

**Innovation Place Newsletter**  
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**Genometrics launches worldwide DNA testing centres from headquarters at Innovation Place**

Just over one year ago, world researchers announced that they had virtually completed mapping the genetic blueprint that defines human life. The rough draft of the human genetic map - referred to as the Human Genome Project - was completed almost five years ahead of schedule by publicly funded research teams and the private sector American company Celera Genomics.

The Human Genome Project involved cataloging a three-billion part sequencing of genetic material, and has been acclaimed as the watershed breakthrough of the century in human knowledge.

Already, the analysis of the draft human genomic sequence has led to the identification of genes for cystic fibrosis, breast cancer, hereditary deafness, hereditary skeletal disorders and a form of diabetes.

These discoveries, as well as ones to come, will have a profound impact on the future practice of medicine, says Nicolas Grimaldi, president of the newly-established genomic information centre Genometrics Corporation, located at Innovation Place. Grimaldi is a bioinformatics expert who developed quality control software for the Human Genome Project.

"In the coming years, clinicians will be able to help their patients in ways they never thought possible. Physicians will be able to rapidly diagnose existing genetic diseases; predetermine genetic risk for developing a disease; design novel therapeutic agents for the treatment and prevention of disease rather than the treatment of the underlying symptoms; and prescribe a medical intervention based on a person's genetic information, reducing the chance of an allergic or otherwise detrimental drug reaction."

He anticipates that Genometrics will play an important role in facilitating this medical revolution. The private sector company is an integrated, one-stop, genomic information resource centre which will assist in organizing, analyzing and interpreting the flood of data emerging from international sequencing projects stemming from the Human Genome Project.

Genometrics Corporation opened its doors in November of 2000 in the Atrium Building at Innovation Place. Grimaldi says that the Genometrics partners, several of whom are local investors, identified the need for a company that would collect DNA samples from around the world for analysis and sequencing.

"We'll be doing the collection of DNA samples across the world through the establishment of 500 genetic testing centres," says Grimaldi.

The Saskatoon GenoCentre™ will be the first of these genetic testing centres, opening October 4 at 610 Queen Street, across from City Hospital. Grimaldi anticipates that a GenoCentre will be open in Ottawa by mid-November. "The Vancouver, Toronto and Montreal GenoCentres are in the process of negotiation, and we're hoping by March of next year that they will be fully operational."

An agreement with a national laboratory service will see the opening of a number of satellite collection centres across Canada this fall.

The GenoCentres, which will be located in every urban area of North America, Asia and Europe, will collect blood samples for DNA mapping from millions of people.

What's the difference between a full GenoCentre and a satellite GenoCentre? Grimaldi says, "The full scale testing centres will be offering genetic counseling. The satellite GenoCentres will operate in smaller communities and will not have on-site genetic counselors. People in those smaller communities will be able to communicate with our genetic counselors by telephone or via the Internet."

After an individual's blood sample has been obtained, a genopassport™ is issued, to ensure the strictest privacy and confidentiality. "At no point is an individual's name attached to their DNA results. Only through the use of that genopassport, will anyone have access to the results of the DNA analysis," says Grimaldi.

Raw samples will be forwarded from the GenoCentres to a sequencing centre which may also be located at Innovation Place. "We hope to have a full sequencing centre built here at Innovation Place which will serve the entire Canadian market. We have signed an agreement with a large commercial sequencing centre in the United States to analyze the samples we collect in the United States while samples collected in Asia will be analyzed in Japan."

The genetic sequences will be stored in Genometrics' databases, currently under construction at Innovation Place. "Whether samples have been collected in Japan, Germany, the U.S. or Canada, all the genetic data will be stored in our databases at Innovation Place," says Grimaldi.

The data collected by Genometrics Corporation will be an important part of the second phase of the Human Genome Project, which involves collecting datasets of millions of individual DNAs, to allow researchers to correlate genetic variation with disease and individual characteristics based on the more than three million polymorphic markers of the human genome. It will also allow pharmaceutical companies to analyze the reaction of more than 30,000 genes and dozens of pharmaceutical formulas and test the results of their analysis on large datasets of individual DNAs.

The research is expected to lead to novel and optimized drug therapies, as well as the elimination of certain diseases and syndromes through genetic screening and advancements in pharmagenomics.

Individuals with a genopassport will have firsthand access to this potentially life-saving information.

"Your genopassport allows you as an individual to access, via the Internet, your DNA results. In years to come, it will allow you to conduct your own health research, using your own individual genetic information," says Grimaldi.

"We will do the sequencing, the analysis, then we give you the results. As science develops new gene therapies or drug treatments that would have an impact on your specific DNA make-up, you will be able to access this information through the Genometrics website."

Will research organizations have access to the genetic data being analyzed and collected by Genometrics? "Only if an individual gives their informed consent," says Grimaldi. "An individual can also specify which research organizations can have access to that research."

Genometrics has established a two-tiered price structure for genetic testing. "If you do not want anyone to have access to your genetic information, the price will be higher than if you were willing to share that information for research purposes."

Grimaldi stresses again the strict privacy measures that will be enforced by Genometrics. "At no point will an individual's name be attached to their DNA results. That's why individuals are given genopassports. Scientific organizations will be given only the genotype and the phenotype of the individual analysis. They cannot relate that information to your name, date of birth or address."

At present, no provincial health care system covers the cost of genetic testing, says Grimaldi. "We have a financing program in place to allow everyone to have their genetic testing done. We are currently showing the health care system that it is much more cost efficient to do genetic testing and prevent illnesses, than to start treating them after the disease is in full development."

Dr. Craig Campbell, Director of Genetic Counselling Services, is in the process of designing a course for physicians and primary health care providers, which will explain how genomics will impact their practices on a daily basis. "We've had many physicians asking us to hold seminars or conferences. To deliver this information, we have established what we call the Genometrics Institute, which will be managed by Dr. Campbell," says Grimaldi.

When fully operational, Genometrics Corporation is expected to employ between 160 to 200 people. The company's headquarters and databases will be located in the Atrium Building at 111 Research Drive.

The research park's proximity to the Canadian Light Source synchrotron facility was a key factor in locating at Innovation Place, says Grimaldi. "We will be using the synchrotron for all of our crystallography processes in the studying of protein expression in 3D. We're hoping to establish an electronic pipeline between our structural molecular lab and the synchrotron to do all of our crystallography work."

Grimaldi says the sequencing centre, built within the structural molecular biology lab to study both gene and protein expression, should be in operation by October 2002. "We're hoping to be able to access the synchrotron facility by the spring of 2003, at which time we will be fully operational."

In the meantime, Genometrics will be busy opening GenoCentres across Canada and around the world, to collect individual DNA samples. "We hope to test one per cent of the population within the next five years. As the benefits of having genetic testing done are demonstrated, the program will expand exponentially," says Grimaldi.

For more information, call Genometrics at 651-2898; toll-free 1-866-DNA-INFO. The Genometrics websites currently being developed by Cronus Technologies in collaboration with Dark Horse Studio, both Innovation Place companies, are another great source of information ([www.genometrics.ca](http://www.genometrics.ca)) or ([www.dna.info](http://www.dna.info)).

### **Atrium Building earns ISO-9002 certification**

Ken Anderson, maintenance supervisor at Innovation Place, is pleased to announce that the Atrium Building at Innovation Place has achieved ISO-9002 certification.

ISO-9002 is a quality management system that establishes a formal management process and procedures for managing building operations and maintenance. ISO procedures cover building management, utility supply system maintenance and tenant lab equipment service.

To earn ISO certification, the maintenance department needed to establish and/or verify quality management processes in 20 different areas. "It is a comprehensive program with

very detailed procedures," says Anderson. "Our five person department spent many, many hours for nearly a year in advance planning and preparation. With the help of a Regina certified ISO consulting firm, Canatech, we developed, verified and documented all necessary procedures and guidelines. Subsequently, an external ISO audit was conducted by QCB, a certified ISO audit firm from Edmonton, to verify our program."

Officials from QCB conducted the Atrium Building's external audit on May 1. "The auditors looked at all of our documentation, equipment and procedures. They also interviewed our staff and members. Ultimately, only four suggestions - and they were only suggestions - were made as a result of the audit and have now been implemented," says Anderson.

The Atrium Building distributes process utilities to tenants. Process utilities available include: Reverse Osmosis (RO) water that is continuously circulated through stainless steel piping; a closed chilled water loop which delivers water at 7° C. for cooling; USP steam made from RO water, distributed at a pressure of 40 psi through stainless steel tubing; utility steam for heating produced at a pressure of approximately 60 psi; oil-free compressed air which has been passed through an activated carbon absorbent filter to trap airborne particles and distributed via copper tubing; and nitrogen distributed by medical grade copper tubing.

"In short, ISO certification means we follow an established set of procedures in the delivery of utilities and maintenance of buildings and systems," says Anderson.

Another example of an ISO certified system is the Atrium Building's central biological waste system. All biological and chemical wastes from processes being conducted by the labs in the facility go through a neutralization and biological "kill system." All living organisms are killed and waste water PH levels are neutralized before wastes are released into the municipal sewer system. The building also has a fermenter vent system. These vents collect gasses and exhausts them through biological filters.

Proper document, data control and following documented procedures are key to achieving ISO certification, says Anderson. "Every form that we use is authorized through our procedures. We maintain specific statistics on our utilities and follow specific procedures when any utility is interrupted. Clients may review our Policies and Procedures Manual to see what the policies are, what exactly is ISO-certified and how actions are documented."

Achieving ISO-9002 certification provides assurance that Innovation Place clients will benefit from international standard quality management practices. "To maintain ongoing quality standards, an external ISO audit will be conducted yearly. In addition, we will also be carrying out our own internal peer audits throughout the year," says Anderson.

All members of the maintenance department are justifiably proud to have contributed to Innovation Place's ISO-9002 certification. "The Innovation Place maintenance staff are exemplary and work well as a team, which complements this type of system and I applaud them," says Anderson.

"It's been a real learning process. And since this is a 'living' document, it's a continuing process. Everyone received training and we will continue the training processes in order to maintain our quality system."

## **ABIC 2002 focuses on convergence in agricultural biotechnology**

"Agbiotech: Cultivating Convergence" is the theme of the fourth biennial Agricultural Biotechnology International Conference (ABIC) 2002.

ABIC returns to Saskatoon - Canada's "Science City" - from September 15 to 18, 2002. The conference has expanded to a new venue, Saskatoon's Centennial Auditorium and Convention Centre, and is expected to attract from 800 to 1,000 delegates from around the world.

The ABIC conference program will highlight the exciting convergence of agricultural biotechnology with life sciences, molecular farming, genomics, health care and nutrition, showcasing the industry's strength and new directions. The conference will also emphasize the importance of global stewardship for the benefit of the many stakeholders involved.

Ag-West Biotech Inc. is the official host of the ABIC 2002 Conference, and is co-sponsoring the event along with (in alphabetical order) the ABIC Foundation, Alberta Agricultural Research Institute, Canadian Seed Growers' Association, Contact Canada®, Ecol Direct, Innovation Place®, Pioneer® Hi-Bred a Dupont Company, Royal Bank of Canada, Saskatchewan Agriculture and Food and Western Economic Diversification Canada. Additional sponsors are anticipated to jump on the ABIC bandwagon over the next few months.

An executive committee including Dr. Louise Nelson of the U of S Department of Applied Microbiology & Food Science, Ray Kolla of KPMG and Cheryl Loadman of Saskatchewan Economic and Co-operative Development assists ABIC 2002 conference chair, Peter McCann of Ag-West Biotech. A national steering committee comprised of local ag biotech specialists has also been hard at work for several months in preparation for the conference.

The last time the ABIC Conference was held in Saskatoon was 1998. "In 1996 and 1998, the ABIC Conference was held in Saskatoon. In 2000, it was held in Toronto. For 2002, the conference returns to Saskatoon. In 2004, it will be held in Germany. For 2006, it will return to Saskatoon. We will alternate between Saskatoon and international host cities in the years to follow," says Lucille Richardson, ABIC 2002 conference coordinator.

"The concept of alternating host cities highlights ABIC's importance as an international event," says Judy Hume, Communications Manager with Ag-West Biotech. "International is part of the ABIC name. By taking it to locations like Germany, it truly becomes a worldwide event."

Distinguishing ABIC 2002 from previous years will be an information session which will be completely open to the public.

"We will also be inviting the public to attend a new Bio-Products Showcase. We want to show people the real advances that are being made using the tools of ag biotechnology - from new packaging being made from corn-based elements to nutraceuticals and medical products. We want the public to see the good, positive advances resulting from ag biotechnology that are helping our environment and improving our quality of life," says Hume.

Conference speakers will highlight the convergence of the four major themes of bioindustry, health, environment and stewardship. International speakers who have confirmed their participation to date include Dr. Ralph Hardy, President of the National Agricultural Biotechnology Council; Dr. C.S. Prakash, Professor of Plant Molecular Genetics at Tuskegee University with a special interest in food crops of importance to developing countries; Dr. Vivian Moses, Emeritus Professor, King's College (U.K.) and coordinator of the "Educating the European Public about Biotechnology Project"; and Anatole Krattiger, founder of BioDevelopments LLC, an international consultancy company that works to transfer biotechnology for the benefit of the developing world, and former Executive Director of the International Service for the Acquisition of Agri-Biotech Applications.

Constantly updated information on ABIC 2002 will be posted on the official website at [www.abic.net](http://www.abic.net). "We're already getting web hits from around the world, including China, India and Germany," says Richardson.

"ABIC has become a very prestigious industry event. Our worldwide recognition is a result of the quality of the speakers we attract and the scientific breakthroughs that are announced at the conference."

Hume says that ABIC also presents an unparalleled opportunity for international networking, especially through the conference's tech transfer and financial forums. "It brings together world renowned scientists with business leaders who can invest in that science and take it to the next stage of development."

The future leaders of ag biotech will also have an opportunity to get involved in ABIC as volunteers. "We're looking for volunteers and are inviting students from both the University of Saskatchewan and Kelsey SIAST to get involved. Not only will we have tasks for them to do, they'll have an opportunity to hear some of the exciting presentations that will be made," says Hume.

ABIC 2002 organizers are urging all Innovation Place tenants to join in promoting Saskatchewan's agricultural biotechnology industry to an international audience through sponsorship and participation in the conference.

For more information, contact Lucille Richardson or Judy Hume at 683-2242. Remember to check out the ABIC website at [www.abic.net](http://www.abic.net), and watch the conference program grow!