



CELLines

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Board approves research portfolio

Fifteen projects get \$7.3M over two years

On March 6, the Stem Cell Network Board of Directors met in Toronto to approve 15 research projects, which will receive \$7.3 million in funding over the next two years. The projects were reviewed by a blue-ribbon committee of external scientists, chaired by Anne McLaren of the Wellcome Trust.

“The Grant Review Committee was extremely impressed by the quality of the proposals and by how well most groups managed to condense complex, multi-investigator approaches into concise proposals,” says Drew Lyall, Executive Director of the Stem Cell Network.

He said each reviewer had clearly put a lot of time and effort into the task at hand. There was good debate among committee members and the group reached a strong consensus on the proposals to receive funding.

“There was a huge amount of value in having a Grant Review Panel of this sort and the recommendation would be to do the same for the next round of funding.”

Reviewers said the day-long meeting felt like a day of learning,



“I really do congratulate the Stem Cell Network. I think it’s terrific, terrific and it’s going to solve some big problems!”

– Anne McLaren, Wellcome Trust, UK Chair, Grant Review Panel



“Overall, there was some really terrific science. If even 25 per cent of it reaches fruition, I think the field of stem cell research will yet again be changed by Canadians.”

– Ihor Lemischka, Princeton University Member, Grant Review Panel

and not a day of duty, and several expressed interest in continuing their participation.

The informal process for soliciting and reviewing proposals for new research projects began at the AGM in September, when researchers were invited to post “stickies of intent” – one or two line descriptions of the projects

they were considering submitting – on a board for all other PIs to see, and think about whether they wished to collaborate. These yellow stickies were transcribed and posted to the Network’s website for a period of weeks prior to the due date for the Letters of Intent, and the Network office actively assisted project teams who requested support in pulling together teams.

At the LoI stage (Nov 4), 28 proposals were received, with a total ask of approximately \$22 million. These LoIs were reviewed by the Network’s internal Scientific Review Committee, which is chaired by Connie Eaves, and comprises five other Network PIs, none of whom are theme leaders. No proposals were rejected at the LoI stage, but several were encouraged to merge or reduce their budget expectations, and a few were given

feedback that they would be unlikely to be successful without substantial revision.

By the closing date of January 9th, 2003, 20 proposals had been received, and the total ask was just over \$12 million. These proposals were reviewed on February 10, 2003 in Ottawa, by a specially convened Grant Review Panel comprised of 12 members as follows:

External Reviewers: Dr. Anne McLaren (Wellcome Trust) - Chair; Dr. Cynthia Cohen (Georgetown) - Theme 1; Dr. Ihor Lemischka (Princeton) - Theme 2; Dr. Bill Miller (Northwestern) - Theme 3; Dr. Darwin Prockop (Tulane) - Theme 4.

Scientific Review Committee members: Dr. Connie Eaves, Dr. David Lillicrap, Dr. Leo Behie, Dr. John Hassell, Dr. Derek van der Kooy.

Additional Network Members: Dr. Keith Stewart and Dr Michael Underhill.

This meeting was also attended by the Network’s Research Management Committee (principally the theme leaders plus Scientific Director), but those individuals had observer status only. The review meeting largely followed traditional CIHR protocols, with any panel member cited on a proposal being asked to leave the meeting while it was discussed. Each panel member submitted a rating, using the CIHR 5-point scale, for every proposal where they were not conflicted. A proposal’s final rating was determined by the mean of these scores.

On February 11, 2003 the Research Management Committee (RMC) met to consider the Scientific Review Panel’s discussions and scores, and to develop funding recommendations for the Board of Directors.

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Network brings top people to the table

Prominent Canadians join SCN's commercialization group

At the Stem Cell Network's September 2002 Board of Directors meeting, the Network's management team was asked to assemble a top-flight Commercialization Working Group to investigate the most appropriate models for the commercialization of stem cell research.

The Working Group held its first meeting in Toronto on January 14. Members include Milton Wong, Tom Caskey and Ron Worton from the Board of Directors; Freda Miller, Mike Rudnicki, Sam Weiss, Jacques Galipeau and Peter Zandstra from the Principal Investigators; and Drew Lyall and James Price from the management team.

Also invited to the January meeting were Allan Eaves of Stem Cell Technologies and Kevin Willis, Director of Business Development for the Canadian Stroke Network.

Recently, Jim Murray of WestLink Innovation Network, Cal Stiller of the Canadian Medical Discoveries Fund and Tim McCunn of the law firm Borden Ladner Gervais agreed to join the group. (See their biographies at right.) These three experts will work with the Network to refine and validate the proposed model.

"We're working with the right people to solve the many issues around commercializing stem cell research for the benefit of Canada," says James Price, the Network's Director of Partnerships and Corporate Development.

Last month, Network investigators received a letter from Scientific Director Ron Worton, outlining the outcomes of the January commercialization meeting with respect to potential models. Over the last few weeks, 28 Principal Investigators sent favourable responses to the Network regarding the proposed model. In coming weeks, Drew and James will follow up with PIs who haven't responded to ensure their views are known.



Dr. Jim Murray

Dr. Jim Murray, a household name in the world of university-based technology and spin-off companies, was responsible for developing successful university-industry liaison programs at the University of British Columbia and the University of Alberta, and the resulting spinoff companies earned him international recognition. He is the recipient of the Alberta Science and Technology Award for Outstanding Contributions to the Alberta Science and Technology Community. He was also awarded the 2000 Association of University Technology Managers Award for Outstanding Service to the Canadian Technology transfer community. Dr. Murray, who earned a PhD from Princeton in 1964, began his career in the Department of Oceanography and Geology at the University of British Columbia. At UBC, he continued his teaching and research, and pioneered a university-industry liaison program that has grown to be the envy of similar programs throughout the world. Dr. Murray joined the U of A in 1994, where he was involved in almost tripling the U of A's sponsored research budget. His work in the formation of commercially-viable spin-off companies placed the U of A first in Canada and second in North America in the 1998 Association of University Technology Manager's Survey. After retiring in 1998, Dr. Murray joined WestLink, a not-for-profit organization formed to facilitate collaboration and technology development and commercialization in Western Canada.

A respected physician, scientist and entrepreneur, **Dr. Calvin R. Stiller** is Chair and Chief Executive Officer of the Canadian Medical Discoveries Fund, a venture capital investment fund that seeks out companies in the life science sector to become industry leaders in global markets. A Member of the Order of Canada and the Order of Ontario, Dr. Stiller is a multi-organ transplant pioneer and medical professor at the University of Western Ontario. He also serves on the Board of Directors of several private and public companies. He was Co-founder and Chair of Diversicare Corporation (a healthcare corporation) (1974-1982). He was a Member of Council and Executive Committee of the Medical Research Council of Canada (1987-1993) and he is the recipient of numerous awards.



Dr. Cal Stiller

Timothy McCunn is a senior Partner of the law firm Borden Ladner Gervais LLP. Mr. McCunn is the chair of BLG's Venture Capital Practice Group, the Regional Contact for the Biotech Practice Group and a member of the Capital Markets Group. He has significant experience in biotech commercialization and has been involved in creating more than 100 spinoff companies. Mr. McCunn acts for both issuers and investors throughout Canada in mergers and acquisitions, corporate finance and



general corporate transactions with a particular emphasis on technology companies. He has participated in numerous fund formation projects and made submissions to various governmental authorities on behalf of the venture capital industry. He serves as a Director of a number of companies and he is currently a part-time professor at University of Ottawa, teaching a course on Advanced Business Law.

Seen and Heard

James Price, Director of Partnerships and Corporate Development, represented the Stem Cell Network at the international Association of University Technology Managers meeting in Orlando, Florida, in early February. The meeting included 1,500 tech-transfer professionals from major universities across North America. The Canadian delegation included officers from 12 of 24 institutions represented by the Network.

Janet Rossant made a presentation to the Licensing Executives Society of New Jersey on February 25. She talked about stem cell research in Canada and the role of the Network. The event was co-sponsored by the Canadian Trade Commission and the Ontario Ministry of Enterprise, Opportunity and Innovation. Garth Smith of the Ontario ministry said: "Every time Janet Rossant speaks, she presents a really credible image of Canadian science and reinforces the depth of talent we have up here."

Reminder: Deadline approaching

The first round of research grants, distributed in December 2001 and January 2002, covered the period from November 2001 to March 31, 2003.

"We're expecting these grants have been fully expended," says Drew Lyall, the Network's Executive Director. "If there are particular circumstances that necessitate the carry-over of some of these funds to next year, I must be informed as soon as possible by the PI."

Contact us

The Stem Cell Network welcomes your comments, questions and suggestions for future issues of Celllines.

Email: cathy@stemcellnetwork.ca

Phone: 613-562-5696

Research: Standard high

Continued from page 1

The RMC decided to accept the recommendations of the Review Panel in full.

In developing final budget allocations, the RMC took into account both specific feedback from the Grant Review Panel, and the need to work within the overall budget available to the Network.

This latter objective was achieved by assuming a standard annual stipend across all projects of \$38,000 per FTE for PDFs, and \$18,000 per FTE for Graduate students. In addition material and supplies costs were capped at a maximum of \$20,000 per FTE per annum, and all requests for general lab equipment were denied. In terms of travel, while funding for workshops and project-related travel was maintained (*but will be encumbered and administered by the Network offices*), the RMC did not feel it could support more general requests for travel to conferences.

2003-2005

Research Projects:

1. Stem cell plasticity: \$1.069M
2. HOXB4 Target-Genes Specifying Hematopoietic Stem Cell Self-Renewal: \$519,060
3. Retinal and corneal stem cells \$426,000
4. Stem cell research: Regulatory Policy in a Commercial Environment \$316,324
5. Stem Cells for the Treatment of Parkinson's Disease \$586,000
6. Adult Stem Cells to Treat Stroke \$604,600
7. Our Cells/Ourselves: The Ethics of Embryonic Stem Cell Research \$161,240
8. Dependence of Stem Cell Self-Renewal on Culture Variables \$532,086
9. Diabetes: From Cells to Cell Therapy \$1,003,600
10. Functional and Molecular Characterization of Cardiac Stem Cells \$405,000
11. Long Term Imaging and Cell Tracking for Stem Cell Lineage Analysis \$473,000
12. Lentivector engineering for functional studies in stem cells

Quotable Quotes from the Grant Review Committee

"These studies are well-designed and could actually, in my opinion at least, potentially lead to rapid clinical development."

Ihor Lemischka, on the *Diabetes "From Cells to Cell Therapy" proposal*

"This project has a breath-taking sweep and few research groups anywhere can bring forth such a proposal."

Darwin Prockop, on the *Stem Cell Plasticity project*.

"This is sort of the dream team of stem cell biology."

Ihor Lemischka on the *Stem Cell Plasticity project*.

"Two major topics that must be absolutely addressed in Canada have to do with the regulation of stem cell research and the commercialization and patenting of stem cells"

Cynthia Cohen on the proposal *"Regulatory policy in a commercial environment"*

\$276,000

13. Genetically Modified, Autologous Stem Cell Populations for Hemophilia A \$361,500

14. The Model Systems Strategic Research Network \$251,232

15. Stem Cell Genomics Project \$271,400

An additional proposal concerning *Technologies for the Propagation and Differentiation of hES Cells* is still under consideration.



UK stem cell mission set for March 26, 27

The British Consulate General in Toronto is sponsoring a two-day UK Stem Cell Mission on March 26 and 27 at the King Edward Royal Meridien Hotel (37 King Street East; Vanity B Meeting Room).

There will also be a networking reception on the evening of the 26th at the hotel.

Interested individuals should contact Carla Taverniti. Her phone number is 416-593-1290, ext. 2228. She can also be reached via email at Carla.Taverniti@fco.gov.uk

The meeting will be an opportunity to hear about the latest research, evaluate the possibilities for collaboration and partnering and promote various avenues of research to an international audience. A number of Stem Cell Network investigators will participate. Please visit the member's area of our website to learn more.



In the News

(New York Times)

WASHINGTON, Feb. 27 — The House of Representatives voted today to ban all human-cloning experiments, whether for baby-making or to create cells that might be used to treat disease. The bill, adopted by a vote of 241 to 155, is nearly identical to one that passed the House in July 2001. It has the strong support of President Bush but an uncertain future in the Senate. Passage followed the defeat of a less restrictive alternative that would have banned reproductive cloning but allowed cloning for research.

We'll show you the money!

All Principal Investigator who are part of one or more successful projects will soon receive letters of notification of the aggregate amount of their awards.

They are required to sign an acceptance letter and fax it back to Jennifer Masek, Finance Coordinator of the Stem Cell Network. The Network's fax number is 613-562-5631.

Once Jennifer has received faxed acceptance, she will process the grant money. Cheques should arrive within three to four weeks.

April brings NCE reporting

All Principal Investigators will be asked to do the NCE Reporting again this April.

Thanks to your comments from last year, the new Web-based system will have many improvements. You will receive an email update as the start date approaches.

Sept. 17-20: Stem Cell Network Annual General Meeting and Stem Cell Awareness Week in Vancouver, BC

Stem Cell Genomics Project Update

Collaboration helps launch large-scale project

Michael Rudnicki describes 'significant progress'

In the last seven months, we have successively built an outstanding team and established the infrastructure necessary to conduct the *Stem Cell Genomics Project*.

We are now poised to accelerate the data acquisition and analytical phases of the project. The *Stem Cell Genomics Project* is a clear example of how cooperation and collaboration between SCN scientists has facilitated the successful launch of a large-scale project that will significantly contribute to our understanding of stem cell function and identity.

In the coming months we will communicate regularly with SCN participants to keep you informed of new developments.

Background

The *Stem Cell Genomics Project* began as a Stem Cell Network initiative (the Gene Expression Project) and grew out of ideas presented in a Network-sponsored workshop.

The *Stem Cell Genomics Project*, funded by the Stem Cell Network, Genome Canada, ORDCF and CFI, is a fully integrated partnership with the Stem Cell Network. Full exploitation of the potential of stem cells will require a complete understanding of the genetic factors that specify stem cell identity, and regulate their ability to form the cells that make up different tissue types. Human and mouse embryonic and adult stem cells isolated by Network and Project scientists are being subjected to gene expression profile analysis to characterize the pattern of mRNA and proteins found in stem cells.

Overview

Phase 1 of the Project was initiated July 1, 2002, with the goal of recruiting essential personnel and establishing the required equipment and IT infrastructure. As outlined below, this phase of the project is well underway and we are now in a position to accelerate the scientific phase of the project. Phase 2 officially began in January



www.stemcellnetwork.ca/members/research/geneexpression/

2003 and entails a geometric expansion in the throughput of the acquisition and analysis of samples.

Phase 3 involves the launching of Web-based databases and analytical tools and will be initiated in June of 2003. Our major Phase 3 deliverable will be StemBase, which will be a compilation of all of the stem cell expression data obtained during the course of the project. This data will be mounted on a secured website for review, analysis and exploitation by Network Investigators. Further details on the background of the Project may be obtained at <http://www.stemcellnetwork.ca/members/research/geneexpression/>

Stem Cell Network Participation:

During Phase 1 of the Project, our efforts were directed to establishing the infrastructure and, as a result, we were not yet ready to conduct high-throughput analysis. Nevertheless, to date the Project team has analyzed over 140 samples, contributed by 15 of the Network's Theme II and III investigators. In total, 23 of the 43 Themes II and III investigators have contributed samples during FY 02/03 and/or expressed their intention to supply samples for the Project in the next two years.

Access

The primary contact for information regarding Affymetrix GeneChip analysis is Pearl

Campbell, Gene Expression Group Leader (pcampbell@ohri.ca). We request that samples be provided in biological triplicates in the format requested and be fully annotated. Cost is subsidized to a level of 95% for relevant samples. Other samples may be processed at a SCN subsidized rate. Normally, data from the experiments is available about two weeks after receipt of the sample. Forms, access information and pricing can be found at <http://www.stemcellnetwork.ca/members/research/geneexpression/>

Advisory Committee

The Project's Scientific Advisory Committee is an essential element in realizing the goals of Phase 2. This committee originally functioned as the Network Gene Expression Working Group and now has an extended mandate with members providing advice on relevancy of samples, annotation, quality and data analysis. This committee will also determine which preparations should be subjected to SAGE. Members will also be asked to play a new role in coordination of sample collection and prioritization of analysis. The Project Advisory Committee will convene on March 21st.

Staffing

The Project's Operations Manager is aggressively recruiting (including Investigators, Group Leaders, research associates, PDFs and graduate students, Technicians, software developers, and adminis-

trative support) in order to staff up to 26 personnel by the second quarter of 2003. We anticipate completing recruitment by May 2003. To date, we have recruited 8 Research Technicians, 3 bioinformatics software developers, and 3 Postdoctoral Fellows. The key leadership roles in each team have been filled:

Administrative Team

(Operations Manager): Mr. William Read

Stem Cell Purification Team

(Group Leader): Dr. Ruedi Braun

Gene Expression Team (Group

Leader): Ms. Pearl Campbell

Proteomics Team (Group

Leader): Dr. Lynn Megency

Bioinformatics Team (Group

Leader): Dr. Miguel Andrade

Facilities

The Affymetrix Core Lab, Agilent Bioanalyzer, and Cytomation MoFlo are fully operational. The Affymetrix Lab also operates as a Core Facility for the SCN and offers discounted access to SCN investigators. The conflux of skills, space, and funding has permitted the initiation of further facilities procurement. Additional core resources to be implemented for the end of the first quarter include SAGE library construction, DNA sequencing, and qRT-PCR analysis.

Partnerships

We have secured \$5.6 million in funding from Genome Canada with a matching \$5.6 million from the Canadian Foundation for Innovation, the Ontario Innovations Trust, the Ontario Research & Development Challenge Fund and the Ottawa Hospital.

Collaborations

The Project team is establishing service agreements with the National Research Council Institute for Biological Sciences (NRC IBS), and the British Columbia Genome Sciences Centre (BCGSC), for the processing of proteomes and SAGE libraries, respectively. Further details regarding the extent and nature of collaborative scientific agreements with the BCGSC and the Montreal Genome Centre (MGC) need to be defined but have been verbally agreed to in principle.