COVID-19 IMMUNITY TASK FORCE

Research Roundup

Your weekly review on COVID-related research

Spotlight on CITF-funded Research

Interim results unveil Vancouver public school staff are not at higher risk of COVID-19 infection at work than in the community

Drs. Pascal Lavoie and Louise C. Mâsse and their team at the University of British Columbia have released interim results, soon to be submitted for peer-review, suggesting that school staff are not at increased risk of SARS-CoV-2 infection at school, compared to in the community. The authors attribute this in part to the public health measures in place. Participants in their recent SARS-CoV-2 serosurvey included school staff employed at the Vancouver School Board. The study found that the percentage of individuals infected with SARS-CoV-2 within the school system was similar to that found in the local community.

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Immunity to SARS-CoV-2 persists for 9 months

The mechanisms of immune protection to SARS-CoV-2 are still unclear and researchers around the world are attempting to address this critical question. In a preprint, not yet peer-reviewed, Dr. Tania Watts from the

University of Toronto, unravels the characteristics and extent of B and T cell responses of our immune system after recovery from COVID-19. She also compares the profile of these COVID-19 immune responses in the same subjects to that of those with long-term immunity to a common respiratory viral infection: influenza A.

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Publications from our Experts

One dose of mRNA vaccine can protect the elderly against the Alpha and Gamma variants

Dr. Mel Krajden, CITF Leadership Group member and Vaccine Surveillance Reference Group (VSRG) member, and Dr. Danuta Skowronski, VSRG Effectiveness Working Party member, were part of a team evaluating the effectiveness of a single dose of a mRNA vaccine in people over 70. The study indicated that 21 days after the first dose, the vaccine was 65% effective in preventing disease. Overall, one dose was observed to be 67% effective in preventing active infection with the Alpha (B 1.1.7) variant, be it symptomatic or asymptomatic, and 61% effective in preventing active infection with the Gamma variant (P.1).

Read Summary

Interferons can fill the need for effective SARS-CoV-2 treatments, even in the COVID-19 vaccine era

People lacking certain immunity genes, particularly those involved in the type-I Interferon (IFN-I) pathway, can be more susceptible to infectious diseases. The link between this pathway and severe COVID-19 has been established. A defective IFN-I pathway, due either to genetic mutations or to

autoantibodies that neutralize this cytokine, has been shown to lead to uncontrolled viral replication early on after SARS-CoV-2 infection, resulting in severe disease. In this review, published in the *Journal of Clinical Immunology,* CITF-funded researcher Dr. Donald Vinh, CITF Scientific Advisor Dr. Matthew Cheng and others, explore two therapeutic routes that use different IFN molecules for the treatment of COVID-19.

Read Summary

Early diagnosis and use of intravenous immunoglobulin can be helpful for managing SARS-CoV-2 vaccine induced clotting-related adverse events

Globally, as more and more people become vaccinated to address the ongoing COVID-19 pandemic, a few cases of rare adverse events involving blood clotting or immune thrombocytopenia have been reported. CITF-funded researcher Dr. Ishac Nazy has recently published an article in *The New England Journal of Medicine* covering case reports detailing the diagnosis of three patients suffering from vaccine-induced thrombotic thrombocytopenia (VITT). He adds to recent literature on the subject, which is summarized here.

Read Summary

Mental health matters: Study uncovers who is more at risk of mental health issues during the COVID-19 pandemic

The forced separation from family and friends and the disruption of regular activities brought on by the COVID-19 pandemic has had a tremendous effect on people's well-being and mental health. In a recent pre-print not yet peer-reviewed, researchers from British Columbia, including CITF Leadership Group member Dr. Gina Ogilvie and CITF-funded researcher Dr. Manish Sadarangani, reported results from the Rapid Evidence Study of a Provincial Population-Based Cohort for Gender and Sex (RESPPONSE). The authors show that age, sex, gender, ethnicity, Indigenous status, sexual orientation, and phase of the pandemic have distinct effects on mental

health outcomes. The findings emphasize the need for nuanced and tailored public health messaging for these identified populations.

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International Research Review

Is it safe to go back to school? - Effects of SARS-CoV-2 viral load in children

The global COVID-19 pandemic has led to unprecedented levels of educational disruption through school closures. The resumption of in-person learning has proven to be controversial, as officials and communities weigh the risks of potential transmission of SARS-CoV-2 in schools against the benefits of in-person learning. The available evidence, summarized recently in *JAMA Pediatrics*, indicates that children are less likely to transmit SARS-CoV-2 compared to adults and are not likely to get severely ill. However, the relative risk of transmission from children remains uncertain and public health prevention strategies such as the use of masks and physical distancing continue to be important. The authors of the manuscripts suggest expanding vaccine eligibility for children, encouraging uptake of vaccines among educators and school staff, and addressing vaccine hesitancy to safely provide the most optimal learning opportunities for children.

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Antibodies can last for at least 6 months after the second dose of the COVID-19 mRNA vaccine

Members of the Moderna COVID-19 mRNA vaccine study group recently released a short correspondence in the *New England Journal of Medicine*, highlighting the persistent antibody response after the first six months of

receiving the second dose of this vaccine. High levels of antibody activity were observed in all age groups (18 to 55, 56 to 70, and over 71 years of age). Neutralizing antibodies were detected in all 33 participants but were lower in participants over the age of 55. Ongoing studies continue to monitor immune responses over time and study the effect of a booster dose to extend the duration and breadth of the immune response against emerging SARS-CoV-2 variants.

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Vaccines offer significant protection against many variants, including Delta

The clinical efficacy of several vaccines in protecting against symptomatic COVID-19, especially in light of the circulating variants, has been an emerging research topic. Several articles referring to this ongoing subject of interest were recently published in *Nature* with promising results. More specifically, these studies reported the neutralization of several variants, including Delta, by the Pfizer-BioNTech vaccine, as well as an observation of antibody and cellular immune protection against several variants elicited by the Johnson & Johnson vaccine.

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