

Anti-SARS-CoV-2 vaccine- an urgent need

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SARS Coronavirus 2 (SARS-CoV-2) starting from Wuhan province of China in December 2019 spreads rapidly worldwide that had infected more than 16 million individuals and caused more than 656 000 deaths worldwide by July 29, 2020.¹ Coronavirus disease 2019 (COVID-19) is an emerging respiratory infectious disease caused by severe acute respiratory syndrome Coronavirus 2 (SARS-CoV-2). Till now there is no effective treatment for COVID-19 and the virus spreads easily and the majority of the world's population is still vulnerable to it. So, a safe and effective vaccine against COVID-19 is urgently needed.

A vaccine for an infectious disease has never before been produced in less than several years, and no vaccine exists for preventing a coronavirus infection in human.² Medical researchers are working hard to speeded the development of vaccine.

The genetic sequence of COVID-19 was published on 11 January 2020, triggering an urgent international response to prepare for the outbreak and hasten development of a preventative vaccine.^{3,4,5} Research is happening at breakneck speed. About 140 are in early development, and around two dozen are now being tested on people in clinical trials. Vaccine can trigger an immune response and protect the person. In April, The Coalition for Epidemic Preparedness Innovations (CEPI) scientists reported that ten different technology platforms were under research and development during early 2020 to create an effective vaccine against COVID-19.⁶ According to CEPI, the platforms based on DNA or messenger RNA, i.e. DNA vaccines or RNA vaccines, offer considerable promise to alter COVID-19 antigen functions for strong immune responses, and can be rapidly assessed, refined for long-term stability, and prepared for large-scale production capacity.⁶

Other platforms being developed in 2020 focus on non-replicating viral vectors, peptides, recombinant proteins, live attenuated viruses, and inactivated viruses.⁶

It is thought that 60-70% of people needed to be immune to the virus in order to stop it spreading easily (known as herd immunity). But that would be billions of people around the world even if the vaccine worked perfectly. Now, question arises about the equity of distribution of vaccine. International organizations like the WHO and CEPI, vaccine developers, governments and industry are evaluating distribution of the eventual vaccine(s).⁷

The virus spreads easily and the majority of the world's population is still vulnerable to it. A vaccine would provide some protection by boosting people's immune systems to fight the virus so they should not become sick. This would allow lockdowns to be lifted more safely, and social distancing to be relaxed.

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