

Abstract

Coronavirus disease 2019 (COVID-19) pandemic caused by newly discovered Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) causes severe health and economic problems all over the world. The disease severity depends mainly on the host's immune response to SARS-CoV-2. This virus uses many mechanisms for escape from the host's immune system. The major evasion mechanisms include suppression of interferon production at the early phase of infection, exhaustion of natural killer cells and induction of a cytokine storm. After the innate immune response, mechanisms of adaptive immunity join the defense against the virus. Patients with severe cases have a significant reduction in the amount of both helper CD4⁺ T cells and cytotoxic CD8⁺ T cells. On the contrary, these patients have an increased level of antibodies. Even though there have been many findings about immune reactions to SARS-CoV-2 in the year after its discovery, there are still many unknowns. Vaccines, which are successful at preventing COVID-19, have been developed in a short time. However, an important remaining question for further research is the longevity of immune memory after vaccination or after suffering from COVID-19.