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Spotlight on Research
2014 PUBLICATION
ACHRI Shows Leadership in Child Health Research in Alberta

The Institute has developed a critical mass and excellence in these areas: behaviour and the developing brain; molecular biology, genetic basis of development; and injury prevention, health promotion, and better management of acute and chronic disease. As well, there has been momentum and maturity in the work of the imaging, clinical and genomic platforms.

The Alberta Children’s Hospital Foundation (ACHF) through its community of donors has acknowledged your hard work by generously supporting the Institute’s priority program development, key recruitment and infrastructure. This is reflected across the full spectrum of research: basic science; clinical; health service delivery; and population health - in alignment with our partners’ priorities.

As we look forward to 2014, ACHRI will see new space developed and old space renovated. To support neurodevelopment and mental health research, new space will be opened at the Child Development Centre by fall 2014. The year will also see the architectural planning for the renovation of wet labs within the ACHRI footprint of the Foothills Campus. These upgrades are welcome and will increase our research capabilities, and we have the ACHF and our partners to thank for making this happen.

We are continuing to earn recognition in the community through the dedication and hard work of our investigators. The quality of your publications and the number of your grants are evidence of this. The Institute has developed a critical mass and excellence in these areas: behaviour and the developing brain; molecular biology, genetic basis of development; and injury prevention, health promotion, and better management of acute and chronic disease. As well, there has been momentum and maturity in the work of the imaging, clinical and genomic platforms.

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The Alberta’s Children’s Hospital Research Institute (ACHRI) and its members have much to celebrate in 2014. It is our fifth year as an Institute. I am quite proud of our accomplishments and delighted to have been able to support them. Each year, we are more focused and vision-driven to achieve our shared goal of research that creates new knowledge and advances child and maternal health. It is the work you do that makes this happen, and ACHRI is committed to your continued success.

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Insight into tissue Regeneration

Canadian researchers were the first to identify stem cells fifty years ago – and that legacy is important to Jeff Biernaskie, PhD, who established a major lab in skin stem cell research at the University of Calgary in 2009. The lab is funded by the Canadian Institutes of Health Research, Alberta Innovates Health Solutions, Stem Cell Network, Brain Canada/W. Garfield Weston Foundation and the Calgary Fire Fighters’ Burn Treatment Society.

Research is underway in the lab to ask whether dermal stem cells, self-renewing cells in skin, can be used to enhance healing. The work is in collaboration with Dr. Vincent Gabriel, Faculty of Veterinary Medicine, and Dr. Michael Kallos, Schulich School of Engineering.

He is also applying his lab to research the conversion of skin cells into primitive retinal (eye) cells. There are many steps ahead, but the goal is to take the skin-derived cells and create photoreceptors which are fundamental to human colour vision. This research is funded as part of a national team grant from the Brain Canada/W. Garfield Weston Foundation to advance treatments for vision loss. The collaborative team includes the Faculty of Medicine’s Carol Schuurmans, PhD, and the Faculty of Veterinary Medicine’s Mark Unglin, PhD, as well as investigators from the Universities of Toronto and Alberta.

About a third of burn injuries are in children under 16 years. The consequences which include scars, immobility and psychological trauma, can be devastating and lifelong.

Biernaskie graduated with a PhD from Memorial University’s Faculty of Medicine in 2003 and trained in stem cell biology and tissue regeneration at Toronto’s Hospital for Sick Children. He would go on to accept a position at the University of Calgary as assistant professor in the Department of Comparative Biology and Experimental Medicine, Faculty of Veterinary Medicine, and a joint appointment to the Department of Surgery at the Faculty of Medicine. He is also a member of the Alberta Children’s Hospital Research Institute (ACHRI) and the Hotchkiss Brain Institute.

His contributions to stroke research first put him in the public spotlight when he showed in animal models that early, rather than delayed, rehabilitative therapy doubled the speed and efficiency of recovery from stroke. His work was published in the journal of Neuroscience and gave him a CHRI Brain Star Award. Within a few years, Biernaskie was working in Dr. Fida Miller’s lab where he identified dermal stem cells, published in the journal Cell: Stem Cell. It earned Biernaskie a CHRI New Investigator Award.

“I have a really talented group of people in my lab and they’re working on a number of really exciting projects right now. I hope that in a few years we can begin to think about translating this work toward clinical use.”

ACHRI’s Scientific Director – A stellar career in science

Ray Gravel, PhD, (left in photo) retires in June from his position as scientific director of ACHRI, leaving his mark of excellence on the institute and three Canadian universities.

He was recruited to the University of Calgary in 1999 as holder of the prestigious Isaac Walton Killam Memorial Chair and an Alberta Heritage Foundation for Medical Research Scientist award, leaving a position as scientific director of the McGill University-Montreal Children’s Hospital Research Institute and prior to that, a position at the University of Toronto and the Hospital for Sick Children.

Gravel has spent his career investigating inborn errors of metabolism, principally vitamin disorders and Tay-Sachs disease. He and his colleagues, Jay Scott (photo right) and Erica Watson, recently published findings in the journal Cell which show that a late onset deficiency triggers abnormalities in, not just in offspring, but in future generations as a result of abnormal epigenetic processing.

This extremely disciplined scientist has played an important leadership role at the Faculty of Medicine, contributing to a formal internal grant review process that has helped increase the number of successful grants to the university. With Carol Schuurmans, he was also awarded a CHRI Training Program Grant, providing an intense training environment for young scientists.

For more stories and information about trainees, view: research4kids.ucalgary.ca/trainees

The Alberta Children’s Hospital Foundation invests in research

very great accomplishment begins with a dream. And those dreams come true, through the generous donations to the Alberta Children’s Hospital Foundation.

Each year, the Foundation renews its commitment to helping researchers with finding the causes behind childhood disease and injury. Through the Foundation’s commitment to the Alberta Children’s Hospital Research Institute, its scientists are able to pursue innovative pediatric research, purchase new technology and lab equipment, and develop neighborhood research programs.

This past year, the Institute’s scientists have conducted nation leading research explaining the brain and behavior, advancing healthy outcomes and understanding the basic molecular and genetic origins of disease.

From 2011-2013, the Alberta Children’s Hospital Foundation provided more than $39 million in funding to help children and families. That community support tells researchers what they do matters.

“People in our community want what’s best for our children,” says Saif Koonar, President and CEO of the Alberta Children’s Hospital Foundation. “We are so grateful to their generous donations, and its members look forward to another year of uncovering medical mysteries and begin to answer the questions that will lead to improved health for mothers and children.

“A creative and vigorous research community is fundamental to ACHRI’s success. The overwhelming support from the people of Calgary needs to be acknowledged and thanked. ACHRI would not exist without these community donations and we at the Institute are very grateful,” says Dr. Brent Scott, Executive Director of ACHRI.
Q & A with Cancer researcher Doug Mahoney

You are working with the rhabdovirus. What is it about this virus that makes it attractive for cancer therapy? In Calgary, there's a long history of using viruses in cancer research. In 2013, he became the first Canadian to receive the Young Investigator Award from a US based foundation called Alliance for Cancer Gene Therapy. Mahoney also shared a team grant from Alberta Innovates Health Solutions for a Collaborative Research and Innovation Opportunity Project advancing research in immune modulation. He is a member of the Alberta Children’s Hospital Research Institute (ACHRI) and Southern Alberta Cancer Research Institute (SACRI). His research along with a team from University of Ottawa, Ottawa Hospital and CHEO Research Institutes is published in Nature Biotechnology.

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We usually think of viruses as causing illness. But for you, it offers an ability to cure? In Calgary, there's a long history of using viruses in this way. Medicines evolve with our understanding of disease, and treating cancer with viruses makes a lot of sense. The rhabdovirus VSV is one year into a clinical trial for liver cancer. A clinical trial – also in adults – for another rhabdovirus called Maraba is anticipated to begin next summer. Five years from now I’d like to see one of these viruses being evaluated in children with solid tumors. I anticipate that my lab will be busy learning from these trials in order to make better next-generation strains.

In two words, how would you sum up your experience here at the University of Calgary? Extremely rewarding.
Leadership Awards

Dr. David Johnson
Alberta Health Services
2013 President’s Excellence Award for Outstanding Achievements in Research for his leadership in the Asthma Working Group, a multidisciplinary team focused on developing, implementing and evaluating asthma clinical pathways.

Dr. Ian Mitchell, FRCPC
2013 Dr. William Marsden Award in Medical Ethics. This award recognizes CMA members who have demonstrated exemplary leadership, commitment and dedication to the cause of advancing and promoting excellence in the field of medical ethics in Canada.

Nancy Moules, PhD, RN
Faculty of Nursing’s first ever faculty recipient of the Order of the University of Calgary, honouring a record of exemplary and distinguished service to the University.

TOWARD A HEALTHY FUTURE

REGISTRATION DEADLINE
APRIL 1, 2014

ABSTRACT SUBMISSION DEADLINE
MARCH 10, 2014

INTERNATIONAL SPEAKERS
Wayne J. Morgan, MD, CM
University of Arizona

Susan Ozanne, PhD
University of Cambridge

Susan L. Cohn, MD
University of Chicago

Siobhan Dolan, MD, MPH
Albert Einstein College of Medicine

UNIVERSITY OF CALGARY SPEAKERS
Donna Slater, PhD
Robert Newton, PhD
Raylene Reimer, PhD, RD
Victor Lewis, MD

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Thanks to students at Twelve Mile Coulee School

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