during its Year 4 (2009-10). Amounts recommended in years 5 to 7 are subject to successful review in year 4 and will be the subject of a future submission.

CSN is lead by the Scientific Director, Dr. Antoine M. Hakim, and its administrative centre is located at the University of Ottawa (Host Institution).

Summary of the Network Recommended for Funding

CANADIAN STROKE NETWORK

The Canadian Stroke Network (CSN) is creating a blueprint to improve the quality of life and health of Canadians by bridging the gap between the results of the latest stroke research and current practice in most parts of the country. Called the Canadian Stroke Strategy, it was initiated after key stroke champions first came together at a national Stroke Summit organized by the CSN and Heart and Stroke Foundation (HSF). Drawing on experience from other stroke initiatives in Canada and around the world, the CSN, in partnership with HSF, is developing an innovative approach to raise stroke care standards on a national level. The Strategy includes public awareness, guidelines and standards, professional development, co-ordinated research, information sharing, and systems for tracking patient information to determine what works and what does not.

One way in which the Network and HSF will monitor the success of the Stroke Strategy is through a powerful research tool called the Registry of the Canadian Stroke Network. In only three years, the Registry has become one of the world's premier tools for measuring the delivery of stroke care, gathering information on over 10,000 stroke patients in 21 hospitals across Canada. The data produced by the Registry enables researchers to ask important questions about treatment, drugs, hospital stay, and recovery. Early data has already revealed specific opportunities for improvement within the health care system. For instance, 75% of stroke patients do not arrive at hospital within two hours of their stroke – the time window usually necessary to receive clot-busting treatment. Facts such as these are already being used to support and monitor the implementation and efficacy of other large-scale projects such as Ontario's Co ordinated Stroke Strategy.

In addition to influencing patient care, the CSN is having an impact on science at its most basic level by uncovering a major and previously unreported mechanism behind brain cell death in stroke. The research was done by Dr. Michael Tymianski, a neurosurgeon at Toronto Western Hospital, in collaboration with Dr. John MacDonald at the University of Toronto. Published in 2003 in *Cell*, the world's leading biological journal, these findings are expected to shift scientists' understanding of why strokes kill brain cells. The practical implications of Dr. Tymianski's research are obvious: in understanding brain cell death, there are new possibilities for alleviating the impact of a stroke. Producing a drug that could stop this lethal cascade of activity in the brain after a stroke could potentially limit damage. The CSN has provided start-up funding to a spinoff company that will investigate the development of new therapies.

With groundbreaking research and a dynamic strategy to battle stroke, the CSN is working hard to recruit more people into the field. The CSN is supporting 45 trainees from universities across Canada through the Focus on Stroke program and summer studentships. Sponsored in conjunction with CSN partners, this flagship training program encourages these new recruits through targeted training awards, including summer and graduate student awards, postdoctoral fellowships, and scholarships for new investigators. CSN trainees are also exposed to the entire spectrum of stroke research through the Network's annual general meeting, theme meetings, and the Summer Program in Neuroscience (SPIN) held at Memorial University in St. John's, Newfoundland.

APPENDIX I NCE PROGRAM CRITERIA

To ensure that the program objectives are met, proposals are assessed against the five criteria outlined below. A renewing network, as compared to a proposal for a new network, must demonstrate tangible achievements, and a higher level of maturity, efficiency and excellence in relation to each of the five NCE program criteria. Networks are also evaluated on an ongoing basis during the tenure of a grant against these same criteria. **A threshold of excellence must be exceeded for each criterion.** Research excellence is a necessary condition for the initial or continued funding of an NCE. It is not the sufficient condition, because the goals of the program are also reflected in the four additional criteria. The five program criteria are described below :

Excellence of the Research Program

- The excellence, focus and coherence of the research program;
- The achievements of the researchers and their ability to contribute to the research program;
- The value added by the network approach, in terms of the quality of the research and achievement of the goals that can be pursued;
- The extent to which the program will contribute to Canada's ability to lead in areas of research with a high economic and/or social impact;
- The extent to which new and emerging social and ethical issues, where relevant, will be addressed in the research program;
- The relationship of the research program to similar work conducted in Canada and abroad.

Development of Highly Qualified Personnel

- The ability to train and retain outstanding researchers in research areas and technologies critical to Canadian productivity, economic growth, public policy and quality of life;
- Training strategies that promote multidisciplinary and multisectoral research approaches and encourage trainees to consider the economic, social and ethical implications of their work.

Networking and Partnerships

- Effective research and technology development links between academic institutions, federal and provincial agencies, and private sector participants;
- Multidisciplinary, multisectoral approaches in the research program;
- Evidence that an effort has been made to include all suitably qualified groups;
- Optimization of resources through the sharing of equipment and research facilities, databases and personnel;
- Presence, nature and extent of contributions from the private sector and federal and provincial agencies, and prospects for increasing commitments as the work progresses.

Knowledge and Technology Exchange and Exploitation

- Likelihood that new products, processes or services can be commercialized by firms operating in Canada and that these will strengthen the Canadian industrial base, enhance productivity, and contribute to long-term economic growth and social benefits;
- Prospect for social innovation and the implementation of effective public policy through collaboration with the public sector;
- Effective collaboration with the private and public sectors in technology, market development and public policy development;

- The impact, or potential impact, on the partners' science and technology capabilities and practices;
- Effective management and protection of intellectual property resulting from network-funded research.

Management of the Network

Each network must possess an organizational structure appropriate for the management of the research and business functions of a complex multidisciplinary, multi-institutional program. These elements must include:

- a board and committee structure to ensure that appropriate policy and financial decisions are made and implemented;
- the presence of effective leadership and expertise in the research and the business management functions;
- effective research planning and budgeting mechanisms;
- effective internal and external communications strategies.

**APPENDIX II
TERMS OF REFERENCE FOR
THE NCE SELECTION COMMITTEE**

The Selection Committee is responsible for:

- Reviewing full applications and Expert Panel reports (June 2005);
- Drafting confidential evaluation reports for all full applications submitted in the 2006 Renewal Competition (June 2005);
- Transmitting to the NCE Steering Committee a list of network(s) recommended for funding (June 2005);
- Drafting the Chair's remarks and NCE Selection Committee recommendations to be included in the NCE Selection Committee's Public Report that provides the rationale for the recommendations along with a summary analysis of each application.

**APPENDIX III
MEMBERSHIP OF THE NCE SELECTION COMMITTEE**

Chair:

Dr. Camille Limoges, Consultant, Outremont , QC , Canada

Members:

Dr. John Clement, iCo Therapeutics Inc., BC , Canada

Dr. Terry Dick, University of Manitoba, MB, Canada

Dr. Cathy Garner, Boweham House, Lancaster, England

Dr. Peter Hackett, Alberta Ingenuity Fund, AB, Canada

Dr. Shoo Lee, University of British Columbia, BC, Canada

Dr. Tim Mosmann, University of Rochester Medical Center, NY , USA

Dr. Jane E. Pagel, Jaques Whitford Ltd , ON, Canada

Dr. Mark Rosenberg, Queen's University, ON, Canada

**APPENDIX IV
BIOGRAPHICAL NOTES
OF THE SELECTION COMMITTEE MEMBERS**

2006 NCE Selection Committee

Camille Limoges (Chair)

Dr. Limoges recently retired as Deputy Minister of Quebec's Ministère de la Recherche, de la Science et de la Technologie. His three decades of work, both as a scholar and a civil servant, has made an indelible mark on science and technology research. Well-known as a pioneer in the field of the history of science and technology in Quebec, Dr. Limoges founded the Institut d'histoire et de sociopolitique des sciences at the Université de Montréal in 1973. Ten years later, he became the Deputy Minister of Quebec's newly-created ministère de la Science et de la Technologie. Returning to academia in 1987, this time to the Université du Québec à Montréal, Dr. Limoges joined a multi-university team the Centre de recherche en évaluation sociale des technologies. Thereafter, he went on to found and serve as director of the Centre interuniversitaire de recherche sur la science et la technologie. He also served from 1989 to 1990 as President of ACFAS (Association canadienne-française pour l'avancement des sciences). In 1997, he became President of the Conseil de la science et de la technologie (CST) and in 2000 was appointed Deputy Minister for Research, Science and Technology. Limoges received his doctorate from the Sorbonne in 1968.

John Clement

Dr. Clement has founded iCo Therapeutics Inc. in February 2005, an ocular drug development company. He was previously Director of Business Development at QLT Inc. QLT Inc. is a global biopharmaceutical company dedicated to the discovery, development and commercialization of innovative therapies to treat cancer, eye diseases, dermatology and niche areas for which treatments can be marketed by a specialty sales force. Prior to joining QLT Inc, Dr. Clement worked for BioChem Pharma in Montreal as the Associate Director of Pharmacology and Toxicology and then the Director of Extramural Research, responsible for the external research program. He was also employed at Medical Countermeasures section of Defense Research and Development Canada and for Ciba-Geigy. His expertise includes pharmacology, toxicology and animal physiology. Dr. Clement has served as member of the 2003 and 2005 NCE Selection Committee.

Terry Dick

Dr. Dick has a Bachelor of Science in Forestry and a M.Sc. from the University of New Brunswick and a Ph.D. from the University of Toronto. He is currently a professor in the Department of Zoology University of Manitoba and a recent recipient of an NSERC Northern Research Chair in aquatic northern ecosystems dealing with freshwater and marine environments. Research over the years includes aquaculture, taxonomy, systematics, biogeography, ecology, immunology, cell and molecular biology. Recently research interests have become more interdisciplinary dealing with issues relating to human interactions with northern environments including conservation biology, ecosystem based management and developing and applying new technologies to assess perturbed and unperturbed environments. Dr. Dick's research in aquaculture focuses on the culture of new fish species such as Arctic char, yellow perch and lake sturgeon, the development of plant based fish feeds and use of waste heat in aquaculture.

Cathy Garner

Dr. Garner is currently Managing Director of Manchester: Knowledge Capital, which is a partnership initiative focused on maximising Manchester's position at the centre of the UK and global knowledge economy. Dr. Garner has a background in university-business links and academic technology transfer and extensive experience of urban regeneration, education and knowledge-based business development. Dr. Garner is a Board Trustee of MIHR (The Centre for the Management of Intellectual Property in Health Research and Development) and was the founding CEO of MIHR until 2004. The charity worked in promoting access to improved health in developing countries. Dr. Garner has extensive international experience of intellectual property management, technology transfer and the university-business interface having established and run the Research and Enterprise Office at the University of Glasgow in Scotland. She led the establishment of the Scottish Institute for Enterprise and was a founder director of the Scottish North American Business Council. She is a member of the Association of University Technology Managers (AUTM) in the USA and served as a Board Member for three years as their inaugural Vice President for International Relations. Her career includes eight years of policy and research management in the public sector. She has held senior management roles at the Housing Corporation in London and at Scottish Homes in Edinburgh where she established research and innovative policy initiatives. Her academic career focused on educational attainment, school effectiveness and the impact of deprivation on young people's life chances. Dr. Garner has acted as an advisor to the UK, Canada, Japan and South Africa on intellectual property matters and served on Ministerial reviews of Enterprise in Scotland. She has held numerous Board positions including voluntary service on the Glasgow Housing Association and the Irwell Valley Gold Service Evaluation Panel. She is a Fellow of the Royal Statistical Society of the UK.

Peter Hackett

New Alberta Ingenuity President and CEO, Dr. Hackett is an internationally recognized chemical physicist and research leader. He is the former Vice-President Research at the National Research Council of Canada (NRC) where his portfolio included biotechnologies, information and telecommunication technologies, manufacturing technologies, molecular sciences, and national measurement standards. Dr. Hackett has been active in promoting the importance of developing technologies for global human development and in championing the role that Canada could play. Dr. Hackett was the lead NRC executive behind the creation and design of the National Institute for Nanotechnology (NINT) at the University of Alberta. He is also a member of the Board and of the Executive Committee of iCORE (the Informatics Circle of Research Excellence), based in Calgary.

Shoo Lee

Dr. Lee is a neonatologist and health economist. He received his medical degree from the University of Singapore, completed paediatric training in Newfoundland, Canada, neonatal fellowship training at Boston's Children's Hospital, and received his PhD in Health Policy (Economics) from Harvard University. He is Director of the Centre for Healthcare Innovation and Improvement and Associate Professor of Paediatrics at the University of British Columbia, and recipient of the Aventis Pasteur Research Award from the Canadian Paediatric Society. He is Coordinator of the Canadian Neonatal Network, and has developed a national Canadian database to study outcomes and practice variations in the neonatal intensive care unit (NICU), develop models for healthcare improvement, and guide health policy. He patented risk prediction and health informatics systems for neonatal care and is currently developing models to facilitate translation of research and knowledge into clinical practice and health policy to improve quality of care. Dr. Lee has worked actively to develop health care and health training in developing countries and established a national neonatal fellowship training program in the People's Republic of China. He is Co-Chair of the British Columbia Health Services Research Network, a Steering Committee member of the Canadian Prenatal Surveillance System at Health Canada, and a member of the Foetus and Newborn Committee of the Canadian Paediatric Society. He serves on the Advisory Board of the Institute for Human Development, Child and Youth Health at the Canadian Institute of Health Research; the Technology Centre Advisory Board of the British Columbia Institute of Technology; the Research Advisory Committee of the

Michael Smith Foundation for Health Research; and the Scientific Steering Committee of the British Columbia Research Institute for Children's and Women's Health.

Tim Mosmann

Dr. Mosmann is currently Director at the David H. Smith Center for Vaccine Biology and Immunology, University of Rochester Medical Center. He obtained his Ph.D. degree at the University of British Columbia in 1973. After post-doctoral fellowships at Sick Children's Hospital in Toronto, and the University of Glasgow, he moved to Edmonton in 1977 to become principal investigator in the MRC group. In 1982, Dr. Mosmann moved to Palo Alto to join DNAX Research Institute, a start-up Biotechnology company. This company was set up to carry out discovery research in molecular biology and immunology, and was shortly thereafter acquired by Schering Plough, who maintained it as an institute for basic research. After eight years at DNAX, Dr. Mosmann returned to academic life in Canada, becoming Professor and Chair of the Department of Immunology at the University of Alberta, in Edmonton, where he has continued his research into T cell and cytokine regulation of immune responses. He has also been an International Research Scholar of the Howard Hughes Medical Institute from 1991 to 1998. In 1998, he moved to the University of Rochester as Director of the Center for vaccine biology and immunology. Dr. Mosmann has been a member of several Canadian and US granting agency committees such as CIHR and NIH, and also on the Scientific Advisory Boards of companies. He is a Fellow of the Royal Society of Canada, and holds several patents.

Jane E. Pagel

Dr. Pagel is Vice President of Government and Corporate Affairs and Principal with Jacques Whitford Ltd., Canada's largest private consulting engineering, environmental and earth sciences company with over 35 offices worldwide and over 1,000 employees. She has 30 years of broad technical, policy and management experience and is well recognized in the environment industry. She serves on a number of Boards and Councils, including the Prime Minister's Advisory Council on Science and Technology, Sustainable Development Technology Canada. Dr. Pagel also chairs the SDTC Board's Project Review Committee for the \$550 million funds allotted for the development and demonstration of climate change, air quality and environmental technologies related to water and soil. She is on the Board of Directors of Maxxam Analytics Inc. and the University of Toronto's Innovation Foundation and chairs the governance committees of both boards. Past projects have included a series of executive workshops at Ontario Power Generation on Sustainable Development and Decision-Making, and workshops on emerging trends and best practices in governance for the U.S. based Board of Directors of the Air and Waste Management Association. Previous industry positions included Vice President, Corporate and Government Affairs with Philip Services Corp., President of Zenon Environmental Laboratories, and head of the Environmental Sciences Department at the former Ontario Hydro. Previous government experience included a number of executive positions in the Ministry of the Environment and the Ministry of Colleges and Universities. Past board appointments include the Canadian Council of Human Resources in the Environment Industry (Eco-Canada), the Air and Waste Management Association Board and the Ontario Centre for Technology Advancement. Dr. Pagel holds a B.Sc., D.Bact. and M.Sc. in microbiology from the University of Toronto, and a Ph.D. from Columbia Pacific University's School of Administration and Management.

Mark W. Rosenberg

After teaching at the University of California at Los Angeles, the University of Ottawa and Carleton University, and working with Angus Reid and J. F. Hickling Management Consultants, Dr. Rosenberg joined Queen's University in 1985, in the Geography Department. He also taught in the School of Policy Studies. His major research interests are focused on women's health, the elderly population, persons with disabilities, and the organization of, and access to, health care and social services. Dr. Rosenberg is currently working on a 3-year study of the "geographies of volunteerism" and a 5-year study of the elderly population among Canada's First Nations. Both projects are funded by the Social

Sciences and Humanities Research Council of Canada (SSHRC). He has just completed a 4-year study entitled "Aging across Canada: Comparing Service Rich and Service Poor Communities" funded by the Canadian Institutes of Health Research. Dr. Rosenberg is currently the Editor-in-Chief of the Canadian Journal on Aging, Chairperson of the International Geographical Union Commission on Health and the Environment and is on the executives of the Canadian Association on Gerontology and the North American Regional Council of the International Association of Gerontology.