



COVID-19 IMMUNITY
TASK FORCE

Spotlight on CITF-FUNDED RESEARCH



CITF Events



Seminar Series | Research Results & Implications

The impact of COVID-19 disease & vaccination on pregnancy and newborns



COVID-19
IMMUNITY
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GRUPE DE TRAVAIL
SUR L'IMMUNITÉ
FACE À LA COVID-19



CanCOVID

Thank you for making our third seminar with CanCOVID a success!

On December 20, more than 250 people attended the third of our monthly CITF/CanCOVID seminar series. Three CITF-funded research teams offered interim results from their findings of how COVID-19 disease impacts pregnancy and newborns. Thank you to all who were present and **a big thank you** to all our presenters: **Dr. Deshayne Fell** of the University of Ottawa and the Children's Hospital of Eastern Ontario Research

Institute, **Dr. Deborah Money** of the University of British Columbia and BC Women's Hospital, **Dr. Deborah O'Connor** of the University of Toronto, **Dr. Catherine Hankins**, Co-Chair of the CITF, **Dr. Sharon Unger** of the University of Toronto, and our moderator, **Dr. Tali Bogler** of the University of Toronto.

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CITF-Funded Research Results

Seroprevalence of SARS-CoV-2 antibodies among children in school and daycare in Montreal

A CITF-funded study by researcher Dr. Kate Zinszer from the Université de Montréal and colleagues found that SARS-CoV-2 antibodies due to infection in children aged 2 to 17 years in Montreal increased over time, from 3.2% in October-November 2020 to 8.4% in March-April 2021. This offers a benchmark for seroprevalence due to infection in children across Canada. The findings suggest that the number of infections in children may not be reflected by positive PCR tests alone, with higher true infection rates due to asymptomatic and mildly symptomatic individuals who may not have been tested. The study appears in *JAMA Network Open*.

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Global seroprevalence of SARS-CoV-2

A study carried out by SeroTracker (a CITF-funded project) in partnership with the World Health Organization, found global SARS-CoV-2 seroprevalence (due to infection or vaccination) was 26% in April 2021. Depending on the region, seroprevalence varied from as low as 1.6% to as high as 57%. In low and middle-income countries, the ratio of seropositive

blood samples to identified cases varied from 30:1 to 185:1, meaning that many infections were still going undetected. The study is a preprint and has therefore not yet been peer reviewed.

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An intranasal vector vaccine can be used to mount protective responses against SARS-CoV-2 in the respiratory tract

A team led by CITF-funded researcher Dr. Jun Liu at the University of Toronto has demonstrated that a novel intranasal COVID-19 vaccine product can induce robust mucosal and systemic immune responses in a mouse model of SARS-CoV-2 infection. This is significant because existing vaccines, which are highly effective at inducing antibodies systemically (in the bloodstream), may not be as effective in inducing antibodies in mucosal tissues, such as the upper respiratory tract, which is where respiratory pathogens like SARS-CoV-2 attack. By directly inducing protective immunity at the potential site of infection, intranasal vaccines may be more effective in preventing breakthrough infections. The results are published in *Cell Biosciences*.

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Protocols outlined for HIV-COV: a study of people living with HIV following COVID-19 vaccination

CITF-funded HIV-COV, led by Dr. Aslam Anis from the University of British Columbia, has published the protocols for its pan-Canadian study of people living with HIV who have received, or plan to receive, a COVID-19 vaccine in *BMJ Open*. The protocol allows for the assessment of how these people's compromised immune systems respond to vaccination, how long immunity might last, and if the vaccines are safe and well tolerated in this population. Importantly, HIV-COV focuses on how vulnerable groups, such as older people and those with low immune cell counts, respond to vaccines and if they maintain effectiveness against variants of concern.

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From Preprint to Publication

Immunity to SARS-CoV-2 following infection persists for at least 9 months

The exact mechanisms of immune protection to SARS-CoV-2 are still unclear and researchers around the world continue to attempt to address this critical question. In an article now published in *The Journal of Immunology*, Dr. Tania Watts from the University of Toronto, unravels the characteristics and extent of B cell and T cell immune responses after recovery from COVID-19, finding that there was evidence of protective immunity persisting nine months following the onset of symptoms. The profile of these COVID-19 immune responses are also compared to long-term immunity from a common respiratory viral infection: influenza A.

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Dried Blood Spot Assays: A Review

Many Canadian serosurveys have opted to use dried blood spot (DBS) tests as a practical means to study population-level SARS-CoV-2 seroprevalence. Tens of thousands of Canadians have received DBS kits in the mail. In this article, now published in *PLoS ONE*, researchers, including several CITF members, set out to determine which of the available DBS assays performed the best.

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CITF Announcement

Happy holidays from all of us at the CITF

Following another challenging year, during which we have all been impacted by the continuing travails of the pandemic, we wish you all a well-deserved pause to enjoy a time of rest and diversion, albeit safe diversion in the face of Omicron. This will be the final edition of the *Spotlight on CITF-Funded Research* for 2021. We will return renewed and hopeful on January 11, 2022. In the meantime, everyone at the CITF wishes you and your family a joyful holiday season and a healthy New Year.



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