

Presentation Abstract Submission

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Research Title	Susceptibility to Re-infection with SARS-CoV-2 Virus Relative to Existing Antibody Concentrations and T-Cell Response

Abstract:

Background We have investigated the reinfection rate of hybrid immunized SARS-CoV-2 in 952 labor camp workers with SARS-CoV-2 serological antibody patterns and surrogate T cell memory at recruitment and follow up. Methods Trimeric spike, nucleocapsid, and neutralizing antibodies were measured along with a T cell stimulation targeting SARS-CoV-2 memory in CD4+ and CD8+ T cells. The subjects were then followed up for reinfection for up to six months. Results Seroprevalence positivity at enrollment was greater than 99%. T cell reactivity in this population was 38.2%. Of those re-infected during the follow up period (74.3%) had nonreactive T cells at enrollment. Those who had greater than 100 BAU/mL increase from the median concentration of Anti-S IgG antibodies had a 6% reduction in the risk of infection. Those who were below the median concentration had a 78% greater risk of infection. Conclusions Significant immune protection to reinfection was observed in those that retained T cell activation memory. Additional protection was observed when Anti-S was greater than the median value. Those with Anti-S IgG antibodies values greater than 654.1 BAU/mL had the least risk of reinfection. Reinfection is almost a certainty in most of the population irrespective of prior hybrid immune protection.