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GENES TO THERAPIES

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Dr. Ron Woznow, CEO of the Canadian Genetic Diseases Network, and Dr. Johnsee Lee, Vice-President of the Industrial Research Institute of Taiwan (ITRI), shake hands at the signing ceremony. Witness to the agreement were Rick Thorpe, Minister of Science, Enterprise, and Competition in British Columbia, and Dr. Cheng-I Weng, Chairmain of ITRI.

CGDN and HSC Partner with ITRI

Produce High-Density Gene Chips for Research and Clinical Diagnostics

The Canadian Genetic Diseases Network and the Hospital for Sick Children recently finalized an agreement with the Industry Technology Research Institute of Taiwan (ITRI). Under the agreement, ITRI will produce chromosome 7-specific gene chips based on the work of **Dr. Stephen Scherer**, a CGDN Principal Investigator and Scientist at Toronto's Hospital for Sick Children.

ITRI is renowned for building Taiwan into a dominant force within the global semiconductor industry. It has a stellar track record for successfully commercializing technology developed within its research program, as its semiconductor start-ups have attracted more than US\$ 3.0 billion in investment. After having such a pronounced impact on the growth of Taiwan's high-tech industries, ITRI entered the biotech arena in 1998.

ITRI's arraying technology is the driving force behind the agreement. Based on a unique combination of microfluidic, electronic, optical, and semiconductor manufacturing capabilities, its technology offers significant improvements over

existing chip production processes.

Ron Woznow, CGDN's Chief Executive Officer, stated, "The technology possessed by ITRI could reduce the cost of manufacturing high quality gene chips by 10-fold. This dramatic reduction in

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Gene chips produced through the agreement promise a number of important benefits to Canadians. Our scientists will gain access to an affordable resource for studying diseases such as cancer, autism, developmental disorders, and heart disease. Gene chip technology is also a cost-effective platform

for performing diagnostic tests in the clinic. It provides a means for doctors to test patients for multiple genetic disorders using a single array, and to make early diagnoses. **Rick Thorpe**, British Columbia's Minister for Competition, Science and Enterprise confirmed the value created by this agreement, "I would like to congratulate the partners on their agreement. The use of new and exciting technologies in health care research will result in better patient care and help support a sustainable health care system in British Columbia and across Canada." ▲

MD/PhD Scholarships Support Aspiring Clinician Scientists

Chris Carlson, who studied microbiology in undergrad, appreciated that the fruits of genetics research could one day make sick people better. "I wanted to investigate cytochrome oxidase because I could see the benefits that its research would have on either the diagnosis or treatment of patients suffering from cytochrome oxidase deficiencies. I entered the MD/PhD program because I felt that the combined training in both the MD and PhD programs would complement each other, making it possible for me to be a better physician and scientist", said Carlson. But, his decision to enroll in the joint MD/PhD program at the University of Alberta was a difficult one. He worried that the financial burden of the program would require him to work a part-time job, one that would distract him from his studies.

MD/PhD degree programs are offered by numerous Canadian Universities. Students are trained to both practice medicine and manage scientific research projects. In general the programs take between 6 and 7 years to complete, and they are very expensive. Tuition for the University of Toronto's MD/PhD program amounts to nearly \$70,000. At the University of Alberta, where Carlson is studying, MD/PhD students can expect to pay \$40,000 for their degrees. Moreover, the University of Alberta's Faculty of Medicine and Dentistry will not admit students into an MD/PhD program unless they have a

scholarship or other source of guaranteed funding.

Clinician scientists, or MD/PhDs, are a vital component of Canada's health system. They play an important role in the discovery of disease-causing genes, and in the translation of these discoveries into viable treatments for disease. In essence they are a unique and essential link between scientific research and the patients who suffer from genetic disease. And, in a world where the utilisation of genetic information in the delivery of health services is expected to increase, the role of the clinician scientist is expected to become even more important.

With clinician scientists expected to play a more prominent role in the translation of genetic discoveries into diagnostic tests, prevention strategies, and treatments for disease, the Canadian Genetic Diseases Network, the Canadian Gene Cure Foundation, and the Canadian Institutes of Health Research (CIHR) Institute of Genetics created the Scriver MD/PhD Scholarship program. Named in honour of **Drs. Jessie Boyd, Walter, and Charles Scriver**, the program aims to support students whose research focus is in genetics, to increase the number of students enrolled in MD/PhD training programs in Canada, and to encourage MD/PhD graduates to pursue careers in research. "The long-term impact of the Scriver MD/PhD Scholarships will be an increase in the number of young physicians who are committed to genetic

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research", stated **Dr. Ron Woznow**, CEO of the Canadian Genetic Diseases Network.

The first scholarship competition was held in the spring of 2002, resulting in six students being awarded Scriver Scholarships: **Chris Carlson** (University of Alberta), **Jason Thomas Maynes** (University of Alberta), **Julie St-Pierre** (Laval University), **Martin Hyrcza** (University of Toronto), **Sebastien Levesque** (Laval University), and **Speranza Dolgetta** (University of Calgary). Already the award has made a positive impact on Chris Carlson's life, "The scholarship has allowed me to focus on my studies without the worries of financial burden."

Another scholarship competition will be held in 2003. The deadline for applications is May 1, 2003. For more information on the Scriver MD/PhD Scholarship Program, please visit the [CIHR Institute of Genetics website](#). ▲



CANADIAN GENETIC DISEASES NETWORK
RÉSEAU CANADIEN DE MALADIES GÉNÉTIQUES

Officers

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Dr. Michael Hayden, Scientific Director

Dr. Ron Woznow, Chief Executive Officer

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CGDN To Launch National Training Program for High School Students

In March 2003, the CGDN will launch a nation-wide training program in genetics for high school students. Known as “Be a Gene Researcher for a Week”, the program will give high school students the opportunity to spend their spring break week in a CGDN research lab. The objective of the program is two-fold: to give young Canadians the chance to learn more about science in a dynamic environment that encourages the open exchange of ideas; and to inspire young Canadians to pursue careers in science and genetics.

“The idea of launching a program inviting high school students to CGDN laboratories received quick enthusiastic support as an effective way to provide real experience to those students curious about research careers”, stated **Dr. Tom Hudson**, Associate Scientific Director of CGDN and Director of the Montreal Genome Centre.

The Be a Gene Researcher for a Week program is a partnership between the CGDN and the CIHR Institute of Genetics. “The Institute of Genetics is proud to partner with CGDN in the Be a Gene Researcher for a Week program. To actively participate in a lab’s scientific effort could be the catalyst that helps turn on one of Canada’s future leaders to the wonders of proteomics, developmental biology, and genomics. Science is a hands-on endeavor and I can’t think of a better opportunity of learning by doing”, said **Dr. Rod McInnes**, who is the Scientific Director of the CIHR Institute of Genetics.

CGDN labs in Vancouver, Toronto, Winnipeg, and Montreal will host students. During this time, students will

learn more about the scientific method, the impact of innovation and technology in research, and the benefits that research can bring to people who suffer from genetic diseases such as Huntington’s disease, cancer, and heart disease.

The “Be a Gene Researcher for a Week” program will run in three months time. It is open to Grade 11,12, and OAC students across Canada. Students interested in applying should write a 150-200 word essay describing why they want to be a Gene Researcher for a week. Applications can be submitted electronically to dsas@cgdn.ca, or by mail to The Contest, Canadian Genetic Diseases Network, 201-2150 Western Parkway, Vancouver, BC V6T 1V6. Deadline for application is February 10, 2003. ▲

PARTICIPATING LABORATORIES

Montreal

Dr. Tom Hudson
Dr. Erwin Schurr
Dr. Daniel Sinnett
Dr. Rima Rozen
Dr. William Foulkes

Toronto

Dr. Rod McInnes
Dr. Christopher Pearson
Dr. Stephen Scherer

Vancouver

Dr. Leigh Field
Dr. Michael Hayden

Winnipeg

Dr. Geoff Hicks
Dr. Barbara Triggs-Raine
Dr. John Wilkins

Graduate Students Win Awards at ASHG Meeting

At the American Society of Human Genetics Annual Meeting, held from October 15-19 in Baltimore, **David Ng** and fellow graduate student **Melissa Dobson** were recognized for their outstanding research.

Ng is a graduate student in **Dr. Rod McInnes’** lab at the University of Toronto. “I feel very honoured to win this award”, commented Ng, “It wouldn’t have been possible without support from my co-workers and supervisor, Dr. Rod McInnes.”

His research focused on Neto-1, a gene encoding a novel synaptic receptor involved in neural function. “Mice lacking the Neto-1 gene experience seizures. In addition, our work with **Dr. Michael Salter’s** group showed that mice lacking Neto-1 have impaired long-term potentiation. Based on this evidence, we believe that Neto-1 may play an important role in learning and/or memory”, stated Ng.

Ng has plans for a number of experiments that will shed light on how the gene works. He hopes to identify other genes that interact with Neto-1. He also would like to conduct behavioral tests on his Neto-1 knockout mice to determine the extent to which the gene affects learning and memory.

Melissa Dobson received the award for identifying cblA and cblB, bacterial genes that regulate vitamin B12 metabolism. “It is a great honour to receive this award”, said Dobson, “With so many great projects presented at the meeting, I was completely surprised by my selection.”

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CGDN Hosts 3rd Annual CBW Genomics Workshop

"CBW's multidisciplinary but integrated approach has been highly successful in developing and consolidating these skills across a wide audience. Our alumni include graduate students and Principal Investigators, academics and people from industry, biologists and computer scientists."

The CGDN recently hosted its third annual CBW Genomics workshop from October 28 to November 2 in Montreal. This intensive 6-day training program was attended by 45 participants from across Canada and the United States.

Held at the NRC Biotechnology Research Institute, the workshop was coordinated by **Francis Ouellette** (Director, UBC Bioinformatics Centre and CGDN Scientist) and featured lectures and practical lab sessions led by a team of leading experts. One workshop highlight included a lecture on Genomics and Ethics, presented by **Dr. Bartha M. Knoppers**, Chair of the International Ethics Committee of the Human Genome Organization and past member of the International Bioethics Committee of the United Nations, Educational, Scientific and Cultural Organization (UNESCO).

Topics covered during the week included annotating genome data, interpreting gene expression using microarrays, analysing SNP genotyping data, and utilising resources such as the Ensembl database.

The CBW program provides participants with a solid understanding of the use and development of software and tools for addressing biological questions. "CBW's multidisciplinary but integrated approach has been highly successful in developing and consolidating these skills across a wide audience. Our alumni include graduate students and Principal Investigators, academics and people from industry, biologists and computer scientists," said **Keri Gammon**, Manager of the CBW Series.

The next CBW workshop is being held from February 17 – March 1 in Vancouver. It will provide participants with a comprehensive introduction to bioinformatics and will serve as the prerequisite for follow-on courses including Genomics. For more information on the CBW series and the Bioinformatics landscape in Canada please visit www.bioinformatics.ca ▲



Faculty, Instructors, and Students gather for a photograph at the conclusion of CGDN's 3rd Annual Genomics Workshop in Montreal.

ANNOUNCEMENTS

Canadian Genetic Diseases Network

12th ANNUAL SCIENTIFIC MEETING 2003

WHEN: Thursday, May 15th 2003
4:00 p.m. to Sunday, May 18th 2003
noon.

WHERE: Kananaskis Mountain
Lodge situated in the beautiful
Alberta Rockies. Website:
www.kananaskismountainlodge.com

WHO: Network Principal
Investigators & Core Facility
Directors, Network Associate
Investigators & Scholars, Post
Doctoral Fellows, Graduate
Students, Collaborators Board
Members, Industrial partner scien-
tists and invited guests

WHAT: Scientific presentations,
poster sessions and network work-
ing. CGDN Annual General Meeting.

Email: jpatrick@cgdn.ca
Fax: 604-221-0778 ▲

Scriver Scientific Symposium and Dinner

The Drs. Walter, Jessie Boyd, and Charles Scriver Scientific Symposium and Dinner will be held on April 10, 2003. The Symposium will take place at the Montreal Children's Hospital, and will feature several invited speakers from both the Network and from the scientific community at large. A no-host dinner, chaired by **Arnold Steinberg**, will take place at the Hôtel Omni Mont-royal. ▲

TECHNOLOGY SPOTLIGHT

Custom Immunoprobes for Research

If you're interested in generating a monoclonal antibody, you've likely talked with **Dr. John Wilkins**. Located at the Rheumatic Diseases Research Laboratory in Winnipeg, Dr. Wilkins Immunoprobe facility caters to the emerging need for proteomic-based tools in medical research.

"The immunoprobe facility was created because of the recognized importance of immunological reagents for functional analysis and assay development", said Dr. Wilkins. He and his staff provide a number of services to members of the research community. They will offer advice to clients on topics such as antigen selection and assay development. They also generate custom monoclonal antibodies, and maintain viable hybridoma stocks.

When asked what separated his facility from others, Wilkins suggested that his service is one of only a few in Canada that provide customized solutions for its clients. **Dr. Barbara Triggs-Raine**, a fellow University of Manitoba

researcher, suggests there are at least two other important reasons for using the Immunoprobe facility. "It is a tremendously inexpensive way to generate monoclonal antibodies. And, the thorough quality control measures used by the facility guarantees the quality of your antibody", said Dr. Triggs-Raine.

She has been a client of the Immunoprobe facility for several years, "We had great success in developing monoclonal antibodies for hyaluronidase-1." She plans to use these antibodies to study the hyaluronidase-specific knockouts her lab is currently generating.

If you would like more information on the CGDN Immunoprobe Facility, check out <http://www.proteome.ca/antibodies.html> or contact **Dr. John Wilkins**, Room 805, John Buhler Research Centre, 71 McDermot Avenue, Winnipeg, MB R3E 3P4, email: jwilkin@cc.umanitoba.ca ▲

Continued from page 3

Prior to the launch of the Canadian Bioinformatics Workshops in 1999, Dobson had never even considered investigating the genetic basis of vitamin B12 disorders. While attending the workshop in Calgary, Dobson met **Dr. Roy Gravel**. Gravel, a principal investigator of the CGDN, convinced Dobson to complete her Ph.D. training in his laboratory at the University of Calgary. Using preliminary findings uncovered

by **Daniel Leclerc**, Dobson worked over the next two years to identify genes involved in B12 regulation. Her hard work paid off.

She and her colleagues have since identified two vitamin B12 processing genes in humans. Further research done in collaboration with **Dr. Tom Hudson** and **Dr. David Rosenblatt** showed that mutations in the human genes were present in people with methylmalonyl aciduria, a potentially serious disease. ▲

Raising Money to Support Gene Cure Research



The Honourable Anne McLellan, Minister of Health, and the Honourable Sophia Leung, shown wearing their Jeans for Genes Day pins.

Q: What is Jeans for Genes Day?

A: Jeans for Genes Day is the annual, national fundraising event of the Canadian Gene Cure Foundation. On Jeans for Genes Day, employees within participating companies, hospitals, universities and schools buy our double-helix pin for a minimum \$5 donation and wear their jeans.

Q: When was Jeans for Genes Day?

A: October 3, 2002

Q: Which organizations participated this year?

A: We had the support of 176 organizations from nearly every sector this year up from 96 in 2001. Groups in commercial real estate and accounting to law, pharmaceutical, biotech, retail, hospitality, investment, recruitment, telecommunication, property management, insurance, public relations, forestry and tourism not to mention hospitals, universities and three high schools.

Q: How did this compare with last years campaign?

A: The 2002 campaign had nearly double the number of participating organizations from 2001.

Q: What happens to the money that was raised?

A: 100% of the money raised funds MD/PhD scholarships in gene cure research at universities and hospitals across Canada. We partner with the Canadian Institutes of Health Research, Institute of Genetics on these scholarships. We hope that these scholarships will help to increase the number of clinician scientists in Canada who are working to find cures and treatments for genetic diseases.

Q: Why do you think the campaign appeals to so many people?

A: I think the growth of the campaign is a result of many factors. The first reason is that scientists have shown

that our genes can be responsible for our susceptibility to so many diseases, such as breast cancer, heart disease, colon cancer and Alzheimer's. Our genes can decide if children develop Cystic Fibrosis, Muscular Dystrophy and Multiple Sclerosis. I think that Canadians realize that supporting genetic research and the Jeans for Genes Day campaign is an important way to ensure the good health of our families.

I think another reason for the success of the Jeans for Genes Day campaign is that everyone has a friend or family member with a genetic disease – 60% of Canadians will develop or die from a genetic disease. The funds raised by the campaign have the potential to benefit so many Canadians!

Q: If someone wanted to get involved in 2003, who should they contact?

A: All they would need to do is e-mail info@jeansforgenes.ca or call me at (604) 224-1010 and I will send them an information kit in 2003. ▲

The Canadian Genetic Diseases Network is a proud sponsor of the Jeans for Genes Day campaign.



CANADIAN GENETIC DISEASES NETWORK
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December 20th 2002

It was with sadness that we received the news of the passing of the Right Honourable Ramon Hnatyshyn.

Mr. Hnatyshyn, or Ray as he preferred to be called, was a good friend and supporter of both the Canadian Genetic Diseases Network and the Canadian Gene Cure Foundation.

From our first meeting with him and our Chair, the **Rt. Hon. Don Mazankowski**, he remained an enthusiastic supporter of the importance of human genetics research. He took delight in asking Michael questions about how CGDN scientists found “disease genes”. He told us that, even years after leaving Rideau Hall, Canadians would still write to him seeking help on personal health problems.

Many of you and your students had the opportunity to hear and talk with him at the last two Annual Scientific Meetings. His attendance at these meetings was indicative of his commitment to our organizations and to the education of young scientists. By his request, he was seated with students at all our meeting events so that he could “keep abreast of what young people were thinking and doing”.

Mr. Hnatyshyn also played a significant role in the development of the Jeans for Genes Day campaign. As Honorary Chair he was instrumental in developing strong support from many Canadian companies and institutions. He took great delight in presenting the recognition plaques to those that made significant contributions to the campaign.

We are pleased that The Rt. Hon. Don Mazankowski will be attending the state funeral in Ottawa on Monday January 23rd. He will have the opportunity to express our appreciation to Mr. Hnatyshyn's wife and family at this time.

Yours truly,

Ron Woznow
Chief Executive Officer

Michael Hayden
Scientific Director