How mRNA Vaccines for COVID-19 Work

The Mission of the Messenger

MessengerRNA, known as mRNA, are molecules within the body that contain genetic instructions for cells to make various proteins that are required for the body to function properly.

Antigens and Antibodies

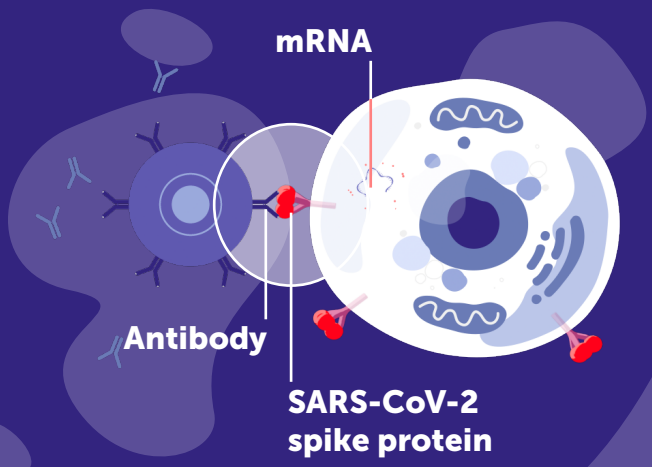
The immune system produces protective antibodies when it encounters an antigen. An antigen is typically a foreign invader that the body recognizes as not being a part of itself, such as the protein surface of a virus.

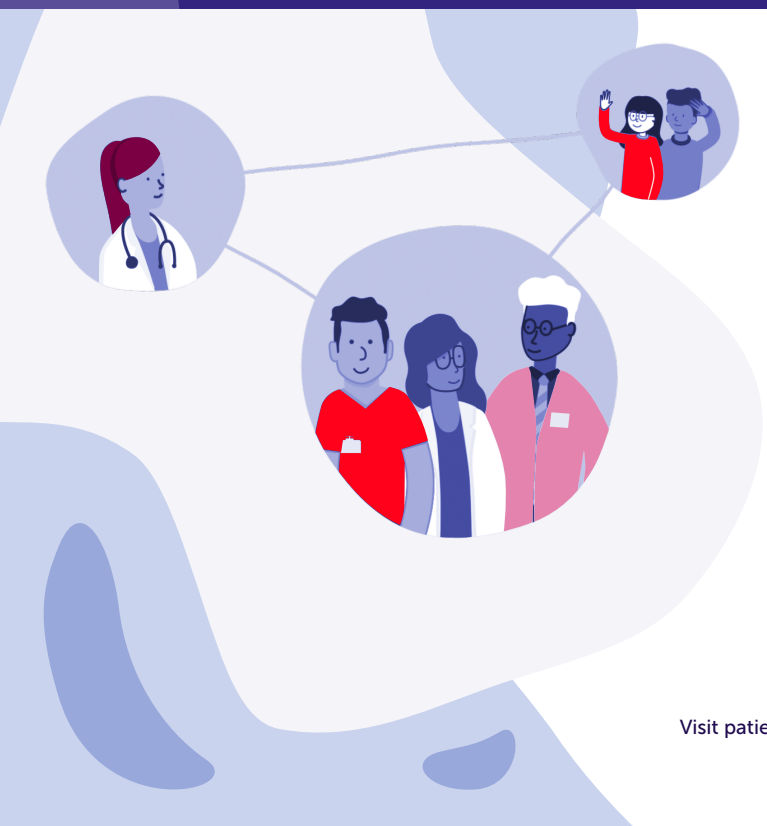
MRNA Vaccines for COVID-19

The mRNA vaccines for COVID-19 deliver synthetic mRNA molecules into cells, instructing them to only make the SARS CoV-2 spike protein—just enough to activate the immune system. But the cells are not given enough instruction to build a full virus, so the vaccine cannot cause COVID-19.

Prepared to Fight the Virus

These antigens then trigger the immune system to produce the specific protective antibodies needed to neutralize the virus. If a person is exposed to COVID-19, the immune system will detect the familiar antigens and produce antibodies to attack them.





Prioritizing Safety and Efficacy

All COVID-19 vaccines are studied in clinical trials, and are strictly reviewed by an agency that oversees medical products, which is the FDA in the US. Clinical trials study how a treatment interacts with the body, and if it is safe and effective, before it is made available to the public. The FDA has programs to accelerate developing treatments that can aid a public health emergency, while ensuring safety and efficacy standards are met.

Building Protection Together

A vaccinated person's immune system can better defend against the infection altogether or greatly reduce the severity of the infection. If enough people receive vaccines, it will build protection against the virus in our communities.

Visit patienteducation.asgct.org for more information

American Society of Gene + Cell Therapy