

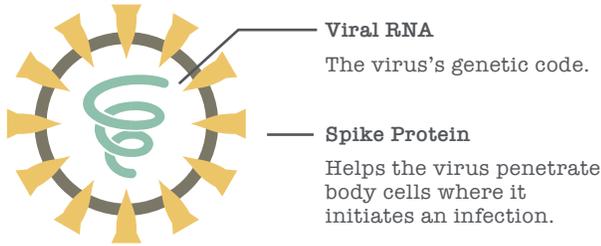


# COVID-19 VACCINE



## Know the Basics

### SARS-CoV-2



#### Severe Acute Respiratory Syndrome Coronavirus 2

Belongs to the broad family of viruses known as coronaviruses.

Because it was identified in 2019 the disease is called **CO**rona**VI**rus **D**isease **19**.

#### The Infectious Process

The virus attaches to the cell membrane by the spike protein receptor and is taken inside the cell. An infected cell becomes a factory for replicating the virus, which are released to infect other cells, making the person sick or sometimes an asymptomatic carrier.



### Adaptive Immune Response

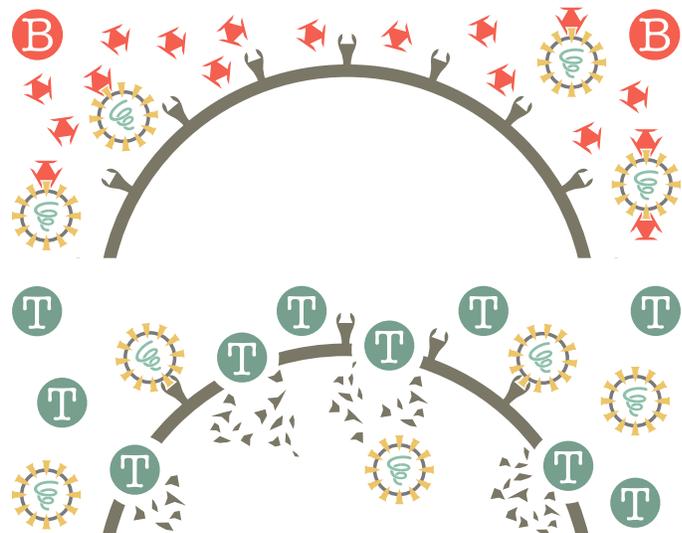
Different types of defensive white blood cells fight infection in different ways.

#### B-Cells

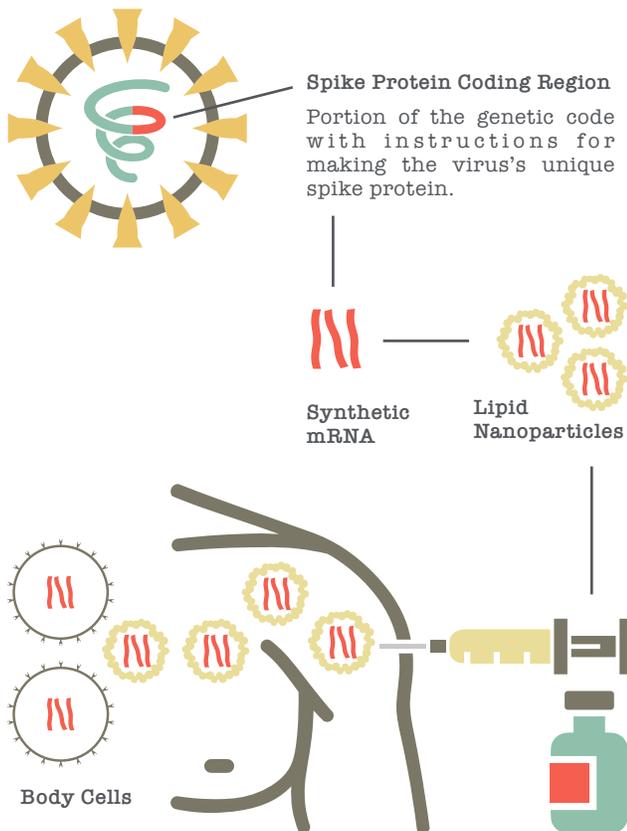
Produce antibodies against the virus spike protein. Antibodies attach to the spike protein, thereby preventing the virus from attaching to the cell membrane and infecting the cell.

#### Cytotoxic (Killer) T-Cells

Attack and kill already infected cells, which helps slow the virus replication process.



## mRNA Vaccines



### The Technology

Scientists isolated the genetic code or instructions for the SARS-CoV-2 spike protein. In a lab these instructions are used to synthesize a messenger ribonucleic acid (mRNA) sequence specifically for the spike protein.

### Lipid Nanoparticles

The synthesized mRNA is packed into lipid nanoparticles or very small fat droplets. This stops the body's enzymes from breaking the mRNA down and helps cells take it in.

### Inside the Body

After injection the mRNA enters the cells, but does not enter the cell nucleus where DNA (genetic material) is kept.

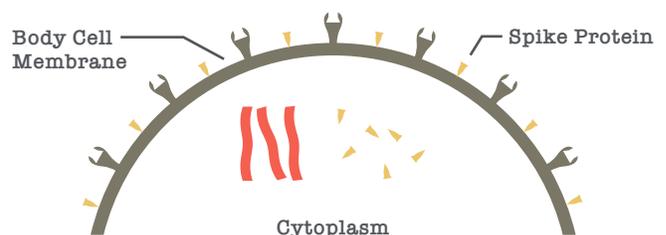
### What mRNA Vaccines Are Not

They do not use the live virus that causes COVID-19. They do not interact with or affect a person's DNA in any way. They do not contain eggs, latex or preservatives.

**An mRNA vaccine cannot cause disease because it is only the genetic code for a protein.**

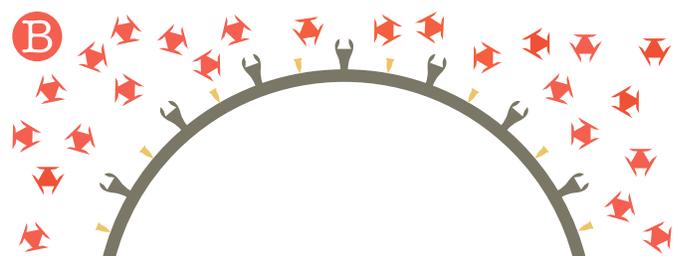
### Production of Spike Protein

Once the mRNA is inside the cell, intracellular functions follow the genetic code (instructions) to produce virus spike proteins, which are arrayed on the cell membrane. The cell breaks down and gets rid of the mRNA soon after it has finished using the instructions.



### Production of SARS-CoC-2 (COVID-19) Antibodies

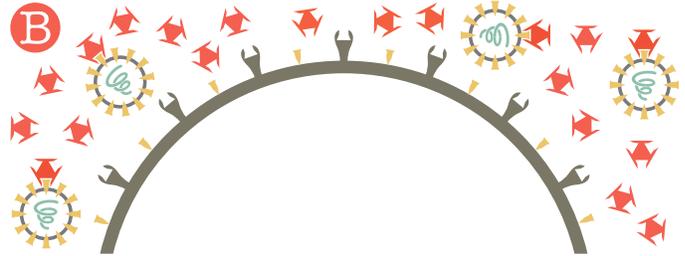
As with the natural immune response, antibodies form in response to the spike proteins. But, in this case, the spike proteins are not on viruses and are therefore harmless.



## Immunity

### Subsequent Exposure to SARS-CoV-2

Should the virus appear in the body, the immune system already has the memory and programming required to immediately mount a defense, increase antibody production and other immune responses.



### Protection

In clinical trials mRNA vaccines were shown to be safe and effective, preventing disease 94-95% of the time. There are insufficient data at this time to know how long this protection lasts or the extent to which it limits viral transmission to unprotected people.

## Everyone Has a Part

Begin the vaccination process as soon as a vaccine becomes available to you. Depending on the manufacturer, this may be a two-dose sequence. Be sure to get the second injection at the prescribed time after the first dose for an optimal immune response.

Until a large proportion of the population has achieved immunity (herd immunity) from vaccination or native COVID-19 infection, it is important to maintain safe practices that help reduce transmission and spread.



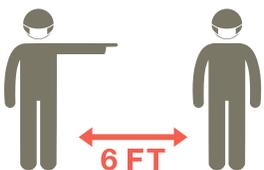
### Clean

Wash hands with soap and water often and sanitize surfaces.



### Mask

Wear a mask in public and around other people who are not from your household.



### Social Distance

Maintain six feet of distance between you and others who are not from your household. Stay away from sick people.



### Stay Home When Sick

Stay home and away from other people when sick.

# Make it STOP



# Get the SHOT

