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World's largest plant DNA project may lead to new medicines or surprise discoveries

By Jim Macdonald, THE CANADIAN PRESS

EDMONTON - A rising star in the field of genome research has been lured back to Canada from the U.S. to carry out the world's largest plant DNA project at the University of Alberta.

Plants used in some cultures as herbal medicines will be among those tested and there's already a lot of excitement about the possibility of new medicines emerging from this research.

"This project has real potential for new discoveries that can make nature work for us," says Dr. Gane Wong, a Canadian who worked in the U.S. and China before moving to Alberta.

Wong also says this \$6-million project could end up leading to surprise discoveries.

"The key point of innovation is to be nimble and flexible," he says. "You don't want to be so focused that if you stumble across an enormous pot of gold that you say 'I'm just going to ignore this.'"

Scientists, politicians and various companies backing the 1,000 Plants Initiative are hoping for the kind of breakthrough that led to a cheaper way of creating the key ingredient in a leading malaria drug.

"It was developed based on traditional Chinese medicine," says Wong.

"Western technology isolated the molecule," he added.

Researchers have created yeast factories that can make the chemical nearly 100 times faster than it can be extracted from plants.

Wong's presence is expected to lure other top researchers to the University of Alberta, where a sprawling \$400-million expansion to the science department is under way.

Nailing down the DNA sequences for 1,000 plants is far broader than any other project of its type.

"I bet you there's not 100 plant species to date that have been sequenced around the world," says David Bailey, president of Genome Alberta, a not-for-profit agency set up three years ago to support world-class research.

A panel of experts will choose the plants, with emphasis on those already reported to have medicinal qualities.

They'll also look at several types of algae, which can be used to create bio-fuels.

The first phase will gather the DNA sequence data over the next two years. During the second phase, Wong and other leading experts will analyze that data to determine which areas of research to pursue.

"That's where the commercial opportunities exist, so that's what's really exciting," says Bailey.

Wong says there are several commercial investors lining up to back the research and share the benefits of the discoveries. But he plans to share the DNA sequence data with the rest of the world.

"The tradition in genomics is to generate the data and put it out there freely on the Internet," he says.

Doug Horner, Alberta's minister of advanced education and technology, says he's eager to see the fruits of this research "commercialized to the benefit of all society."

"This is a big deal for Alberta and it's a big deal for Canada," says Horner, who sees this as a chance to create a next-generation economy for Albertans.

Wong, who was previously at the University of Washington, was recruited in the 1990s to work on the



Dr. Gane Wong is seen among plants at the the University of Alberta Biosciences Building greenhouses in Edmonton, Thursday, Nov.13, 2008. THE CANADIAN PRESS/Edmonton Sun/HO-Government of Alberta

Human Genome Project, which helped identify all of the roughly 25,000 genes in human DNA.

He's also an associate director of the Beijing Institute of Genomics, one of the international partners in the Alberta-based plant DNA project.

Wong says he's hoping to assemble a crack team of scientists to get the most out of research that will stretch over several years.

"I don't start a project until I find people to work with, people that I actually have confidence can do the many things that I cannot do," he said.

Dean of Science Greg Taylor says the University of Alberta already has a proven track record, including a breakthrough in treating diabetes known as the Edmonton Protocol and a new discovery that will open up new possibilities in electronics.

"Recently our physicists showed that a single molecule can act as a transistor," says Taylor. "These are the kinds of discoveries that change the world stage."