What has a Canada Resea

Researchers talk about how the CRC program

BY DALE BARBOUR
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Back in the year 2000 the Canada Research Chairs Program was created with a rather lofty goal – distribute 2,000 research chairs to universities across Canada by the year 2008.

This year the program is going to be full grown and for the University of Manitoba that will mean a grand total of 49 research chairs – divided between Tier 1 Chairs, tenable for seven years, renewable, and worth $200,000 annually, and Tier 2 Chairs, tenable for five years, renewable once, and worth $100,000 annually.

At the most basic level the Canada Research Chairs Program has brought in some much needed cash. But along the way it has also changed the way universities think about their research programs and the way researchers approach their work.

"There was a lot of discussion in Canada in the 1990s and early 2000s about the brain drain and Canada not being competitive and losing our best and brightest to other countries, most notably down south. So the Canada Research Chairs Program was set up to stem that brain drain," Joanne Keselman, vice-president (research), said.

The CRC program followed in the footsteps of the Canada Foundation for Innovation and the two programs still work in tandem, with universities pairing funds from both to launch research programs.

But what is notable about the CRC program is that it allocates a certain number of chairs to universities to use as they see fit to recruit and retain people. In other words, the funding choices and research focus are driven by the institution, rather than individual researchers.

"It was really the first time that the university got serious about planning for research and thinking beyond the individual level about how one might want to grow and develop research programs at the university," Keselman said. "It has allowed us to concentrate on building new research areas and further developing areas where we already had a particular strength."

Kent HayGlass, immunology, Michael Freund, chemistry, and Lea Stirling, classics, all represent different examples of how that strategic planning played out.

The U of M's immunology department was the first in Canada and remains one of only two in the country. HayGlass, with a strong research program and a history of success in competitive national salary award competitions, was an obvious pick for a Tier I research chair.

"We've had a lot of history of excellence in that department, but I think through establishing not only Kent's leadership as department head but as a Tier 1 research chair he has been able to build – through CFI and other funding bodies – the next generation of people in that area," Keselman said.

HayGlass said the past eight years have witnessed a transformation of the immunology department.

"When I was recruited as a prof 20 years ago, and I came to the U of M from Boston, I was 30 years old. The equipment I was working with was 25 years old. That's not a good way of doing things, with equipment almost as old as you are," HayGlass said. But when the CRC program and the CFI program came along, HayGlass said things started to change.

"All of a sudden you had the tools and opportunity to do things that just hadn't been possible before," HayGlass said. Now the department is set to move into the fourth floor of the new Apotex Centre, a $5.6 million project. Lab equipment has been replaced with outstanding infrastructure, and several new faculty members have joined the department, applying for and winning major individual and team research grants of their own.

"All of a sudden (with the Canadian Foundation for Innovation and the Canada Research Chairs Program) you had the tools and opportunity to do things that just hadn't been possible before."

Kent HayGlass,
Canada Research Chair in Immune Regulation

Notable recent projects include a $1 million grant from CIHR targeted directly at funding graduate and post-doctoral students in trans-disciplinary research, (the CIHR National Training Program in Allergy and Asthma Research) and a $12 million grant with colleagues across Canada looking at Canadian Infant Lung Development.

"From my perspective, I went from having a biosafety cabinet that was five years younger than me and really ready for the junkyard to being involved in $10 to $20 million projects where I was able to play a lead role. The Chair has really been instrumental in that process," HayGlass said. "I know of many very similar experiences had by other Tier 1 Chairs at this institution and nationally that show the crucial impact of the CRC and CFI programs."

Michael Freund, chemistry, was drawn to the University of Manitoba from the United States by the research chairs program. Out of its 49 research chairs the U of M has targeted seven towards the area of materials sciences.

Photos by Ian McCausland and Dale Barbour

Clockwise from above, Lea Stirling, classics, Kent HayGlass, immunology, and Michael Freund, chemistry, say the Canada Research Chairs Program has reshaped the way they teach and research at the University of Manitoba.

"Out of all the areas we've deployed chairs to we've deployed the most to that particular area. Some in recruitment, some in retention, I think it's allowed us to significantly enhance our research strength in an area in which we already had existing strength," Keselman said.

Freund was working at California Institute of Technology but he had family in Winnipeg and was

CFI Leaders Opportunity Fund supp

The Canada Foundation for Innovation (CFI) announced on March 26 that it has awarded the University of Manitoba $831,010 to support new projects focused on textile and geological science, psychiatry and chemistry.

"We can say with conviction that Canada has become a place where world-class researchers want to be," said Eliot Phillipson, president and CEO of the CFI. "This CFI investment will further develop the University of Manitoba's global reputation as a place where outstanding research and training is being conducted."

Andrey Bekker, geological sciences, received $267,308 to purchase a gas-source stable-isotope-ratio mass-spectrometer and provide infrastructure to further advance Bekker's research laboratory.

Wen Zhong, textile sciences, was awarded $100,000 to provide infrastructure for the establishment of a state-of-the-art laboratory to advance research and development in healthcare and medical textiles.

Jitender Sareen, psychiatry, will be setting up a population-based labo Aboriginal suicide preventio health, and anxiety disorde of $98,808.

Frank Schweizer, ch $364,894 to develop ca investigational drugs that adhesion of pathogens on

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looking for the opportunity to come to Canada. In 2002 it all came together.

"With the CRC program, CFI funding and the investment in infrastructure it was a very attractive time to try to make it happen," Freund said. "I think it's really made the Canadian system competitive with the U.S. system. In the U.S. you have huge start up packages, but the CRC and CFI have made Canada very competitive."

In the case of the materials science, the research chairs were deployed strategically – when the university was applying for a CFI grant for the department it sweetened its application by agreeing to add a new Canada Research Chair specifically to strengthen its research capabilities in that area.

Now if immunology was a case of recognizing an existing strength, and investments in materials science helped build one, then the university's decision to apply a number of its research chairs towards the field of archeology was a case of discovering a strength it already had.

"What was interesting in developing the strategic plan is you come to realize things about the university that you never knew," Keselman said. "In the area of archeology, it became apparent to us when we were developing our plan back in the year 2000 that we had one of the youngest and most talented group of people in the field of archeology."

By directing Canada Research Chairs to people like Robert Hoppa in anthropology and Stirling in classics, they've been able to keep those people.

The key, Stirling said, is the flexibility of the program. The CRC funding is unrestricted, allowing chair-holders to direct it where they like

"It just really enhances the possibilities for international collaboration, opportunities for my students and opportunities to get involved with international students," Stirling said.

"If a graduate student e-mails me with questions or suggestions, I can say well why don't you come to the field and see some of that stuff for real and then of course I get to learn about what they're doing and apply it into my own research," Stirling said. "It makes me more visible internationally as well."

The university has done its part to make sure that Stirling and the others have the flexibility they're looking for. Under the CRC program, universities have the right to hang on to the funding to defray the overhead costs of research – in other words the U of M could take the CRC cash and use it to help out with its own bottom line. But it's made a conscious decision not to do that.

"From the beginning of the program we took a deliberate approach to say that we would like to see as much of that funding directed to the research programs of the individual," Keselman said. It means the CRC funding is applied on top of whatever other research dollars the professor would normally receive.

That's unique, Stirling said.

"Every time I've talked with people from other institutions they're always surprised at how generously the researchers are treated here."

With that flexibility in hand, Stirling is directing part of her CRC towards creating a post-doctoral position in the classics department.

"It brings a researcher to Manitoba, gives us a chance to get to know them and then as they head off elsewhere they take our name with them," Stirling said.

Freund said the unrestricted funding lets researchers be a little more spontaneous with their projects. Rather than having to go through an approval process, they can direct their CRC dollars and bear the costs themselves if it doesn't turn out as they had hoped.

The CRC's are picked because the university expects them to be leaders in their field and to attract other people to the university – whether as research associates or post-doctoral fellows. HayGlass said a fringe benefit of that approach has been changing the way researchers go about their business.

"When I first started, it was expected that academics would complete their PhD's, do a fellowship then go obtain an academic position and begin their own research program," HayGlass said. Ideally, bolstered by a grant that they had applied for, they'd be doing that research largely on their own.

"But one of the side effects of everyone being focused on demonstrating individual success was that no one could develop broad enough knowledge to attack highly complex problems by themselves. Now there is more recognition that you really need to benefit from the excellent training of your colleagues who are experts in areas where you know very little," HayGlass said.

Of course, with the CRC program set to reach maturity this year the question on everybody's mind is, what happens next?

"Do we turn into Cinderella again?" Stirling asked. The Tier 1 chairs don't have a set end date. But the Tier 2 chairs are capped at ten years. The federal government has announced new funding projects – including a research chair program to draw researchers to Canada. But Keselman said the next few years should be interesting as people lobby the government to keep the research ball rolling and ensure that universities can retain their research chairs in the future.

"We can't afford to rest on our laurels because other countries are moving ahead with their research programs and the challenge will really be to keep up with that so we stay competitive," Keselman said.

National recognition

Some of Canada's top researchers were honoured in Quebec on March 27, and 47 of the honorees conduct their groundbreaking work at the University of Manitoba.

The Canada Research Chairs program, launched in 2000, held an event today at the Université du Québec en Outaouais in Gatineau, Québec that honoured the scientific and economic successes the Canada Research Chairs program has brought to Canada. The event's title was *Inventing the Future: Ideas for the 21st Century*.

"Canada Research Chairs are remarkable scientists and scholars, and the University of Manitoba is proud to be the home of such a strong contingent of these outstanding individuals," said Joanne Keselman, vice-president (research).

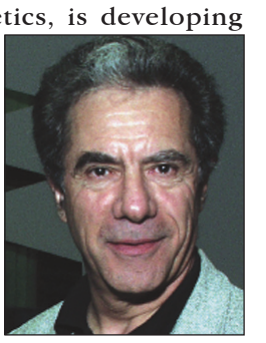
The Canada Research Chairs program continues to strengthen research excellence in Canada. By helping Canadian universities attract and retain the world's most accomplished and promising scientists and scholars, the program is also building on Canada's growing international reputation as a global leader in research and innovation.

So far, the University of Manitoba is home to 47 Canada Research Chairs. Here is an example of the type of work three such researchers are conducting.

Trust Beta, Canada Research Chair in Food Processing and Grain-Based Functional Foods, characterizes the molecular structure of grains that demonstrate antioxidative properties, like wheat and barley. Ultimately, her research will identify and enhance the beneficial components of whole grains, and determine the dietary concentrations of these components that can play a major role in reducing obesity, cardiovascular disease, diabetes and cancer.

Verena Menec, Canada Research Chair in Healthy Aging, uses personal interviews and motion monitors to understand relationships among personal activity, community characteristics, and health with the goal of developing more effective programs to enhance seniors' health and independence. Seniors constitute 13 per cent of today's population, but this number is expected to increase to 25 per cent by 2046.

Lotfollah Shafai, Canada Research Chair in Applied Electromagnetics, is developing mathematical models for electromagnetic phenomena and its interactions with the environment. His research has three areas of focus: the design of novel antennas to improve the quality of wireless communication for a broad range of applications; the design of dedicated sensors for medical and structural health monitoring; and the design of metamaterials to improve the performance of antennas and communications systems.



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"This CFI investment is a welcome enhancement of our research infrastructure, and it highlights the very high calibre of researchers at the University of Manitoba," said Joanne Keselman, vice-president (research).

"These four scientists have embarked on truly innovative research programs that have the potential to improve our health, our environment and our understanding of science at the molecular level."

"The U of M continues to make Winnipeg South and all Manitobans proud," said Winnipeg South MP Rod Bruinooge.