

COVID-19 precision health genomics for children ^[1]

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EXCERPTS

Children are affected by COVID-19 differently than adults. Exactly why is not clearly understood and here in Alberta researchers are working hard to find the answers.

Drs. Francois Bernier (image at left) and Jim Kellner (image at right), co-leaders of a newly funded research project, and members of the Alberta Children's Hospital Research Institute (ACHRI) at the University of Calgary believe that children may well hold the key to unlocking some of the mysteries to the varying degree of severity of COVID-19 across Alberta.

The Bernier / Kellner team will be working in concert with Alberta Health Services Public Health Officers, leading clinicians and Alberta Precision Laboratories (APL) to recruit children in Alberta under the age of 18 who have been tested for the SARS-COV2 virus. Some of Alberta's leading experts in infectious diseases, immunology, virology, genomics and public health will perform comprehensive studies to understand the role of children's immune response. They will also look at the children's genetic makeup to determine risk factors for severe illness and gain insight into targeted treatments. The team also hopes to identify the biological differences in the response of children to COVID-19 that may shed light on ways to better combat the effects seen in adults.

"We are grateful to Genome Alberta, and the Alberta Children's Hospital Foundation for funding this research," says Francois Bernier. "Investigating children's immune system, genes, and the virus' genes is essential to us understanding why some children become critically ill and others only mildly ill. The interplay between the virus' genes and the immune response and genetic makeup of infected children is key. Mapping virus genetics also allows us to precisely trace how the virus is moving and spreading." Dr. Bernier, MD, is a professor in the Departments of Medical Genetics and Paediatrics at the Cumming School of Medicine (CSM).

Dr. Jim Kellner, MD, a professor in the Departments of Pediatrics, Microbiology, Immunology & Infectious Disease and Community Health Sciences at the CSM, and an infectious disease researcher at ACHRI says "We want to better understand how contagious children are, precisely how the virus is affecting their young bodies, and how children develop immunity against COVID-19."

Genome Alberta is one of the funders for the project and President and CEO David Bailey notes, "This project, led by leading Calgary pediatric clinicians will generate data that will better predict the severity of the disease and thereby directly inform the care of children and adults alike. Furthermore, collaborations have been established with pediatric research teams in Toronto, Montreal and Vancouver extending the impact of this work far beyond Alberta's borders".

The UCalgary study, a collaboration between the University of Alberta, Alberta Health Services, the Alberta Children's Hospital and Alberta Precision Laboratories, is funded by Genome Canada through Genome Alberta, and the Alberta Children's Hospital Foundation through ACHRI.

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