

The Stem Cell Network:

The Stem Cell Network is a non-profit corporation, established in 2001 and headquartered at the University of Ottawa. The Network brings together more than 70 leading scientists, clinicians, engineers, and ethicists from universities and hospitals across Canada with a mandate to investigate the immense therapeutic potential of stem cells for the treatment of diseases currently incurable by conventional approaches. The Stem Cell Network is one of Canada's Networks of Centres of Excellence funded through Industry Canada and its three granting councils.

Networks of Centres of Excellence:

Networks of Centres of Excellence are unique partnerships among universities, industry, government and not-for-profit organizations aimed at turning Canadian research and entrepreneurial talent into economic and social benefits for all Canadians. The NCE program is managed jointly by the three federal granting agencies – Science and Engineering Research Canada, the Canadian Institutes of Health Research, and the Social Sciences and Humanities Research Council – in partnership with Industry Canada.

For more information, please visit:

www.stemcellnetwork.ca
www.nce.gc.ca

Stem Cell Network



**Network of Centres
of Excellence**
**Réseaux de centres
d'excellence**

CATALYST

def.

1) an agent that **accelerates** the occurrence of an event. 2) a person or **group of people** that **precipitates change**.

MESSAGE FROM THE DIRECTORS



Judy Birdsell,
Chair, Board of Directors



Michael Rudnicki,
Scientific Director



Drew Lyall,
Executive Director

As the Stem Cell Network enters its fifth year we are – in everything we undertake – realizing our overarching goal: to be the catalyst for positive changes in Canadian life through advances in stem cell science.

It is what Canada's Networks of Centres of Excellence system is all about. Mobilizing multi-disciplinary approaches to find ways to make life better. Fostering collaboration at academic institutions and research centres across the country. Empowering partnerships between the brilliant people who do the research and the forward-thinking entrepreneurs who can transform that work into products and technology that will bring benefits to people.

It can be synthesized into two words: **to catalyze.**

In our specific area of endeavor, we have come to know that catalyzing is absolutely crucial. Advances in stem cell science seem to occur almost daily in Canada and around the world. Some represent incremental increases in knowledge; others are big steps forward. All of them are leading to eventual breakthroughs in how we treat disease. While we can use our accumulated knowledge to anticipate where to apply our resources most effectively, the simple truth is we can't know – no one can – where and when those breakthroughs will be.

But we do know that if we get the process right, by growing a network that enables great science to occur across a broad spectrum, we can accelerate the arrival of those breakthroughs. That's why we are catalyzing collaboration between the best minds in all aspects of stem cell science to hasten the development of regenerative medicine. That's why we are helping to develop a range of enabling technologies, methodologies and protocols that will assist all areas of research. That's why we are reaching out to industry to overcome obstacles that prevent these advances from becoming products and technologies that can enhance the quality of life.

In this Annual Report, we highlight some of the initiatives that show how the SCN is, more than ever, maximizing its catalyst role. Research work being done on the potential use of stem cells in therapies for stroke, diabetes, Parkinson's Disease, hemophilia, blindness and muscular dystrophy illustrates not just the wide range of activities in which the SCN is involved, but the even wider range of skills — from biologists and bioengineers to hematologists and neurosurgeons – we are bringing together to fight these diseases.

The Network has worked hard to encourage its member investigators to build stronger relationships with industry. Our "catalyst" grants are helping researchers leverage addi-

tional funding for their projects by lining up private sector partners. This allows them to not only delve deeper in their research but also to take the first steps towards creating a marketable product or technology derived from their work. It's good for science and good for business.

In fact, much has been achieved in the area of commercialization. The SCN's creation of Aggregate Therapeutics, a company that will bundle intellectual property from universities and hospitals into products and technologies capable of attracting investment, could change the way that biotech business is done in Canada. As these pages indicate, Aggregate Therapeutics is being heralded as an innovative way to do something that has, until now, hampered Canadian biotechnology: create the critical mass required for commercially viable products.

When the SCN began its work in 2001, we realized that integrating the efforts across the country was absolutely essential to push back the frontiers of stem cell knowledge. Having knocked down walls between Canadian researchers, we have begun to look beyond our borders to link our efforts to the best work being done in other countries. As explained in this report, the SCN has become the catalyst for international co-operation in stem cell research. By taking the leadership role to establish the International Consortium of Stem Cell Networks, the SCN has helped extend the concepts of collaboration and co-operation to the global level.

Finally, this past year also saw a change in leadership as Dr. Ron Worton followed through on his plans to retire as Scientific Director of the SCN. His remarkable enthusiasm, keen sense of science and inspirational integrity will be missed. However, the appointment of Dr. Michael Rudnicki, a senior SCN investigator and a leading international figure in molecular medicine, ensures a seamless transition in this key role.

Clearly, the SCN is positioned to not only continue its catalyst role, but also to build on it – to intensify its efforts to accelerate change. Given that stem cell science may hold the key to overcoming diseases for which there currently are no cures, it is a role we embrace.

“By catalyzing great work across a broad spectrum we can maximize the potential of stem cell science.”

CATALYZING COLLABORATION



Ivar Mendez, Halifax



Cindi Morshead, Toronto

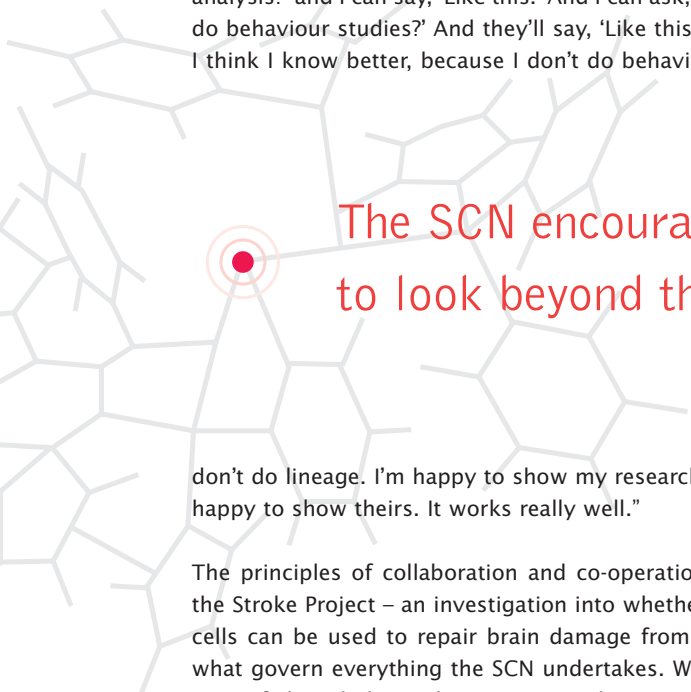


Leo Behie, Calgary



The SCN has always been about collaboration. It is animated by the belief that by bringing the best people together we can begin to solve some of the mysteries that have baffled science for far too long.

“We all have different areas of expertise,” says Dr. Cindi Morshead, who is working on the Stroke Project – a collaboration of researchers from the SCN and the Canadian Stroke Network in Toronto, Calgary, London, St. John’s, Halifax, Ottawa and Edmonton. The project is also supported by Stem Cell Therapeutics and the Canadian Institutes of Health Research. “Someone will say, ‘How do you do cell lineage analysis?’ and I can say, ‘Like this.’ And I can ask, ‘How do you do behaviour studies?’ And they’ll say, ‘Like this.’ It’s not like I think I know better, because I don’t do behaviour and they



The SCN encourages a wide range of brilliant researchers to look beyond the limits of their own laboratories.

don’t do lineage. I’m happy to show my research and they’re happy to show theirs. It works really well.”

The principles of collaboration and co-operation that guide the Stroke Project – an investigation into whether adult stem cells can be used to repair brain damage from stroke – are what govern everything the SCN undertakes. We believe the sum of the whole is always greater than its parts. So, we enable dedicated scientists from disparate disciplines to work together. Empower them to look beyond the limits of their own labs. Encourage them to set goals. In so doing, we create scientific synergies.

A case in point: the groundbreaking work on Parkinson’s Disease by Dr. Ivar Mendez, Halifax neurosurgeon and SCN investigator. Dr. Mendez is transplanting neural stem cells into animals – a precursor to human clinical tests. The stem cells he uses were in very short supply until recently. That’s when Calgary’s Dr. Leo Behie, a bioengineer, found a way to expand their populations in computer-controlled bioreactors. And suddenly a cure for Parkinson’s doesn’t seem so far away.

“The ultimate goal is to cure people,” says Dr. Mendez. “We are in that age. Canada has a wonderful opportunity to be leading the world in this. We are uncovering all the necessary pieces to effectively treat Parkinson’s with stem cells. Those pieces need to come together; we need to work together. But we have all the expertise necessary and

we have the individuals who are not only dedicated and committed but also passionate about what they are doing.”

Creative collaboration is also at work in the fight against hemophilia. Dr. David Lillicrap, an SCN investigator at Queen’s University in Kingston, leads a team trying to make life better for people who struggle with this debilitating disease.

“At the moment hemophilia is treatable by infusing the missing clotting-factor protein,” explains Dr. Lillicrap, who works closely with Dr. Jacques Galipeau, an assistant professor at McGill University and clinical hematologist at the Montreal Jewish General Hospital. “But that has to be done multiple times a year. Severe hemophiliacs typically treat themselves somewhere in

the region of 100 to 150 times a year by intravenous injection. The goal here is to give back genetically modified autologous cells that would secrete the clotting protein for an extended period of time. Even if we had to replace those cells after a year, it would still be an enormous benefit.”

Again, collaboration is the key. “One of the great things about the Network is the opportunity to establish synergistic interactions with people from very different backgrounds. The group of researchers we’re planning to work with includes people with experience in lentiviral vectors (a type of retrovirus known to be highly effective in gene transfer), stem cell biology and biomaterials. Clearly none of us as individual scientists has that collection of expertise.”

Fresh ideas, of course, require fresh young minds. While great work is being done now, it will be carried forward by the next wave of stem cell scientists. Currently, 159 trainees are receiving financial support to work on projects with the SCN’s 70 active researchers. They participate in workshops, seminars and exchanges. “There are techniques that we would like to implement in the lab that we haven’t actually set up yet,” says Dr. Carol Schuurmans, an assistant professor at University of

Calgary, who recently joined the SCN as an investigator. “To be able to send a student to one of the labs where they are doing this routinely so she can bring the technology back to our lab, that will be very beneficial.”

Those benefits flow both ways. “We have new investigators in the SCN who are young and very bright,” says Dr. Mendez. “These people bring new ideas and, while they benefit from the collaboration from senior guys like us, we need these bright minds to continue to progress.”

THE SCN BY THE NUMBERS

73 member researchers

159 trainees supported at least in part by Network funding

526 total publications:

- **235 refereed/peer-reviewed publications**
- **41 non-refereed publications (e.g. books, book chapters, encyclopedias, conference presentations)**
- **250 specialized publications (e.g. conference presentations)**

Researchers and trainees are located in 23 institutions across Canada



Carol Schuurmans, Calgary

One of the great things about the Network is the opportunity to establish synergistic interactions with people from very different backgrounds.

CATALYZING PARTNERSHIPS



Tim Kieffer, Vancouver



Lynn Megeney, Ottawa

Being innovative is one thing. Bringing innovation out of the laboratory and into the marketplace to solve problems is another.

As a member of the Networks of Centres of Excellence, the SCN exists to transform innovative research into social and economic benefit. While advancing knowledge is vitally important, to improve the quality of life we need to transform academic advances into real-world applications. And we can't do this alone. It takes partners.

"The SCN was a catalyst for me to start thinking about partnerships," says Dr. Timothy Kieffer, an SCN investigator and associate professor at the University of British Columbia who has shown that stem cells in the gut have the potential to become the pancreatic, insulin-producing beta cells that



By bringing researchers and biotech businesses together we can go further, faster in finding new therapies.

diabetics lack. Dr. Kieffer recently received an SCN catalyst grant to do more research on gut cells. His SCN money will be matched dollar for dollar by LifeScan, Inc., a subsidiary of Johnson & Johnson. It will allow him to go further, faster in this important work.

"I've become increasingly aware that for a product to come out of academic research it is critical, if not mandatory, to develop a partnership," says Dr. Kieffer. "An academic institution is never going to have the resources to do clinical trials, which can cost millions and millions of dollars. At some point a product is going to have to pass from academia to the pharmaceutical industry. Having a potential partner already interested in that line of investigation is a promising step."

What's at stake here is a potential therapy to relieve diabetics of having to inject insulin for their entire lives. That's why partnerships are so important, says Dr. Kieffer.

"We know diabetics are waiting patiently for us to come up with something better. The more resources we can bring to bear on the problem, the quicker we can get there. Having LifeScan involved in this effort means we've got someone interested who has a big knowledge base and a lot of resources to bring to bear on this problem and help us achieve our goal sooner."

"Cell therapies offer the hope that one day diabetes can be cured," says Dr. Mark Zimmerman, Executive Director of LifeScan. "LifeScan is proud to be affiliated with the Stem Cell Network and the University of British Columbia in this quest."

Dr. Leo Behie, SCN investigator and professor at the University of Calgary, puts it another way: partnering with private industry has the potential to save taxpayers huge amounts of money and ease the financial strain on Canadian health care.

"The idea that stem cells are going to lead to solutions for major diseases that have no cure – it's not hype. It's coming," says Dr. Behie. "Diseases like Parkinson's and Type 1 Diabetes, these cost our health-care system billions of dollars. So, the financial implications are enormous. Companies have to get involved because professors do not make good company people and good corporate decisions."

Dr. Behie is an early adapter of the partnership principle, having established business relationships between his lab and StemCell Technologies of Vancouver and Invitrogen. “I’m not in it for the money. I’m a professor and I have a Canada Research Chair in biomedical engineering, so my life is research. These are commercial companies, not philanthropic institutions, and the bottom line is they have to make money. We’re helping them make money and, at the same time, do good in terms of addressing terrible diseases.”

From the industry point of view, collaboration with SCN creates opportunities.

“It was at a Stem Cell Network annual general meeting where we found out about Dr. Behie’s technology,” says Eric Atkinson, Manager of Marketing and Corporate Development for StemCell Technologies. “There is so much expertise here in Canada, we need to be forming partnerships and collaborations with the best people in the various areas to expand our own knowledge and expertise. The future looks good. The area of stem cell biology and research is totally exploding, which is going to make the relationships we have developed through the Stem Cell Network even more important.”

Dr. David Lillicrap, a SCN investigator at Queen’s University, has a relationship with Bayer Canada Inc. that goes back to before the Network was even established. However, the SCN has helped him strengthen that bond as he and a team of investigators move closer to a stem cell-based approach for gene therapy of hemophilia.

“The involvement of the SCN and the other investigators, and the interaction with Bayer has been absolutely critical to us being able to move this project ahead and hopefully look at the potential of getting into the clinic within the next four to six years.”

Dr. Bernard Chiasson, Director of Scientific Development, Biological Products at Bayer HealthCare, Canada, says his company is proud to be associated with such interesting research.

“Bayer recognizes and supports that novel strategies for hemophilia treatment must continue to undergo development,” says Dr. Chiasson. “Through the Canadian Bayer/Canadian Blood Services/Héma-Québec Partnership Fund and the International Bayer Hemophilia Awards Competition, we have had the opportunity to formally review the studies that are proposed by Dr. Lillicrap and Dr. Galipeau. Suffice it to say that the proposed work by these two clinicians represents cutting-edge science for the development of new therapeutic options for the hemophilia community.”

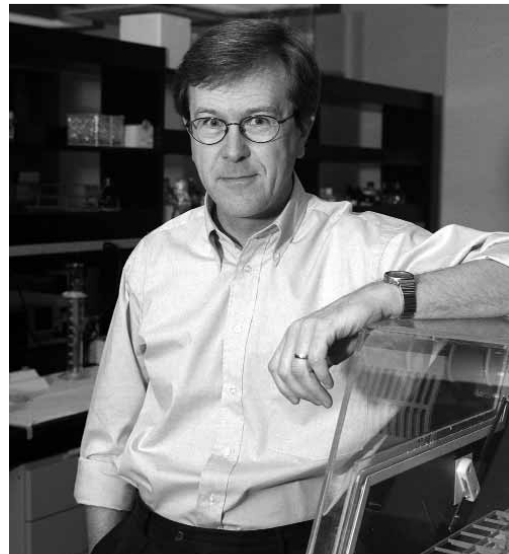
“The SCN was a catalyst for me to start thinking about partnerships.”

Dr. Timothy Kieffer, SCN investigator and associate professor at the University of British Columbia

This is cutting-edge science
for the development of new
therapies for hemophilia.



Jacques Galipeau, Montreal

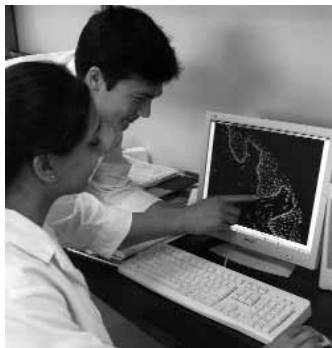


David Lillicrap, Kingston

CATALYZING COMMERCIALIZATION



Jeff Dilworth, Ottawa



The Stem Cell Network's mandate is to maximize the potential of stem cell science. To find ways to make best use of those breakthroughs to cure diseases and – in the process – create economic benefits for all Canadians by helping build a strong biotech industry in Canada. To catalyze commercialization.

We have not taken on an easy task. While the eventual economic impact of regenerative medicine is immense, front-end investment has been difficult to develop given that investors, naturally enough, want to see short- and medium-term returns. That's why the field of biotechnology is littered with once-promising start-ups that failed to find financing to take their innovations forward. And that's how, until now, opportunities have been lost.



A bold new approach for commercializing stem cell science could become a model for Canada to build other technologies.

“Attempts have been made at commercializing science in fragmented ways,” says Frank Gleeson, President of The Williamson Group (TWG) and member of the SCN Board of Directors. “A piece of science moves forward with hopes that somehow – magically or with great effort – it will transform into something that has a great application. In the area of stem cells in particular there will be a great need for complementary elements of science to be brought together. Multiple patents may be needed to advance a therapeutic modality because no one scientist or institution is likely to have all the pieces of the puzzle.”

What's needed is a brand new model, an entrepreneurial effort equal to our scientific successes. We believe we have it in Aggregate Therapeutics, the most innovative effort to commercialize university and hospital based research ever attempted in Canada.

A company created by the SCN, Aggregate Therapeutics will gather intellectual property from institutions across Canada, add value to it over a period of three to five years, secure investment and then spin it off into the marketplace. A bold move to improve investment in Canadian biotechnology by helping transform important research into life-saving products and protocols, Aggregate Therapeutics has the power to change how we do business in Canada.

“It could be a model for other technologies that we're trying to get off the ground and build from a Canadian base,” says David Brenner, Director of Research Translation Programs for the Canadian Institutes of Health Research. “I could just see this applying to many frustration points along the path that Canada has experienced as a country.”

With agreements in place with eight key research institutions across Canada, Aggregate Therapeutics will serve as an incubator, helping accelerate the development of stem cell therapies and technologies from early investigation and

animal-model testing to the clinical-trial stage. Robert Main, Senior Director of Life Sciences Branch for Industry Canada, sees this process as a potential solution to a problem that has plagued biotechnology.

"To get to a product that is useable and saleable requires contributions from a variety of areas," says Mr. Main. "A single discovery, a single patent isn't likely to add up to a product. Basically, a variety of different products from various research efforts need to be combined to come up with a single product. Pulling all of that together was one of the interesting challenges. The fact that they (the SCN) were able to get a whole string of universities and principal investigators to all agree to pool their intellectual property to try to achieve something that none of them could achieve on their own was a really interesting step."

It also means scientists who need to refine their research for commercial application won't be left without sources for funding, says Angus Livingstone, Managing Director of the University-Industry Liaison Office at the University of British Columbia. "As they get into the later stages, it is very difficult for researchers to get funding," says Mr. Livingstone. "Research funding tends to be peer-reviewed for generating new knowledge. So they say: 'We fund research not development.' This will give researchers the initiative to follow through to the next stage and will provide access to funding to allow that to happen. It's pre-commercialization."

"Aggregate Therapeutics is a good thing for the country in developing its stem cell potential. The stem cell area is a difficult area to commercialize and it is early days, so the creation of Aggregate, coupled with the agreement of a series of universities to pool their intellectual property is a very welcome development."

Dr. Brian Underdown, Managing Director of Technology Investing for MDS Capital Corp.

Brant Popp, Director General of Policy for Western Economic Diversification, says that while stem cell research "has a tremendous upside," there has been an absence of models until now.

"You've got an organization in the Stem Cell Network that has demonstrated through this initiative an incredible dedication and commitment to the commercialization of research," says Mr. Popp. "Aggregate Therapeutics is an extremely innovative approach to facilitating technology commercialization in one of the largest growth-potential sectors in Canada. We're very supportive of what they're doing."

Where others saw a problem, the SCN saw an opportunity. A challenge to be overcome. In taking that challenge on, we may well be making history. Ultimately, though, the big winners will be Canadians. Their investment in stem cell research will not only pay an economic dividend, it will save lives and enhance health. "The real goal of the commercialization effort is to develop and translate research into products that can go to people and help patients," says, Dr. Annemarie Moseley, Acting CEO of Aggregate Therapeutics. "This is a unifying theme."

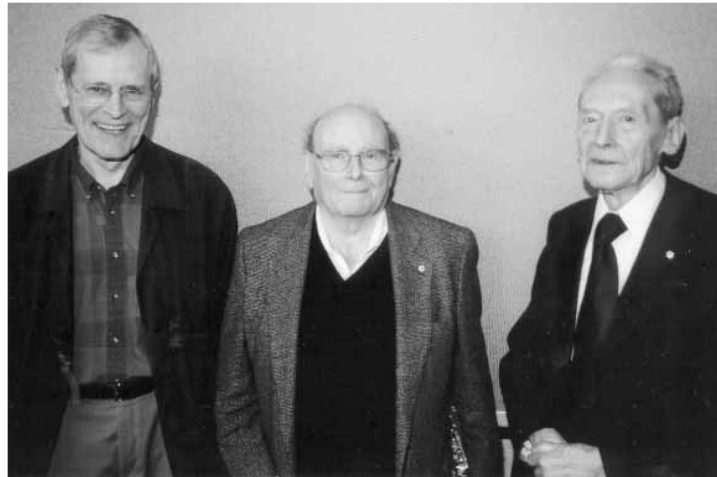


To get to a product that is useable and saleable requires contributions from a variety of areas.

CATALYZING GLOBAL CO-OPERATION



Janet Rossant, Toronto



James Till, Ernest McCulloch, C.P. Leblond



**International Ethics
Working Group**

In the world of stem cell science, Canada is a leader.

It was two Canadians – Drs. James E. Till and Ernest McCulloch – who proved the existence of stem cells more than 40 years ago. If we had not taken another single step forward, Canada still would deserve a place in modern medical history. We also would be spectators, watching as molecular medicine moves ever closer to finding a cure for Parkinson's, muscular dystrophy, diabetes and other afflictions that have, until now, stymied science.

But Canadians are a curious breed: we want to know more. It was our researchers who made many of the groundbreaking gains after the Till and McCulloch breakthrough, authoring half the pivotal papers of stem cell science in the last half

Being first, however, is not nearly enough. Just as stem cell science traverses many disciplines, it also knows no borders. Work done in Edmonton is being advanced in Edinburgh. New protocols in Melbourne impact on Montréal. Finding future life-saving therapies likely will require co-operation from many countries pooling their intellectual property and trading their technology.

The SCN's global effort grew out of work done by the International Stem Cell Forum, an organization founded in 2003 and comprised of some of the world's most advanced research-funding agencies, including the Canadian Institutes of Health Research. Among its first acts, the Forum created a working group to develop standardized criteria for deriving, characterizing and maintaining stem cell lines. Dr. Janet Rossant,



The SCN has leveraged Canada's role as a scientific pioneer to lead an international effort to defeat degenerative diseases.

of the 20th century, according to a report in *Nature Immunology*. It was this work that, in 2001, led to the creation of the Stem Cell Network – the first organization of its kind in the world. The Networks of Centres of Excellence realized the need to pull together the outstanding efforts of scientists from St. John's to Victoria. To catalyze and co-ordinate the development of regenerative medicine across Canada. That's why our basic biologists are now collaborating with physicians and neurosurgeons are partnering up with bio-engineers to defeat degenerative diseases.

"It's been a great role model for us," says Dr. Marilyn Moore, Co-ordinator of the Scottish Stem Cell Network. "We were about two or three years behind the Canadian network. It has been a great inspiration and help for us in establishing our network."

the SCN's Deputy Scientific Director, is on the steering committee for the critically important characterization initiative.

"The goal here is to register all established human embryonic stem cell lines around the world and develop baseline data on the characteristics of those lines," says Dr. Rossant. "That's going to be incredibly important in moving forward towards therapeutic output."

Similarly important is research into ethics and, in this area, Canada has again taken a leading role. "We have gone so far that it has put us at the forefront," says the SCN's Rosario Isasi. An attorney specializing in health and human rights, Ms. Isasi is academic secretary to the Stem Cell Forum's Ethics Working Group, while Dr. Bartha Maria Knoppers, a senior researcher at the Centre de recherche en droit public at the

Université de Montréal, is the chair. Dr. Knoppers also leads the SCN's research in ethical, legal, social and policy issues.

"We have prepared a compendium of the regulations of 50 countries on embryonic stem cell research," says Isasi, who has made presentations on her research to the United Nations and medical/scientific agencies around the world. "We're the only ones, I'm proud to say, who have done such a comprehensive study. It took us over three years to complete, growing out of work we did with the SCN, and it's up to date – right up to yesterday."

More collaboration and co-operation is in the works. There is a clear need for an international approach to accelerate therapeutics by avoiding duplication of efforts and building on each other's successes. The SCN envisages a time – in the very near future – when stem cell scientists engage in multi-country research projects and actively cross-pollinate their expertise through international exchange programs.

As an outgrowth of the Stem Cell Forum's activities, it made sense for stem cell networks around the world to work more closely together. In 2004, the SCN led the way to the creation of the International Consortium of Stem Cell Networks – in essence, a network of networks – to link research organizations in Australia, Canada, Israel, Norway, Sweden, Germany, the UK, Denmark and Switzerland. At a meeting organized by the SCN, representatives hammered out the Montreal Declaration to begin the process of integrating international efforts.

"Montreal was the first time that you got all the big guys from all around the world sitting at a table together agreeing they needed to work together instead of in competition with each other. It's very important," says the Scottish Stem Cell Network's Dr. Moore.

"There is so much expertise that if we combine our efforts it will move forward much more quickly," says Dr. Dianna DeVore, Chief Operating Officer of the Australian Stem Cell Centre. "The SCN has helped to organize the international effort and make sure that it stays focused. They really kick-started the whole thing."

The International Consortium, co-chaired by SCN Scientific Director Dr. Michael Rudnicki, is tackling issues of concern to stem cell scientists around the globe. One thing is certain: Canada, through the SCN, will play a leading role.

“Canada’s Stem Cell Network started all of this and fostered the international effort. It’s been an organizational leadership role, a commitment to see this through and make sure things are implemented. It’s very easy to have a vision and it’s very easy to start things. To actually implement them and make something concrete happen is more difficult. They have shown a commitment to do that.”

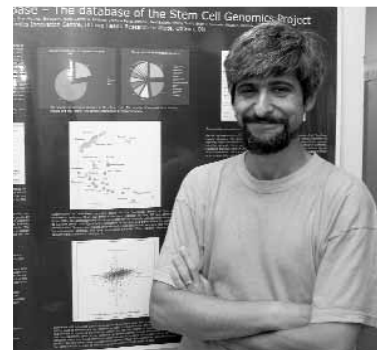
Dr. Dianna DeVore
Chief Operating Officer,
Australian Stem Cell Centre



Rosario Isasi, *Montreal*

We're the only ones who have done such a comprehensive study of international regulations.

CATALYZING COMMUNICATION



Miguel Andrade, Ottawa



Training Advisory Committee

The Stem Cell Network has never limited itself to the lab. While our research scientists have toiled to unlock the secrets of these cells that have the potential to regenerate failing organs and restore tissue, our ethicists and social policy experts have been just as hard at work advancing the public's understanding of this complex and sometimes controversial area of science. They have catalyzed dialogue and identified new areas of study.

In fact, the SCN has been Canada's leading proponent for an open, informed, and intelligent debate on all aspects of stem cell science. We have done it by supplying the public and politicians with science-based information to decide the ethical issues surrounding the use of embryonic stem cells to



The SCN advances the public's understanding of stem cells by ensuring an open, informed and intelligent debate.

battle disease. We continue do it by addressing issues of public concern in a well-reasoned, thoughtful way.

"We get inquiries on a daily basis about stem cell research," says Sharon Colle, National Executive Director of the Foundation Fighting Blindness – Canada. "It's very important to us that we provide accurate information. We do not want to inflate expectations or create false hope, but we want to tell our constituents that we are very optimistic about the future."

To help that happen the SCN created and maintains a Web sub-site for the Foundation – a service we provide for several disease-fighting charities – so that visitors to their website can access up-to-date developments in stem cell research

applicable to that disease. "The people who visit our website are knowledge-hungry," says Ms. Colle. "We appreciate that the sub-site provides a terrific portal to give accurate, timely information regarding stem cell research to our donors, vision researchers and patients alike."

A key concern for expectant parents is whether they should arrange to store their baby's umbilical cord blood. Storing the blood for later use should the child develop a blood-borne disease such as leukemia is a highly emotional decision and a potentially expensive one. While few parents choose to store the cord blood in either the three public banks or half-dozen private ones, many anguish over it.

"The question really is, are parents being unduly coerced into making the decision to bank cord blood without the appropriate scientific justification for doing that," says the SCN's Lori Sheremeta, a research associate at the University of Alberta's Health Law Institute.

Ms. Sheremeta presented a paper at the SCN's 2004 annual meeting suggesting that cord blood banks be federally regulated and monitored for compliance. Her work helped meet the public's need for unbiased information. "The SCN has a unique opportunity here, given the critical mass of researchers and people like me to develop the scientific research and do the information-providing," says Ms. Sheremeta. "Because there really is no place for people to go, other than the websites of individual (cord blood) banks."

The Stem Cell Network catalyzed a research project involving all major public and private sector stakeholders to examine the business case and rationale for establishing a public cord blood bank.

The SCN is also active in Canada's schools, helping to inform the next generation about the possibilities of stem cell science. Through a partnership with Let's Talk Science, a not-for-profit organization working to improve science literacy, the SCN distributes thousands of copies of the ENGAGE: Stem Cells kit to high school students across the country.

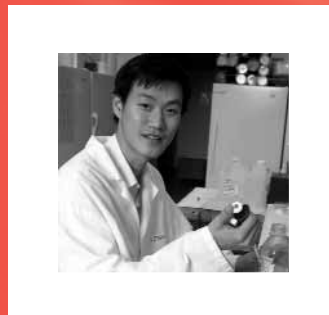
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Dr. Marilyn Moore,
Co-ordinator of the Scottish
Stem Cell Network.

A teaching module that balances the science behind stem cell research with the ethical/religious issues that surround it, ENGAGE: Stem Cells was funded by Genome Canada and developed by the University of Toronto's Joint Centre for Bioethics, with the SCN supplying the scientific content and building and maintaining the website that accompanies in-class instruction. This approach is having an international impact: Germany and Israel are customizing the curriculum for their particular legislative environments. And the Joint Centre for Bioethics is now working with another NCE – the Advanced Foods and Materials Network – to develop a similar high-school curriculum package, looking at ethical issues around genetically modified foods.

“The Stem Cell Network is a great resource for us,” says Sue McKee, National Partnership Program Coordinator for Let's Talk Science. Beyond supplying the kits, the SCN assists the Let's Talk Science program by making scientists available to go into high schools to talk to the students. “It's a great resource in being able to offer a teacher that level of expertise.”

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The Network Community

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The Foundation Fighting Blindness

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University of Calgary

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Office, University of British Columbia

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Development Office, B.C. Cancer Agency

Stuart Howe, Director, Technology
Transfer Research Institute,
Hospital for Sick Children

Kevin McDuffie, Business Development,
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John Wallenburg, Officer & Life Sciences
Group Manager, Office of Technology
Transfer, McGill University

Eileen McGregor, Technology
Transfer and Business Development,
Ottawa Health Research Institute

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Business Development,
Robarts Research Institute

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University of Calgary

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and Manager – Research Contracts,
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Toronto

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Keith Humphries
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Guy Sauvageau

Lawson Health Research Institute

David Hill

McGill University

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C.P. Leblond
Makoto Nagano
Lawrence Rosenberg

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Andras Nagy

University Health Network

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Ottawa Health Research Institute

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Robarts Research Institute

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Sunnybrook and Women's College Health Sciences Centre

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Vince Tropepe
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Peter Zandstra

University of Waterloo

Eric Jervis

Collaborating Institutions

Australia

University of Sydney
University of Wollongong

Canada

Concordia University
Dalhousie University
McGill University
McLaughlin Centre for Molecular
Medicine
McMaster University
Memorial University of Newfoundland
Queen's University
Université de Montréal
Université du Québec à Rimouski
Université Laval
University of Alberta
University of British Columbia
University of Calgary
University of Lethbridge

University of Ottawa
University of Toronto
University of Victoria
University of Waterloo
University of Western Ontario

Germany

University of Regensburg

United Kingdom

Lancaster University
University of Manchester

United States

Arizona State University
Case Western Reserve University
Indiana University
University of Michigan
University of Minnesota

Industry

Aegera
Affymetrix
Bayer
Biomedical Photometrics Inc.
Borden, Ladner, Gervais LLP
Cambrex
Cangene
Cellgene
Cells for Life
Chromos Molecular Systems
Cogene Biotech Ventures
Coopervision
Cormex Research
Deloitte Touche
Epistem
Ernst & Young
Hindle & Associates
InSception BioSciences
Invitrogen
Lifebank
Lifescan/Johnson&Johnson
Millenium Biologix
Miltenyi Biotech
Northern Therapeutics
On Management Ltd.
Osler Hoskin & Harcourt
Q-Biogene
Smart & Biggar
StemCell Technologies Inc.

Stem Cell Therapeutics
The Williamson Group
Visualsonics

Government

Atlantic Innovation Fund/Brain
Repair Centre
Centre for Economic Development-
Quebec
Health Canada
Industry Canada - Life Sciences Branch
National Institutes of Health
National Research Council of Canada -
Biotechnology Research Institute
National Research Council of Canada -
Institute for Chemical Process and
Environmental Technology
Western Economic Diversification

Provincial departments and agencies

Alberta Heritage Foundation
Ontario Innovation Trust
Ontario Ministry of Economic
Development
Ontario Research and Development
Challenge Fund

Others

Amyotrophic Lateral Sclerosis -
ALS Society of Canada
Australian Stem Cell Centre
Biotechnology & Biological Sciences
Research Council (UK)/Sheffield Univ
British Columbia Cancer Agency
British High Commission
Canada - Israel Industrial Research
Foundation
Canadian Blood Services/Alberta
Cord Bank
Canadian Bone Marrow Transplant
Group
Canadian Diabetes Association
Canadian Institutes of Health Research
Canadian Science Writers Association
Canadian Stroke Network
Centre de recherche en droit public
Clinical Research Institute of Montréal
Foundation Fighting Blindness (Canada)

Foundation for Accreditation of
Cellular Therapy
Heart & Stroke Foundation of Canada
Heart & Stroke Foundation of Ontario
Hema-Quebec
International Stem Cell Initiative
(Sheffield Univ)
International Society of Stem Cell
Research
Israeli Stem Cell Consortium
James Fund
Japan Phoenix
Jesse's Journey
Juvenile Diabetes Research Foundation
Lady Davis Institute for Medical
Research
Law Commission of Canada
Lawson Health Research Institute
Let's Talk Science
Leukemia/BMT Program of British
Columbia
MaRS/Genome Canada
Mount Sinai Hospital
Muscular Dystrophy Canada
National Cancer Institute of Canada
National Institute of Neurological
Disorders and Stroke
Ottawa Health Research Institute
Parkinson's Society of Canada
Parthenon Trust
Salman Partners Inc.
Scottish Stem Cell Network
Sir Mortimer B. Davis Jewish General
Hospital
Society of Obstetricians and
Gynecologists
Stem Cell Network North Rhine
Westphalia
Sunnybrook and Women's College
Health Sciences Centre
The Hospital for Sick Children
The John P. Robarts Research Institute
University Health Network

Financial Statements

Stem Cell Network/Réseau de cellules souches

March 31, 2005

AUDITORS' REPORT

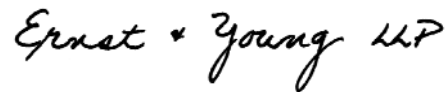
To the Directors of the
Stem Cell Network/Réseau de cellules souches

We have audited the statement of financial position of the **Stem Cell Network/Réseau de cellules souches** as at March 31, 2005 and the statements of operations, changes in net assets and cash flows for the year then ended. These financial statements are the responsibility of the Network's management. Our responsibility is to express an opinion on these financial statements based on our audit.

We conducted our audit in accordance with Canadian generally accepted auditing standards. Those standards require that we plan and perform an audit to obtain reasonable assurance whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation.

In our opinion, these financial statements present fairly, in all material respects, the financial position of the Network as at March 31, 2005 and the results of its operations and its cash flows for the year then ended in accordance with Canadian generally accepted accounting principles.

Ottawa, Canada,
May 19, 2005.



Chartered Accountants

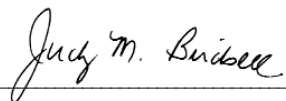
STATEMENT OF FINANCIAL POSITION

As at March 31

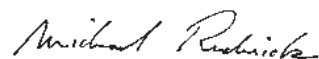
	2005	2004
	\$	\$
ASSETS		
Current		
Cash	986,245	2,916,056
Grant receivable	874,250	580,000
Other receivables <i>[note 5]</i>	32,425	20,332
Prepaid research	35,000	—
Prepaid expenses	50,554	109,022
Total current assets	1,978,474	3,625,410
Capital assets <i>[notes 3 and 5]</i>	45,260	40,277
	2,023,734	3,665,687
LIABILITIES AND NET ASSETS		
Current		
Accounts payable and accrued liabilities <i>[note 5]</i>	182,199	76,867
Research commitments payable <i>[note 5]</i>	107,500	358,176
Contributions received in advance <i>[notes 4 and 6]</i>	1,472,935	3,094,495
Current portion of deferred capital contribution	15,800	15,800
Current portion of lease obligations <i>[note 7]</i>	3,362	—
Total current liabilities	1,781,796	3,545,338
Lease obligations <i>[note 7]</i>	15,085	—
Deferred capital contribution	—	15,800
	1,796,881	3,561,138
Commitments <i>[note 4]</i>		
Net assets		
Invested in capital assets	29,460	8,677
Unrestricted	197,393	95,872
Total net assets	226,853	104,549
	2,023,734	3,665,687

See accompanying notes

On behalf of the Board:



Director



Director

STATEMENT OF OPERATIONS

Year ended March 31

	2005	2004
	\$	\$
REVENUES		
Network Centres of Excellence grant <i>[note 6]</i>	6,924,644	6,095,639
Other research grants	348,145	—
Contributions to commercialization pilot	101,522	—
Services in-kind <i>[note 5]</i>	54,276	65,580
Other contributions	120,644	91,354
Deferred capital contribution recognized	15,800	15,800
Interest	5,181	3,650
	7,570,212	6,272,023
EXPENSES <i>[note 5]</i>		
Research grants	5,944,665	4,923,348
Salaries and benefits	552,891	575,172
Conferences, seminars and meetings	452,034	377,966
Commercialization pilot	251,147	113,220
General and administration	98,146	76,173
Communications	83,817	69,258
Professional and consulting fees	42,185	35,004
Amortization of capital assets	23,023	25,635
	7,447,908	6,195,776
Excess of revenues over expenses for the year	122,304	76,247

See accompanying notes

STATEMENT OF CHANGES IN NET ASSETS

Year ended March 31

	Invested in Capital Assets	Unrestricted	2005 Total	2004 Total
	\$	\$	\$	\$
Net assets, beginning of year	8,677	95,872	104,549	28,302
Excess of revenue over expenses	(7,223)	129,527	122,304	76,247
Investment in capital assets	28,006	(28,006)	—	—
Net assets, end of year	29,460	197,393	226,853	104,549

See accompanying notes

STATEMENT OF CASH FLOWS

Year ended March 31

	2005	2004
	\$	\$
OPERATING ACTIVITIES		
Excess of revenue over expenses	122,304	76,247
Amortization of assets not involving cash	23,023	25,635
Deferred capital contribution recognized	(15,800)	(15,800)
Decrease (increase) in other receivables	(12,093)	73,303
Decrease (increase) in grant receivable	(294,250)	640,049
Decrease (increase) in prepaid research	(35,000)	133,466
Decrease (increase) in prepaid expenses	58,468	(103,702)
Increase (decrease) in accounts payable and accrued liabilities	105,332	(836)
Increase (decrease) in research commitments payable	(250,676)	348,176
Increase (decrease) in contributions received in advance	(1,621,560)	(1,340,639)
Cash used in operating activities	(1,920,252)	(164,101)
INVESTING ACTIVITIES		
Net capital asset acquisitions	(9,286)	(2,028)
Cash used in investing activities	(9,286)	(2,028)
FINANCING ACTIVITIES		
Payment on lease obligations	(273)	—
Cash provided by financing activities	(273)	—
Net decrease in cash and cash equivalents	(1,929,811)	(166,129)
Cash and cash equivalents at beginning of year	2,916,056	3,082,185
Cash and cash equivalents at end of year	986,245	2,916,056
Supplemental disclosure		
Assets acquired through capital leases	18,720	—

See accompanying notes

1. GENERAL

The Stem Cell Network/Réseau de cellules souches [the “Network”] brings together more than fifty leading Canadian scientists, clinicians, engineers, and ethicists, with the mandate to investigate the immense therapeutic potential of stem cells for the treatment of diseases currently incurable by conventional approaches.

It is one of Canada’s twenty-one Network Centres of Excellence [“NCE”]. The NCE program is administered and funded by the Natural Sciences and Engineering Research Council [“NSERC”], the Canadian Institute of Health Research [“CIHR”], and the Social Sciences and Humanities Research Council [“SSHRC”], in partnership with Industry Canada. The goal of the federal NCE program is to mobilize Canada’s research talent in universities, industry and government to create new economy jobs, stimulate growth and improve the quality of life for Canadians.

The Network research programs are focused on four areas: the ethical, legal and social implications of stem cell research; basic stem cell biology; bioengineering of stem cells; and clinical applications.

The Network has been approved for funding until the year ended March 31, 2006. Funding available to be received in fiscal 2006 from the NCE is \$5,300,000.

2. SIGNIFICANT ACCOUNTING POLICIES

These financial statements have been prepared by the Network in accordance with Canadian generally accepted accounting principles. The preparation of financial statements in conformity with generally accepted accounting principles requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the year. Actual results could differ from those estimates.

Revenue recognition

The Network follows the deferral method of accounting for contributions, which include government grants. Funds are received from the Canadian federal government as well as anticipated private and public sector partners.

Grants and other contributions which have external restrictive covenants governing the types of activities that they can be used to fund are deferred until such time as the actual spending is incurred. Consequently, unspent grants having restrictions will be recognized as revenue in future periods when the spending occurs. Grants approved, but not received at the end of the accounting period, are accrued.

Unrestricted contributions are recognized as revenue when received or receivable if the amount to be received can be reasonably estimated and collection is reasonably assured.

Contributions and services in-kind

Many organizations and individuals contribute a significant amount of volunteer effort in each year. The fair value of these services is often difficult to determine. Contributed services are not recognized in the financial statements unless a fair value can be reasonably estimated, such services are used in the normal course of operations and the provider of the services has explicitly defined the value of the services to the Network. The Network is dependent on such contributors to appropriately report the value of all contributions and services in-kind to its administrative centre.

Capital assets

Purchased capital assets are recorded at cost. Donated capital assets are recorded on the balance sheet at their estimated fair value, and recognized in the statement of operations based on their related amortization policy.

Capital assets are amortized on a straight-line basis using the following annual rates:

Software	50%
Computer equipment	33%
Office equipment	20%
Leasehold improvements	20%

Research grant expenses

Research grant expenses are recorded as expenses when they become payable. Research grants that will be payable in future periods are summarized and disclosed as commitments in the notes to the financial statements.

Financial instruments

The organization's financial instruments consist of cash, other receivables, grant receivable, accounts payable and accrued liabilities, research commitments payable and contributions received in advance. Unless otherwise noted, it is management's opinion that the Network is not exposed to significant interest, currency or credit risks arising from these financial instruments and that their fair value approximates carrying value.

3. CAPITAL ASSETS

	2005		2004	
	Cost	Accumulated Amortization	Cost	Accumulated Amortization
	\$	\$	\$	\$
Software	4,167	4,167	4,167	2,361
Computer equipment	28,627	20,360	19,342	17,641
Office equipment	21,650	457	12,745	7,575
Leasehold improvements	79,000	63,200	79,000	47,400
	133,444	88,184	115,254	74,977
Less: Accumulated amortization	88,184		74,977	
Net book value	45,260		40,277	

Included in office equipment are assets under capital leases totaling \$21,435 [2004 - \$nil]. Related accumulated amortization is \$357 [2004 - \$nil] and amortization expense for the year-end March 31, 2005 is \$357 [2004 - \$nil].

4. COMMITMENTS

At March 31, 2005, the Network has specifically committed to the future expenses set out below. The future commitments for the Network to be funded by the contributions received in advance as described in note 6 are as follows:

	2006	2007
	\$	\$
Approved research grants	200,000	200,000
Approved training	340,000	140,000
Total committed to date	540,000	340,000

5. RELATED PARTY TRANSACTIONS

Under an agreement with the University of Ottawa ["University"], the University provides accounting and administrative support services as well as office space without charge to the Network. The value of the in-kind contribution received for services in fiscal 2005 is \$54,276 [2004 - \$65,580]. Leasehold improvements included in note 3 were contributed by the University of Ottawa.

The Network has expensed during fiscal 2005 a total of \$55,000 [2004 - \$40,000] in research grants to the University of which \$10,000 [2004 - \$nil] due to the University is included in research commitments payable as at March 31, 2005.

Included in other receivables is \$7,500 [2004 - \$nil] from the University of Ottawa.

6. Contributions Received In Advance

	2005	2004
	\$	\$
NCE funds balance, beginning of year	2,979,495	4,435,134
Contributions from the Network Centres of Excellence	4,784,000	4,640,000
Less: Amount recognized as government assistance in year	(6,924,644)	(6,095,639)
Balance end of year, NCE funds	838,851	2,979,495
Other funds balance, beginning of year	115,000	—
Other grants received and receivable	968,750	115,000
Less: Amount recognized in year	(449,666)	—
Balance end of year, other funds	634,084	115,000
Balance, end of year	1,472,935	3,094,495

Other funds of \$968,750 received and receivable in the year include monies received from the Canadian Institutes of Health Research [\$500,000] and the Natural Sciences and Engineering Research Council of Canada [\$200,000] for the commercialization pilot; the Foundation Fighting Blindness [\$131,250] for the Retinal Stem Cell Project; and a partnership effort with the INMHA and the ICRH [\$137,500] for Adult Stem Cells to treat Stroke.

7. Capital Lease Obligation

	2005	2004
	\$	\$
Capital lease obligation with interest rate of 5.5%, maturing February 2010, requiring quarterly and interest payments of \$1,077.	21,181	—
Less: Interest	(2,734)	—
	18,447	—
Less: Current portion	(3,362)	—
	15,085	—

Future payments under capital lease at March 31, 2005 are as follows:

	\$
2006	4,308
2007	4,308
2008	4,308
2009	4,308
2010	3,949
	<u>21,181</u>

8. COMPARATIVE FIGURES

The comparative financial statements have been reclassified from statements previously presented to conform to the presentation of the current year financial statements.