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PRESS RELEASE
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ONTARIO-LED PROJECTS AWARDED FUNDING FOR GENOMICS RESEARCH ON BIOPRODUCTS AND CROP PESTS

Toronto, April 24, 2009 - Two research teams led by Ontario scientists have been awarded nearly $8 million in funding for genomics research from Genome Canada through the Ontario Genomics Institute (OGI). One project focuses on the conversion of industrially-processed plant residues and wastes into biofuels and other bioproducts, and the other project aims to improve pest control in the vegetable production industry. Together with funding raised from other sources, the budgets for these two projects will total more than $17 million over four years.

Dr. Elizabeth Edwards (University of Toronto) and Dr. David Major (Geosyntec Consultants, Guelph) are leading the project *BEEM: Bioproducts and Enzymes from Environmental Metagenomes*, which includes collaborators from Bangor University (Wales), Georgia Institute of Technology, University of Massachusetts, US Department of Energy Joint Genome Institute (JGI; California) and Argonne National Laboratory (Illinois). Their metagenomics approach is based on simultaneously sequencing and analyzing the genomes of many organisms (for example, soil bacteria) without having to isolate and cultivate all the separate species, a time-consuming and often impossible process. Thus, entire communities of life can be examined to screen, identify and analyze novel proteins (enzymes) with potential as catalysts to transform low-value plant residues and waste products into valuable bioproducts such as fuel. Already, the team has worked with pulp and paper mills to develop microbial processes that have reduced harmful byproducts of the industry while also generating some of the energy their operations require.

“This funding will allow us to use the most advanced technologies available to examine new ways of creating sustainable alternatives to fossil fuels and novel bioremediation approaches for emerging contaminants,” commented Dr. Edwards. “Using plant-based material to produce biofuels and other valuable, eco-friendly bioproducts will be a major step forward, both in identifying innovative sources of energy, but also in identifying other, potentially transformative uses of industrial enzymes.”

Dr. Miodrag Grbic (University of Western Ontario, London) is leading the project *Genomics in Agricultural Pest Management*, which includes collaborators from Spain (Centro Nacional De

Biotecnologia,Universidad Politecnica de Madrid, and Consejo Superior de Investigaciones Cientificas, Belgium (Gent University and VIB - the Flanders Institute for Biotechnology), France (Centre de Biologie et de Gesti on des Populations), and the United States (University of Utah and JGI). They are focused on the creation of tools and technologies to reduce the devastating damage spider mites cause to the annual $550 million greenhouse vegetable industry in Ontario (currently, 13% of all potential crops are destroyed by insects and mites). By understanding the interactions between plant and spider mites, genes that confer pest-resistance can be identified and then could be inserted into some of the 1000 plus plant species on which these pests commonly feed, making them more robust and reliable food producers. This work could also lead to the ability to turn-off pest-specific genes, opening up a new avenue for biological pest control by, for example, reducing the ability of these pests to reproduce.

"This award will allow us to build rapidly on our previous work, and to stay at the leading edge of a very competitive field," commented Dr. Grbic. "Creating new, environmentally sound approaches that reduce crop damage by pests without increasing and perhaps decreasing growers' reliance on pesticides will help increase Canada's competitiveness, lead to more sustainable crop production, and help maintain a healthy natural environment."

"These projects exemplify the broad applicability of genomics technology and methodology to create research resources that serve a very broad spectrum across life sciences, and which create the potential for breakthrough approaches to societal needs and economic opportunities," commented Dr. Christian Burks, President and CEO of OGI. "We look forward to working with Ontario's outstanding scientific leadership on these projects as well as with their national and international collaborators."

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About OGI
The Ontario Genomics Institute (OGI) is a private, not-for-profit corporation focused on using world-class research to create strategic genomics resources and accelerate Ontario's development of a globally-competitive life sciences sector. Through its relationship with Genome Canada, the Ontario Ministry of Research and Innovation (MRI), and other private and public sector partners, OGI works to: identify, attract and support investment in Ontario-led genomics research; catalyze access to and the impact of genomics resources; and, raise the visibility of genomics as well as its impact and associated issues.

For more information on OGI, please visit www.OntarioGenomics.ca

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