

# How mRNA COVID-19 Vaccines Work

## Understanding the virus that causes COVID-19.

Coronaviruses, like the one that causes COVID-19, are named for the crown-like spikes on their surface, called **spike proteins**. These **spike proteins** are ideal targets for vaccines.

## What is mRNA?

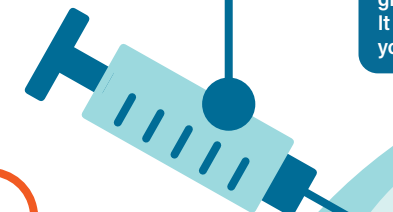
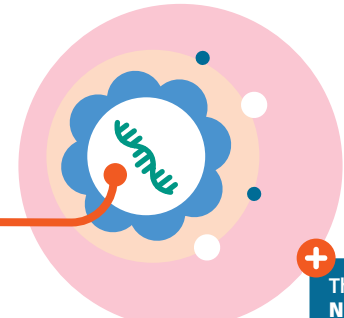
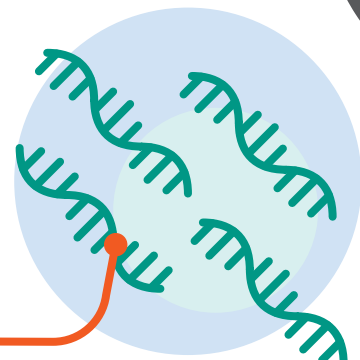
Messenger RNA, or mRNA, is genetic material that tells your body how to make proteins.

## What is in the vaccine?

The vaccine is made of mRNA wrapped in a coating that makes delivery easy and keeps the body from damaging it.

## How does the vaccine work?

The mRNA in the vaccine teaches your cells how to make copies of the **spike protein**. If you are exposed to the real virus later, your body will recognize it and know how to fight it off.



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The vaccine **DOES NOT** contain **ANY** virus, so it cannot give you COVID-19. It cannot change your DNA in any way.

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When your body responds to the vaccine, it can sometimes cause a mild fever, headache, or chills. This is completely normal and a sign that the vaccine is working.

Antibody

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After the mRNA delivers the instructions, your cells break it down and get rid of it.

## GETTING VACCINATED?

For information about COVID-19 vaccine, visit: [cdc.gov/coronavirus/vaccines](https://www.cdc.gov/coronavirus/vaccines)



# How Viral Vector COVID-19 Vaccines Work

## Understanding the virus that causes COVID-19.

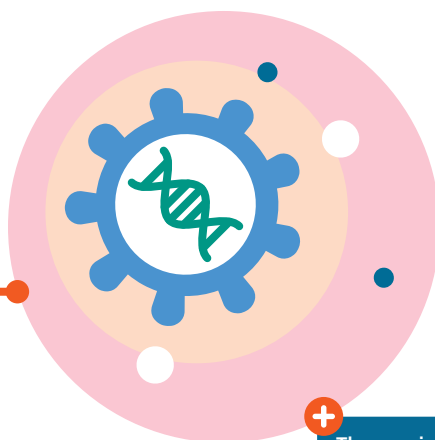
Coronaviruses, like the one that causes COVID-19, are named for the crown-like spikes on their surface, called **spike proteins**. These **spike proteins** are ideal targets for vaccines.

## What is a viral vector vaccine?

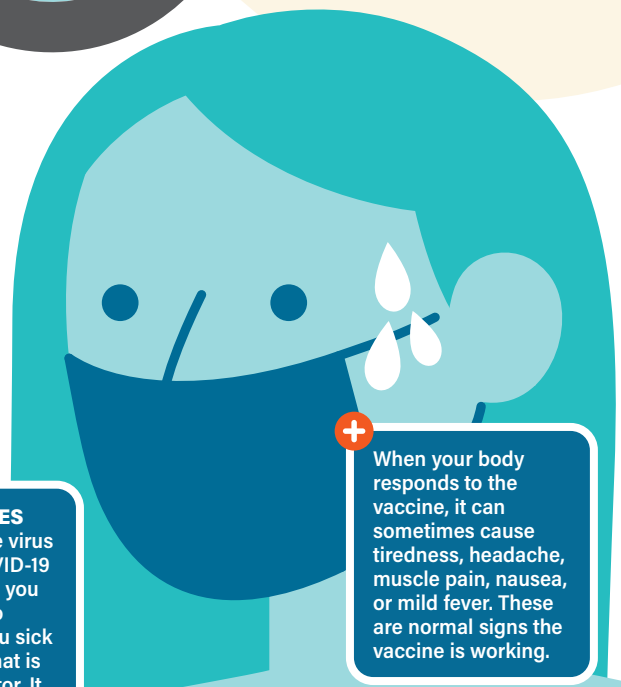
A viral vector vaccine uses a harmless version of a different virus, called a "vector," to deliver information to the body that helps it protect you.

## How does the vaccine work?

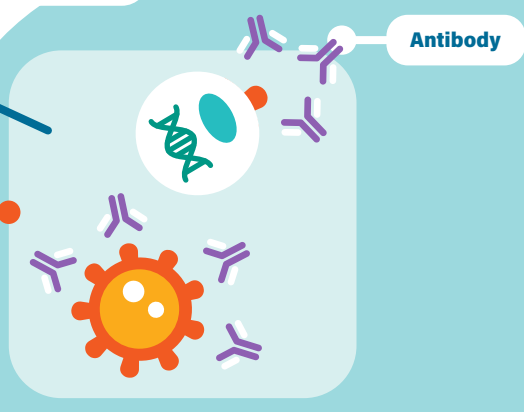
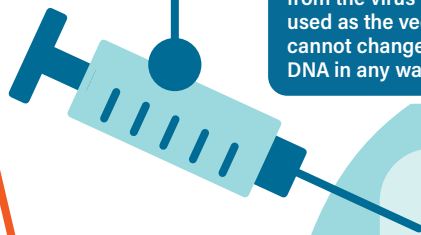
The vaccine teaches your body how to make copies of the **spike proteins**. If you are exposed to the real virus later, your body will recognize it and know how to fight it off.



**+** The vaccine **DOES NOT** contain the virus that causes COVID-19 and cannot give you COVID-19. It also cannot make you sick from the virus that is used as the vector. It cannot change your DNA in any way.



**+** When your body responds to the vaccine, it can sometimes cause tiredness, headache, muscle pain, nausea, or mild fever. These are normal signs the vaccine is working.



## GETTING VACCINATED?

For information about COVID-19 vaccine, visit [cdc.gov/coronavirus/vaccines](https://www.cdc.gov/coronavirus/vaccines)

