

About the Child & Family Research Institute:

CFRI conducts discovery, clinical and applied research to benefit the health of children and families. It is the largest institute of its kind in Western Canada. CFRI works in close partnership with the University of British Columbia, BC Children’s Hospital and Sunny Hill Health Centre for Children, BC Women’s Hospital & Health Centre, and BC Mental Health & Addiction Services, agencies of the Provincial Health Services Authority (PHSA), and with BC Children’s Hospital Foundation. CFRI has additional important relationships with British Columbia’s (B.C.’s) five regional health authorities and with BC academic institutions Simon Fraser University, the University of Victoria, the University of Northern British Columbia, and the British Columbia Institute of Technology.

Fast Facts 2009/2010:

- CFRI’s overall success rate in funding competitions of the Canadian Institutes of Health Research and other similar health funding agencies is close to 50 per cent – twice the national average.
- CFRI faculty produced 590 publications.
- CFRI’s total operating revenue/expenses was approximately \$62.8 million, providing support for investigators, salary, operating, infrastructure, and administration. The total research revenue includes grants, contracts and agreements received from foundations, granting agencies and organizations, governments, hospitals and universities.
- This was an outstanding year for capital infrastructure, which was \$16.4 million in 2009/10 compared to \$400,000 in 2008/09. This increase is largely attributed to funding from the Canada Foundation for Innovation and the British Columbia Knowledge Development Fund.

Commercialization metrics:

- Invention disclosures involving CFRI faculty: 6
- Patent applications filed by CFRI investigators: 17
- Patents issued to CFRI faculty: 1
- Licence/option agreements to industry for CFRI-developed technologies: 4

CFRI people:

- 224 investigators
- 268 trainees (including graduate students and postdoctoral fellows)
- 56 summer students
- 338 research staff
- 32 administration staff

Research Clusters:

Childhood Cancer & Blood Research

Leadership: Dr. Kirk Schultz

Investigators are working to identify and target the genetic and molecular alterations that disrupt signal transduction pathways and give rise to childhood and reproductive cancers. They are seeking novel targets for new drugs. Clinician scientists are involved with clinical trials of new treatments. Focused areas of research also include biomarkers, tumour and transplantation, and immunology.

Diabetes, Nutrition & Metabolism

Leadership: Dr. Sheila Innis (Nutrition & Metabolism), Dr. Bruce Verchere (Diabetes)

Diabetes investigators perform basic and clinical research aimed at understanding the causes and improving the treatment of both type 1 and type 2 diabetes. Areas studied include genetics, autoimmunity, viral causes of diabetes, islet cell biology and transplantation, pancreas development, obesity and metabolism, and population health. Core facilities in histology, imaging, cellular immunology, viral pathology, and islet isolation and transplantation facilitate the efficient use of resources, encourage collaboration, and create a strong training environment.

Nutrition and metabolism researchers focus on how dietary components alone, and in combination with genotype and environmental factors, influence maternal health and child development and health, including neural development, inflammatory disorders and susceptibility to disease, as well as the nutrition modalities to best support children with genetic disorders and disease. State-of-the-art technologies enable investigators to study the role of diet and dietary components from the level of the gene, through protein function, to aberrations in metabolic pathway, applicable to basic and human studies. Discoveries lead to practical

solutions for the individual family, community, and population addressing policy and population health, vulnerable populations, predisposing factors, and advances in clinical nutrition care.

Developmental Neurosciences & Child Health

Leadership: Dr. Ron Barr, Dr. Bruce Bjornson

Investigators have research interests on topics that range from “neurons to neighbourhoods,” including behaviour and cognition, basic and clinical child neurosciences, child development, neuroimaging and neurophysiology, injury and environmental health, developmental disabilities and rehabilitation, mental health and addictions, biostatistics and neuroinformatics, vulnerable populations and population health, normal maternal-newborn care, palliative care, health policy and other areas.

Immunity in Health & Disease

Leadership: Dr. Rusung Tan, Dr. Stuart Turvey

Researchers are working in basic, translational and clinical research areas to create and implement better vaccines, to understand why children develop infections, to prevent and treat autoimmune diseases such as type 1 diabetes (T1D) and systemic lupus (SLE), and to understand the mechanisms underlying inflammatory bowel diseases. Important programs within the cluster include the Vaccine Evaluation Centre (VEC) where better vaccination strategies are developed and tested, and the Centre for Understanding and Preventing Infections in Children (CUPIC), which has the goal of determining why apparently healthy children are susceptible to infection. In addition, the cluster is home to the CIHR Team in Childhood Autoimmunity, a multi-centre collaboration working to understand the common mechanisms of autoimmunity in T1D and SLE, and the Canadian Healthy Infant Longitudinal Development (CHILD) study, which is investigating the origins of asthma and allergic diseases.

Innovations in Acute Care & Technology **Leadership: Dr. Erik Skarsgard**

Basic, clinical, and population health researchers in anesthesia, cardiology, critical care, emergency, and surgical specialties aim to enhance the quality of care for children. They evaluate service delivery, address improved pain management, investigate molecular and cellular physiology in health and disease, study global health, and develop new technologies.

Genetics & Health **Leadership: Dr. Lorne Clarke**

Researchers are studying the genetics of conditions such as psychiatric disorders, intellectual and behavioural disabilities, cancers, birth defects and single gene disorders. A variety of methods including animal models of human disease, new genomic technologies and innovative bioinformatics and statistical methods are employed in this work. Clinical research is a strong component of our focus, combining both clinical investigation and genomic capability in many local, national and international collaborative research studies. Therapeutic interventions are also being studied through new enzyme and gene therapies of inherited disease. A particular emphasis is understanding rare conditions, for which modern genetic and genomic studies may produce breakthroughs in fundamental knowledge. Our ultimate goal is to use the powerful tools of human genetics and genomics to improve human health and quality of life. Researchers of the Centre for Molecular Medicine and Therapeutics are, for the most part, active members of Genetics & Health.

Reproduction & Healthy Pregnancy

Leadership: Dr. Geoff Hammond, Dr. Peter von Dadelszen

Researchers in the Reproduction & Healthy Pregnancy cluster work towards understanding infertility, early pregnancy loss, fetal development, pregnancy complications, preterm birth, the newborn period, infancy, pre- and post-partum depression and reproductive cancers. The approaches range from cellular and molecular biology, and genetic research to clinical, policy and population health services studies.

A partner organization of the Child & Family Research Institute:

The Centre for Molecular Medicine and Therapeutics (CMMT)

Leadership: Dr. Michael Hayden

CMMT is a synergistic group of scientists and researchers who share a strong sense of commitment to solve the many genetic questions surrounding human illness and well-being. Affiliated with the University of British Columbia and the Child & Family Research Institute, CMMT conducts discovery research and translates that research into effective clinical and therapeutic strategies to promote health. For more information, visit:

<http://www.cmmt.ubc.ca>.