

By Sandra Donaldson

## OSCI: THE TIES THAT BIND

According to Wikipedia, a social network is a social structure made up of a set of actors (individuals or organizations) and the dyadic ties between them (relationships, connections or interactions). These ties are referred to as nodes and although many kinds of relationships may form the network between these nodes, interpersonal bridges are the most defining characteristic of social networks. With over 70 stem cell research programs that connect over 600 people across the province, the Ontario Stem Cell Initiative (OSCI) demonstrates the power of a social network.



OSCI announces its Postdoctoral Fellowship Awardees for 2012: (L) to (R) Janet Rossant, Natasha Chang\*, WeiJia Wong\*, Crystal Ruff\* and Derek van der Kooy.

OSCI started with a group of stem cell researchers at the University of Toronto – the birthplace of stem cell discovery. These scientists continually built on their interpersonal partnerships to broaden their reach within Ontario, across Canada and around the world. Janet Rossant, director of OSCI, reflects, “We’ve been working together for a long time. Our trainees now have labs of their own, choosing to set up shop in Ontario. Because we have a history, we work with each other not against one another and our projects benefit from the expertise available across the province.”

The density of stem cell scientists in Ontario is based on the province’s ability to attract, train and retain world-leading stem cell researchers. The educational opportunities are second to none and OSCI continues to build on this with its International Postdoctoral Fellowship Program. Joel Ross, an OSCI Postdoctoral Fellow at the Hospital for Sick Children says these programs are key to retaining trainees, “My research uses induced pluripotency technology to generate personalized stem cells, which I use to make

brain cells to study how autism develops and how it may be treated. Three years of stable support allows me to broaden the scope of my project and develop my own ideas about future directions – essential for establishing an independent research program in the future.”

The opportunities don’t end there; OSCI offers stem cell rounds that feature talks and intense debates to standing-room-only crowds. An external seminar series brings in distinguished speakers such as Leroy Hood from the Institute for Systems Biology, from Seattle, WA and broadcasts the talks across the province. Every year, OSCI supports scientific poster sessions where trainees and scientists mix and mingle, sharing ideas and building future collaborations. OSCI recently held its first annual meeting in conjunction with the Till & McCulloch Meetings, the go-to stem cell meeting in Canada, to leverage and strengthen ties across the country.

With a desire to see their scientific discoveries advance the health and welfare of Canadians, two Ontario scientists decided that commercialization was key to moving discoveries

from bench to bedside. Peter Zandstra, professor at the University of Toronto, and Janet Rossant, chief of research at the Hospital for Sick Children, leveraged the strength of their scientific network to create the Centre for Commercialization of Regenerative Medicine (CCRM) with \$15 million in funding from the Centres of Excellence for Commercialization and Research. The incredible scientific breakthroughs in stem cell science, now poised for translation into technologies and products, are changing the way diseases are studied and treated.

By linking OSCI stem cell researchers with industry partners, Ontario’s scientific excellence is translated into therapies for patients, leading to business opportunities that create new jobs and companies.

Michael May, chief executive officer, CCRM, believes the integration of science and business will bring prosperity in terms of health and economic benefits in Canada and around the world. May comments, “Aligning the academic and industry networks is key to developing an ecosystem in regenerative medicine that will bring therapies to patients. OSCI



Ontario's stem cell researchers are among the most highly cited in the world today. They have also secured over 170 patents and in the last five years alone, they have received approximately \$500 million in grant funding and trained over 1,000 Highly Qualified Personnel (HQP).

and CCRM are a unique partnership that attracts interest and investment from government, industry, funding agencies and international partners."

OSCI's success with international alliances is enhanced by its personal interactions. One of OSCI's long-time partners, Shin-Ichi Nishikawa, group director, RIKEN, Japan, says these collaborations are based on the links between people.

"Japanese stem cell research is supported by its hematologists who respect the work of Till & McCulloch (Toronto scientists who discovered stem cells). I also trained in Europe at the same time that many Ontario scientists were there, Gordon Keller, Norman Iscove and Chris Paige. These are the connections that

lead to prosperous partnerships."

Ongoing exchanges between OSCI and scientists at two leading scientific groups in Japan, the Centre for iPS Cell Research and Application (CiRA, Kyoto University) and the JST-CREST iPS Consortium, led to an inaugural Canada-Japan Stem Cell Workshop held in Toronto in 2011. The ties between scientists were strengthened which led OSCI to play an instrumental role in supporting the creation of a \$14 million CIHR (Canadian Institutes of Health Research) – JST (Japan Science & Technology Agency) funding program in the epigenetics of stem cells. OSCI will host a second Canada-Japan Stem Cell Workshop in Yokohama during the International Society of Stem Cell Research

annual meeting in June 2012.

OSCI also has several joint research training opportunities with Chinese academic centres including the University of Hong Kong, the Shanghai Institute of Biochemistry and Cell Biology and Peking University. Relationships based on shared graduate students led to the Toronto-Hong Kong Stem Cell Training Course and an Ontario-China Life Sciences Workshop, both held in Toronto in 2011. Teams from both countries are currently working with their respective governments to build an Ontario-China Stem Cell Research and Commercialization Partnership.

The idea of interpersonal bridges that reach within Ontario, across Canada and around the world is impressive, but can a scientific social network produce more than camaraderie? Ontario's stem cell researchers are among the most highly cited in the world today. They have also secured over 170 patents and in the last five years alone, received approximately \$500 million in grant funding and trained over 1,000 Highly Qualified Personnel (HQP). Where will this momentum lead? OSCI is fostering alliances with non-profit organizations, industry, philanthropists and government with a vision to create the Ontario Institute of Regenerative Medicine.



▲ OSCI supports networking poster sessions at all of its centres: (L) to (R) University of Western Ontario's poster session: Cheryle Séguin, Gilles Lajoie, Lynne-Marie Postovit, David Hess, and Dean Betts.

◀ International partners visiting from Japan celebrate OSCI's launch in Toronto in June 2011: (L) to (R) Hideyuki Okano (Keio University), Wado Akamatsu (Keio University), and Shin-Ichi Nishikawa (RIKEN).