How COVID-19 mRNA Vaccines Work

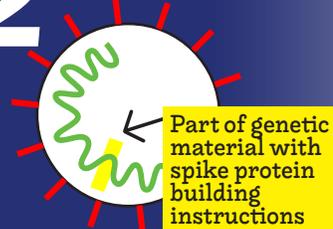**1** — COVID-19

Spike proteins
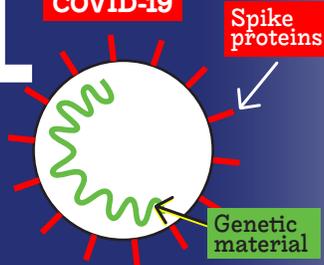
Genetic material

COVID-19 has spike proteins on its surface. If we can generate antibodies to the spike proteins, we can get some immunity. But, to do that, we don't want to use the entire virus.
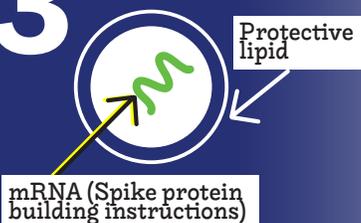
2 — COVID-19

Part of genetic material with spike protein building instructions

Of all the virus genetic material, called RNA, only a tiny portion has instructions on how to make the spike proteins. These instructions are transcribed onto a strand of messenger RNA (mRNA).
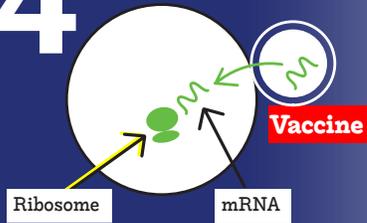
3 — Vaccine

Protective lipid

mRNA (Spike protein building instructions)

For the vaccine, this genetic material (mRNA) is put in a protective lipid (oil) shell. It needs to be protected because it's very fragile. The lipid shell looks like the surrounding of your cells.
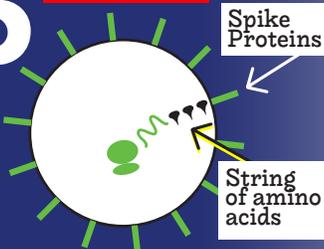
4 — Human Cell

Vaccine

Ribosome

mRNA

Once injected, the vaccine cells fuse to human cells and release the spike protein building instructions (mRNA). The mRNA goes to the place in the cell where proteins are made (ribosomes).
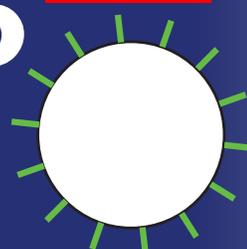
5 — Human Cell

Spike Proteins

String of amino acids

The ribosomes in your cell read the mRNA code and use it to piece together a string of amino acids, making a protein. The protein leaks out of the cell, creating spikes.

6 — Human Cell

The mRNA is broken down by the body and does not become part of the vaccine recipient's genes.
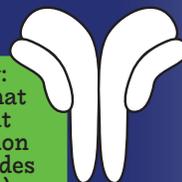
7 — Antibody

When the immune system recognizes the spike proteins it responds and develops antibodies. We may experience this reaction as side effects.

8 — Antibody

(Antibody: protein that helps fight off infection and provides immunity)

The antibodies store a "memory" of the reaction for future virus exposure. This memory provides some immunity from a COVID-19 infection.

9

You may experience side-effects after getting the vaccine, including fever, chills, tiredness, headache, or soreness/swelling at the injection site.
This vaccine can pack a punch – but that means it's working to get your body ready to defend against COVID-19.

THURSTON COUNTY
WASHINGTON
SINCE 1852