The Complementary Roles of Vaccines and Monoclonal Antibodies in Combating the COVID-19 Pandemic

Vaccines

Monoclonal Antibodies

WHAT IS THE ROLE OF EACH?

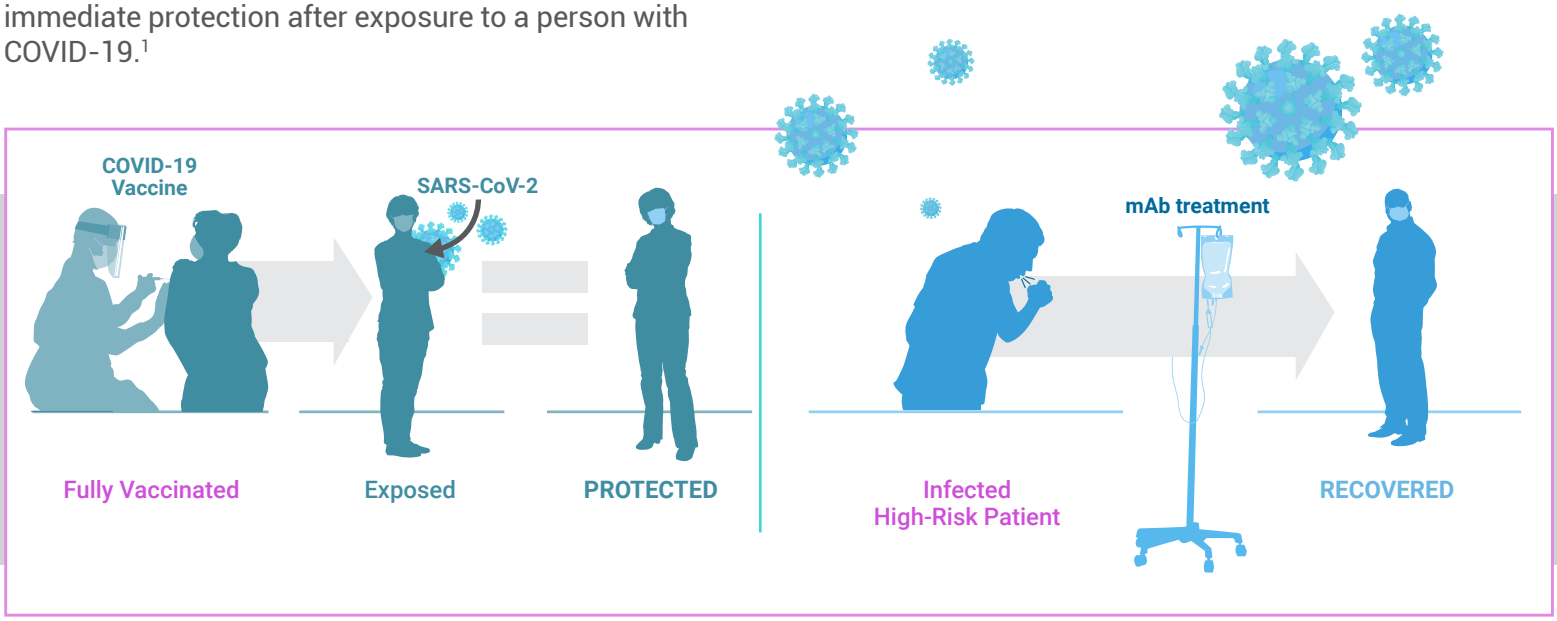
Vaccines are the key to stopping the COVID-19 pandemic.[1]

Vaccines can prevent new SARS-CoV-2 infections and prevent new COVID-19 cases.[1]

Vaccines cannot treat active infections or provide immediate protection after exposure to a person with COVID-19.[1]

Monoclonal antibodies are a tool to treat COVID-19 during and after the pandemic.[1]

Monoclonal antibodies can treat patients infected with SARS-CoV-2 and decrease the risk of progression to severe COVID-19 and/or hospitalization.[2]



HOW LONG DO THEY TAKE TO WORK?

Vaccines train the immune system to protect against SARS-CoV-2.[3]

- Vaccines stimulate a **broad, long-term, adaptive immune response**.[3,4]
- Vaccines **require time** for the host to develop protective immunity.[5]
- Some vaccines require multiple doses to achieve full efficacy.[1,6]

Monoclonal antibodies provide protection when the immune system cannot or has not had the time to respond.[6]

- Monoclonal antibodies provide **immediate immunity** by neutralization or direct killing of SARS-CoV-2, which treats the active infection without requiring host immunity to the virus.[5]
- Monoclonal antibodies confer **temporary protection,** as the antibodies are not produced by the host.[4,5]

WHY ARE BOTH NEEDED?

Halting the COVID-19 spread requires vaccination efforts to reach herd immunity.[7]

Data from clinical studies show that vaccines have less than 100% efficacy against SARS-CoV-2.[1]

Vaccines may be less effective in some patient populations, including:[1]

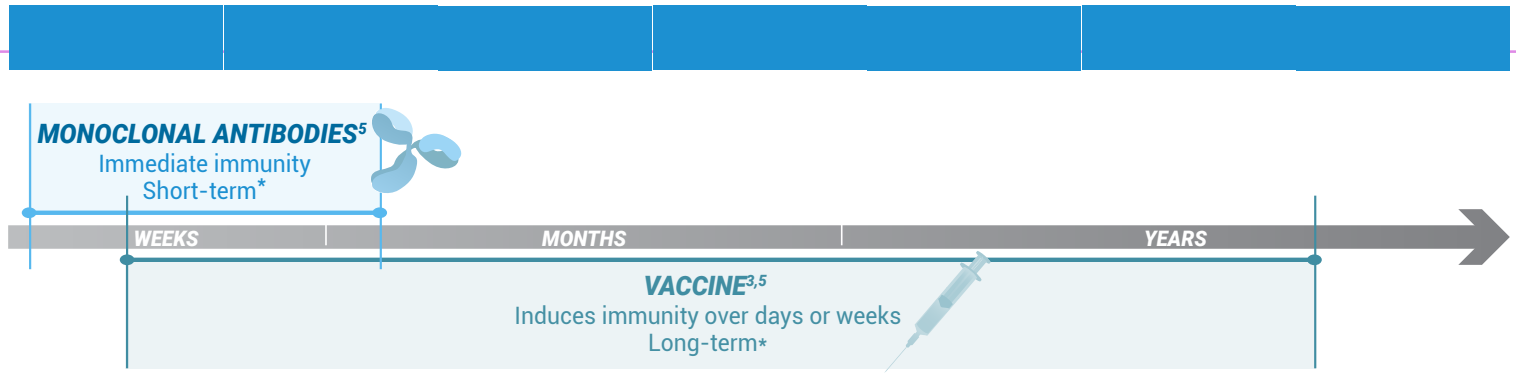
- Patients with a suppressed immune system, such as cancer patients after chemo/radiotherapy
- Patients who take immunosuppressive medication, ie, transplant patients

Monoclonal antibodies can provide treatment to patients in whom vaccines may not work or those who are unable to be vaccinated, supplementing vaccination efforts and combating active infections in these patients.[6]

Additionally, monoclonal antibodies can fight active infections in patients regardless of immunity status, allowing time for the patient's own immunity to build up.[8]

***Vaccines** and **monoclonal antibodies** are tools to combat COVID-19. They complement each other based on their differences in the onset and duration of protection.*[1,5,8]

The effect of evolving variants of SARS-CoV-2 on vaccine and monoclonal antibody efficacy is not fully understood.



*The length of the protection provided by vaccines and monoclonal antibodies against COVID-19 is still unknown.

COVID-19, coronavirus disease 2019; SARS-CoV-2, severe acute respiratory syndrome coronavirus 2.

1. CDC. COVID-19. Accessed January 27, 2021. https://www.cdc.gov/coronavirus/2019-nCoV/index.html. **2.** Department of Health and Human Services. Combat COVID. Accessed March 10, 2021. https://combatcovid.hhs.gov/. **3.** Clem AS. *J Glob Infect Dis*. 2011;3:73-78. **4.** Marshall JS et al. *Allergy Asthma Clin Immunol*. 2018;14(suppl 2):49. **5.** Marcotte H et al. *Passive immunization*. In: Mestecky J et al, eds. Mucosal Immunity. 4th ed. Vol 2. 2015:1403-1434. **6.** Sparrow E et al. *Bull World Health Organ*. 2017;95:235-237. **7.** WHO. Coronavirus disease (COVID-19): herd immunity, lockdowns, and COVID-19. Accessed February 23, 2021. https://www.who.int/news-room/q-a-detail/herd-immunity-lockdowns-and-covid-19. **8.** Casadevall A. *Emerg Infect Dis*. 2002;8:833-841.

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