



**COVID-19 IMMUNITY  
TASK FORCE**

# Research Roundup

Your weekly review on COVID-related research



## Spotlight on CITF-funded Research

### **Antibody production following immunization by mRNA vaccines in Ontario long-term care residents and staff**

Long-term care residents and staff immunized with the Moderna vaccine elicited stronger total and neutralizing antibody responses compared to those vaccinated with Pfizer-BioNTech, according to new research. The preprint findings, yet to be peer-reviewed, also illustrate differences between the ability of the two mRNA vaccines to neutralize variants of concern (VOCs). Notably, about 38% residents immunized with Pfizer were unable to neutralize the VOC Beta. This CITF-funded research is led by Drs. Anne-Claude Gingras, Allison McGeer, Sharon Straus, Jennifer Gommerman, and Mario Ostrowski, among others, in collaboration with Dr. Heidi Wood and her team at Canada's National Microbiology Laboratory.

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### **COVID-19 vaccines generate detectable specific antibodies in saliva**

It is known that existing COVID-19 vaccines trigger the production of neutralizing antibodies in blood. However, since SARS-CoV-2 first enters the body via the upper respiratory tract, if antibodies were located in this area, they could potentially start fighting the virus immediately. A recent preprint, not yet peer-reviewed, examines whether COVID-19 vaccines induce antibodies in saliva. The study, partially funded by the CITF and led by University of Toronto researcher Jennifer Gommerman, suggests that there is a modest neutralizing capacity in the saliva of vaccinated individuals – which may contribute to reducing transmission of SARS-CoV-2.

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## Publications from our Experts

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### **A third dose of a COVID-19 vaccine is safe and effective to boost protection in organ transplant recipients**

Organ transplant recipients often receive immunosuppressant drugs to avoid transplant rejection, but these compounds affect their ability to mount immunity effectively when vaccinated. Indeed, their response after two doses of a COVID-19 vaccine has been shown to be well below that of those who are not immunocompromised. CITF-funded researcher Dr. Deepali Kumar, and collaborators from University Health Network in Toronto, performed the first controlled trial comparing outcomes after receiving a third dose of the Moderna mRNA vaccine versus a saline solution (known as placebo) among organ transplant recipients. In a recent article published in the *New England Journal of Medicine*, the authors conclude that a third vaccine dose was safe and very effective at increasing antibody levels in organ transplant recipients

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## Recovery after prolonged Intensive Care Unit treatment for COVID-19 patients

A recent commentary in *Lancet Respiratory Medicine* by CITF-funded researcher Dr. Margaret Herridge and colleagues highlights the record volume of COVID-19 patients treated for prolonged periods in Intensive Care Units (ICUs) around the world. Previous experience and follow-up data pre-pandemic from survivors of acute respiratory distress syndrome and other coronavirus infections indicate that a large proportion of patients have physical and cognitive impairments for weeks, and even years. Some may even have permanent disabilities after ICU discharge. The authors argue there is an urgent need to better understand the wide spectrum of consequences post-critical COVID-19, as well as a need to prioritize patient-centered and family-centered interventions.

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## Challenges and uncertainties around VOCs in children with solid organ transplants

In this short perspective in *Pediatric Transplantation*, CITF-funded researcher Dr. Upton Allen and colleagues present the latest evidence regarding the impact of variants of concern (VOCs) in children with solid organ transplants. They suggest that given the prolonged viral shedding observed more broadly in people with compromised immune statuses, there may be a greater chance that new VOCs develop. They argue that VOC-specific vaccines may need to be explored for this population, meaning continued protective measures are required in the meantime.

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**International Research Review**

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## Safety and immunogenicity of a “mix-and-match” vaccine strategy with the AstraZeneca and Pfizer-BioNTech vaccines

A new study published in *The Lancet* by researchers from Oxford University provides more in-depth safety and immunogenicity data to support a “mix-and-match” vaccine strategy, similar to the one currently used in Canada.

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## Back-to-university checklist: books, pens, vaccine

Researchers from Ontario indicate that about 80% of students enrolled at a large Canadian university between June and October 2020, prior to the availability of vaccines, intended to receive a COVID-19 vaccine once it was offered. In their recent publication in *PLOS One*, the researchers highlight personal perspectives around COVID-19 vaccines and explore the willingness of students to receive a vaccine. Factors associated with willingness to get vaccinated included being personally affected by COVID-19, perception of severity of COVID-19, and being encouraged by their doctor or pharmacist.

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