Bringing Research to LIFE

In Brief

Genome Prairie picks Jayas

Digvir Jayas, associate vice-president (research), distinguished professor, and Canada Research Chair in stored-grain ecosystems has been appointed to the board of directors of Genome Prairie.

"I am very pleased that Dr. Jayas is joining our Board," said Dr. Naimark, "His wealth of experience in basic and applied research and in industrial innovation will provide Genome Prairie with important insights as it works to keep Manitoba and Saskatchewan at the leading edge of applied genomics in areas of vital importance to the prairie region, to Canada and to international development."

Jayas conducts research in the areas of physical properties of agricultural products; modified atmosphere storage of grains, oilseeds, potatoes, and meats; mathematical modelling of biological systems; and digital image processing for grading and processing operations in the Agri-Food industry.

Genome Prairie leads large-scale genomics and proteomics research projects in Manitoba and Saskatchewan. With its national and international partners, Genome Prairie has supported nearly $160 M of research activity in plant, animal and human genomics, bioinformatics, instrumentation development and bioethics since **2000.**

Through network establishment and regional priority consultations, Genome Prairie facilitates research linkages with funding from provincial governments, industry and Genome Canada - a not-for-profit organization implementing a national strategy in genomics and proteomics research to benefit all Canadians.

Upcoming

2008 SSHRC Information Session with Ms. Terry Lee McPherson, Program Officer, SSHRC

Tuesday, Sept. 9, 2008
9am-11am

210 Helen Glass Centre

2008 NSERC Information Session with Ms. Michele Beaudry, Program Officer, NSERC

Wednesday, Sept. 17, 2008
9am-11pm

Senate Chamber, EITC E2-262

To register, please contact Brent Deere at 474-8390 or brent_deere@umanitoba.ca

Pee is for Proteomics

BY SEAN MOORE
Research Communications Officer

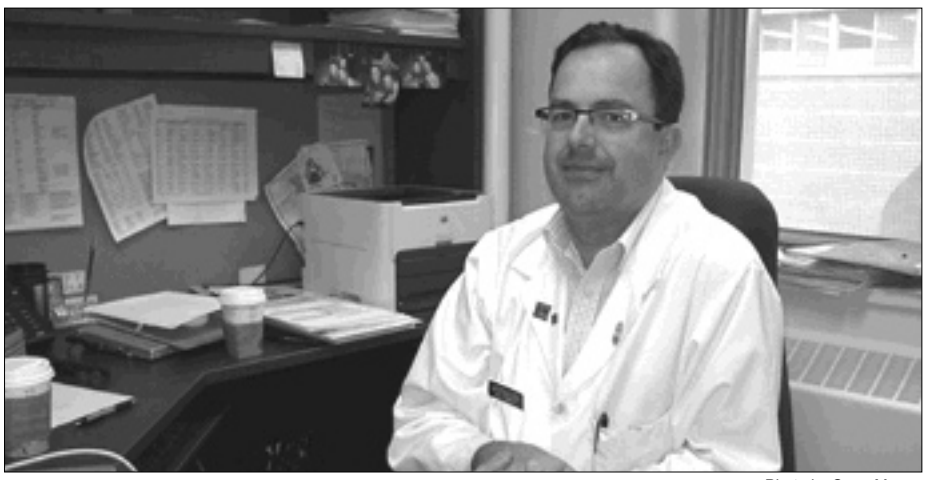

Photo by Sean Moore

Peter Nickerson, Internal Medicine, is developing a new diagnostic tool for kidney transplant patients.

What's in your urine?

Turns out, a lot of different proteins. And internal medicine's Peter Nickerson and his colleagues are working out what those proteins can tell doctors about the state of a transplanted kidney. Biopsies beware.

About 520 Manitobans are living with a transplanted kidney. For years blood tests were used to determine if the grafted organ was getting rejected or working improperly. You see, our muscles release a substance called creatinine and this gets filtered by kidneys. When creatinine levels increase in the blood, bet that kidney function is waning.

But Nickerson and David Rush, internal medicine, found this method to be unreliable because in the 1990s Rush began a program that involved biopsying kidneys regardless of creatinine levels and he learned some startling facts. Chiefly, tests can show you to be in perfect health when really your immune system could be infiltrating your newly grafted kidney with white blood cells ("subclinical rejection") that can result in early scar tissue.

Biopsies are still the gold standard of pathology but a problem with them, besides their $1,000 price tag in Canada, is that rejection, Nickerson found, can be spotty at the outset. So the first biopsy may not tell the whole story. By the time the next biopsy finds evidence of rejection, deleterious scar tissue may have developed and it can reduce the lifespan of a grafted kidney.

"Biopsies are very informative, but urine represents the whole kidney right off the bat so we want to use it to diagnose rejection before any scar tissue develops," Nickerson said.

Urine travels throughout the kidney and its 80 kilometers of tubules, and like most travelers it has a story to tell. The problem is getting that story in a meaningful and accurate way. One way is to use genomics, but it's expensive and involves complex processes. What Nickerson is after is something as simple as a home-pregnancy test – pee on a stick to see if you're sick. Proteomics offers a good chance of achieving this.

So Nickerson teamed up with the Manitoba Centre for Proteomics and Systems Biology and they began using various techniques to look at the proteins in the urine of rigidly defined sets of kidney transplant patients.

"Right now we're at the discovery phase," Nickerson said. "But ultimately we would like to get to the point where if we see certain proteins showing up in the urine then we know to adjust anti-rejection therapy and ideally do it without needing a biopsy."

After doing mass spectrometry on urine samples taken from various groups, Nickerson's lab has so far identified 600 proteins consistently present in urine. Of those, 64 are unique to clinical and subclinical rejection patients.

It takes a day to sift through the sample, which is the same processing time for a biopsy, but the urine method costs about $20 and doesn't involve a needle.

Nickerson is now validating the predictive ability of these proteins by blindly testing samples given to him from labs across Canada and the United States. He is about to publish his findings thus far, and notes that one particular inflammatory marker (a chemokine) looks to be a good biomarker candidate.

"Urine biomarkers are the future in kidney transplantation, and we've been the leaders in them for awhile now."

Chochinov sits again

BY SEAN MOORE
Research Communications Officer

Psychiatry Professor Harvey Chochinov, Canada Research Chair in Palliative Care, was reappointed to the Canadian Institutes of Health Research (CIHR) Governing Council for a three-year term.

The announcement was made by the Honourable Tony Clement, Minister of Health, in Ottawa on June 26.

"It is an honour to have such a distinguished member of the Canadian medical field as a part of our organization," said Clement. "Dr. Chochinov's many contributions and dedicated involvement in the Canadian and international medical communities will surely have a great influence on the CIHR's effort to improve the health care system for all Canadians."

He received his medical training and psychiatry training from the University of Manitoba, and a BA in English from the University of Winnipeg. But in 1987 he went south and became the first Canadian to complete a fellowship in psycho-oncology at Memorial Sloan Kettering Cancer Centre in New York City.

Since 1990, Chochinov has been conducting palliative care research and is now acknowledged as one of the world's leading experts and investigators in end-of-life care. He has garnered over $10 million in research funding over the past 17 years, has over 150 publications to his credit, and he sits on the editorial board of four major journals.

In 2004 he was named the top researcher by the (American) Academy of Psychosomatic Medicine. Then, two years later, he received the Canadian equivalent from the Canadian Psychiatric Association, winning the J.M. Cleghorn Award for Excellence and Leadership in Clinical Research.

Chochinov has also been hounored with awards like the Queen's Golden Jubilee Medal and the Order of Manitoba.

The Canadian Institutes of Health Research (CIHR) is the Government of Canada's agency for health research. CIHR's mission is to create new scientific knowledge and to catalyze its translation into improved health, more effective health services and products, and a strengthened Canadian health care system. Composed of 13 Institutes, CIHR provides leadership and support to close to 10,000 health researchers and trainees across Canada.

Submitted Photo

University of Manitoba psychiatry professor Harvey Chochinov

umanitoba.ca/research

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Comments, submissions and event listngs to: lindsay_fagundes@umanitoba.ca
Phone: (204) 474-9020 Fax (204) 261-0325