

Carb research gets \$12.5 million boost

The director of the Alberta Ingenuity Centre for Carbohydrate Science says increased funding will propel more inter-disciplinary collaboration

LOGAN BANADYGA
News Writer

The Alberta Ingenuity Centre for Carbohydrate Science (AICCS) was awarded \$12.5 million last month to continue investigating the role that complex carbohydrates play in human health and disease.

The provincial research group, comprised of scientists from both the U of A and the University of Calgary, was granted the money by the Alberta Ingenuity Fund, a \$1-billion endowment set up by the Government of Alberta to foster internationally competitive science within the province. The AICCS will use this money over the next five years to continue to develop what is already a successful and highly regarded carbohydrate chemistry research program.

"The overall goal of the Centre's program is to fund groups that have a critical mass of expertise, that are regarded as world-calibre," said Dr David Bundle, director of the AICCS and a U of A chemistry professor. He added that while basic science is a core interest at AICCS, "it is very much the mission of the Centre to translate research into applications."

The interdisciplinary team of scientists at the AICCS has already applied its research to produce and patent both an antidote to the bacterial E coli toxin and a vaccine against Candida albicans, a yeast capable of causing serious disease in the immunocompromised. Scientists at the Centre are also currently developing a vaccine against tuberculosis, an effective treatment for Clostridium difficile infection, and therapies for certain types of cancer. Bundle hopes to take these



CYRIL BALITBIT

BUNDLE OF ENERGY Dr David Bundle talks about the renewed funding for his research.

medical advancements and commercialize them for public use, in part by using the Centre's spin-off company, TheraCarb.

"The deliberate intent is to have an economic impact in the province," he said, adding that although the recent funding will help drive the growth of the Centre's industrial and commercial aspirations, it will also allow the AICCS to attract and retain top-quality graduate students and purchase more modern equipment—something he says will benefit not only AICCS but also the Faculty of Science and University as a whole.

Bundle is also enthusiastic about the Centre's partnership with the Faculty of Education and the launch of an outreach program that has brought high-school science teachers into the lab and resulted in state-of-the-art science getting back into the classroom.

"We have apparently hit all the right buttons at the end of our first five years," Bundle said. "By the end of ten years, I think we may well have spun out two companies and have significant publications. And if we can do that, then I think we're in good shape to be funded for a third five-year period."

Alberta scientists to tackle province's high rate of premature births with new funding

CAROLINE LEE
News Staff

A team of 20 researchers from Alberta's three universities are set to tackle the province's high premature birth rate after receiving a \$5-million grant from the Alberta Heritage Foundation for Medical Research (AHFMR) to support their research over next five years.

Representing twelve different disciplines, the Preterm Birth and Healthy Outcomes team is one of the first research groups to receive the AHFMR's Interdisciplinary Team Grant, following a competition held in October 2007. With a premature birth rate of 9.3 per cent in Alberta, compared to the national rate of 7.8 per cent, the project is a response to the serious phenomenon of rising frequency in preterm births.

"We have a health problem here in Alberta. We have the capacity and the people to address it. [The researchers] all have the right skills sets, and they're willing to come together. So, it was a really nice blend of great people and [a] worthy project. That's why we want to do this; we're all committed to improving the health outcomes for preterm birth," explained Dr David Olson, a co-director of this project and a professor at the University of Alberta in obstetrics and gynecology, pediatrics, and physiology.

Preterm births, which occur prior to the 37th week of pregnancy, are associated with increased risks for

several health conditions that pose immediate and long-term consequences. Dr Suzanne Tough, another co-director and an epidemiologist at the University of Calgary in pediatrics and community health sciences, explains that premature infants are at a greater risk of suffering from problems associated with growth and development. These include speech and language delays, learning problems, chronic lung diseases, behavioural disorders, and socialization issues.

"The tinier the baby, the more likely they are to have these problems. These babies start out with lots of physical disadvantages, and it's hard for them to catch up," Tough continued. "Despite all of our best efforts, they're still more at risk of blindness and deafness than other children. They're just born too soon. They're not ready."

While it's unknown why Alberta has the highest premature birth rate, Tough suggests that there are several risk factors that could explain the rising rates, including genetic factors, the use of fertility treatments, lack of prenatal care, low-income situations, and the mother's lifestyle.

"More women are choosing to wait later in life to have their first baby, [and] after 35, the risk for preterm babies is higher," Olson said.

In addition, Tough explained that for individuals who've recently moved to Alberta, they may experience additional pressures.

"Part of the reason that people new

to Alberta are more likely to have a pre-term infant is because they're having challenges accessing health services. Also, there are language and cultural barriers to accessing prenatal care, increasing the risk of preterm birth. You can imagine how these things come together: you're new to the city, you can't find a doctor, and you don't have very many friends," Tough said.

With this base, the research team will be examining the problem through a four-pillar approach to health research: basic science, clinical investigation, health outcomes, and population health. Tough believes that the AHFMR's approach to interdisciplinary research will set the grounds to find solutions to issues that couldn't be done if a team was to focus on a single aspect of the problem.

"When you have a whole bunch of people with different backgrounds, we think we can answer more complex questions. Preterm birth is definitely a complex question, because if it was just one thing, we would have solved it by now," Tough said.

The Preterm Birth and Healthy Outcomes team has also recently received an additional \$10 million in funding from the Ministry of Health and Wellness, the three universities, and stakeholders in the province.

"Every day now, I'm getting emails from all the other team members, and they're all getting started. It's an exciting time. We're really happy about this award," Olson said.

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