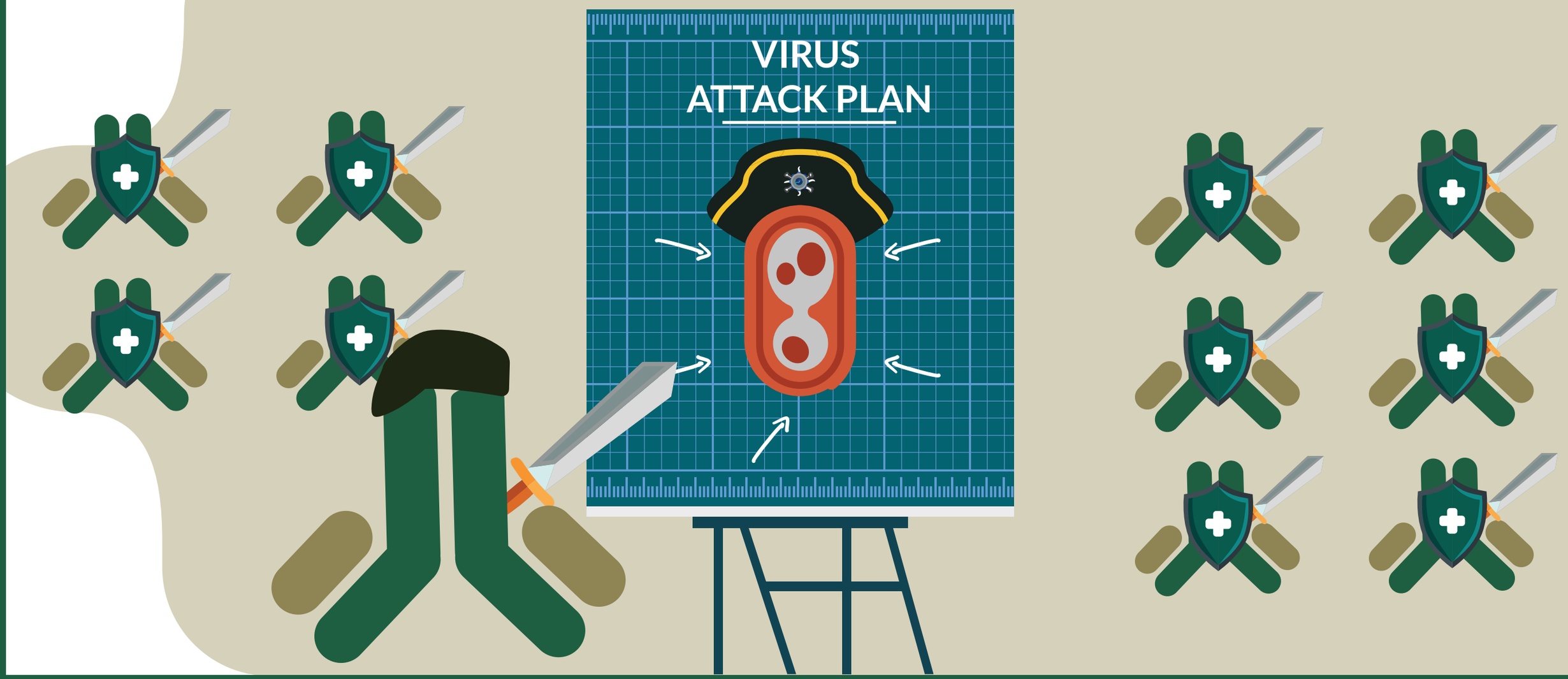
First things first - how does your immune system work?

Your **immune system** contains lots of **immune cells**. Their job is to detect and attack anything in your body that they don't recognise and that shouldn't be there, such as **viruses**.

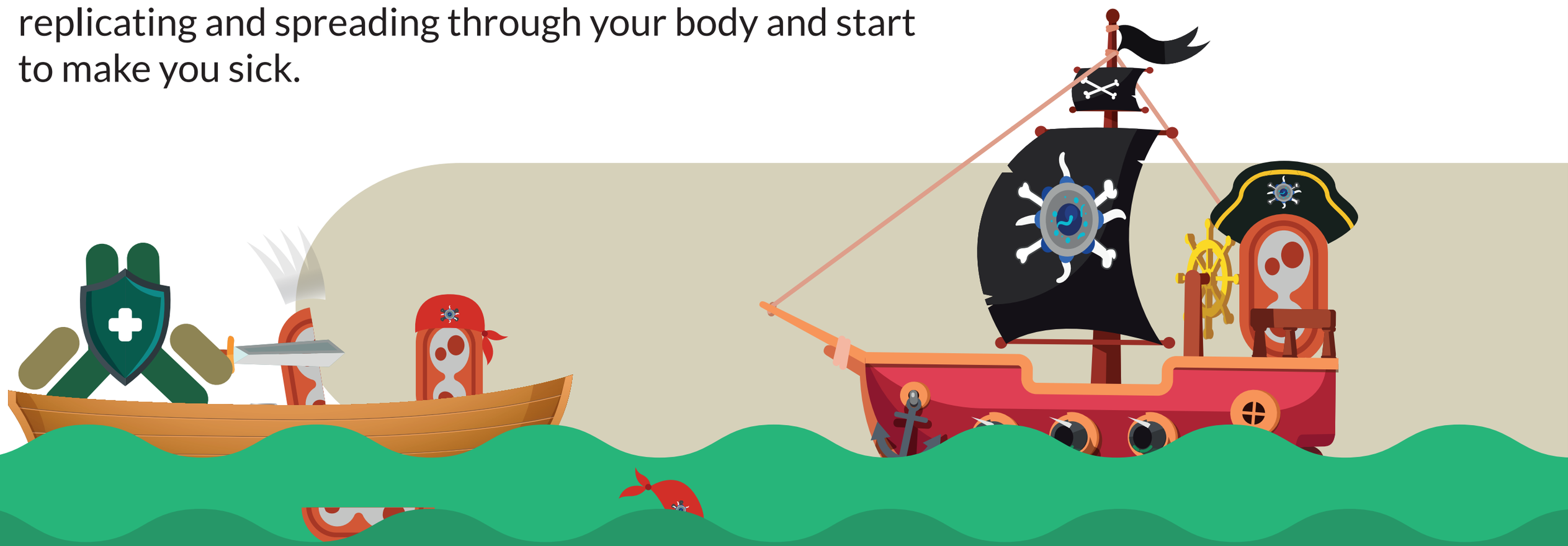
The Bad Guys

Before your immune cells can launch their attack, or **immune response**, they have to spend some time figuring out which part of the virus to target and gathering the resources they need to fight it, including producing **antibodies**.

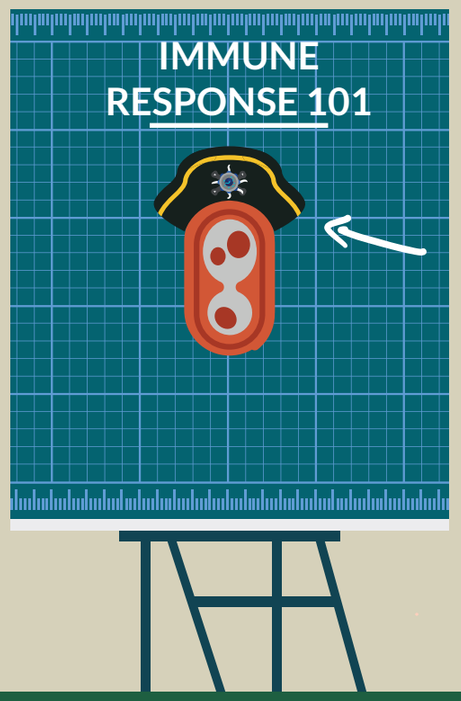


First things first - how does your immune system work?

While they're busy doing this, the virus will carry on replicating and spreading through your body and start to make you sick.

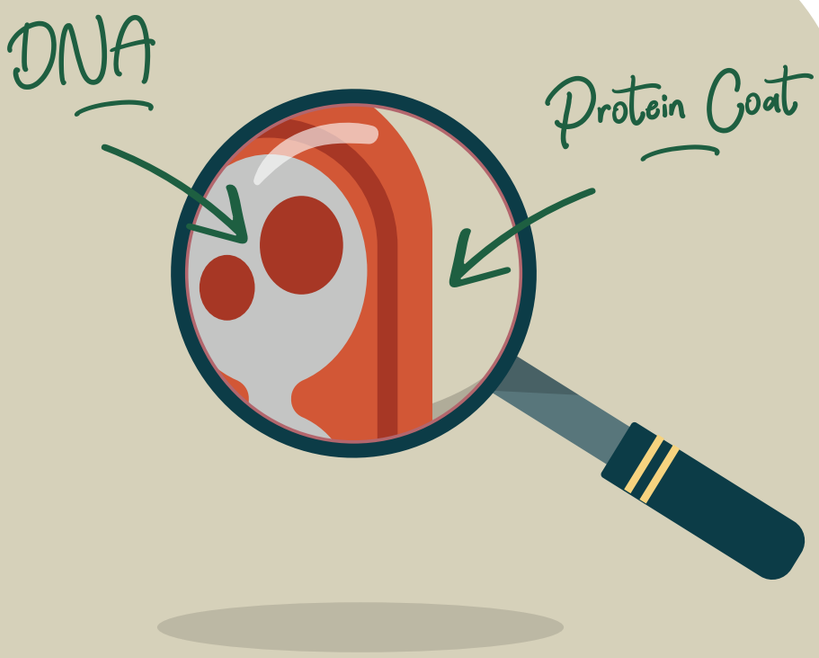


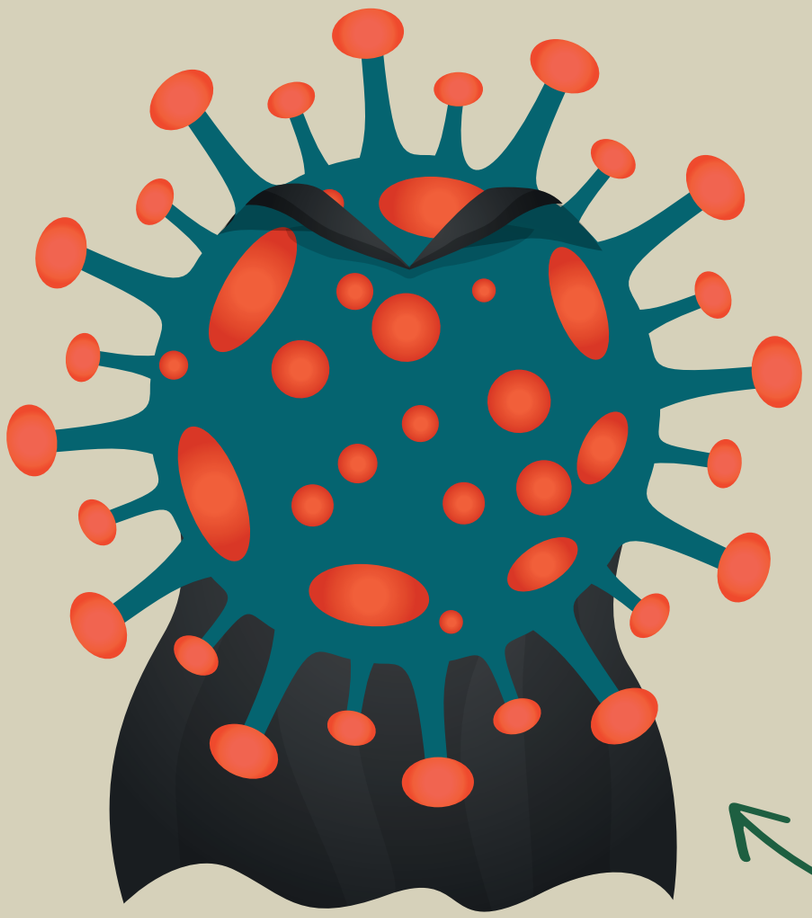
Once your immune cells have successfully destroyed the virus (which may take a little while), special **memory cells** will record how they did it and file this information as a 'blueprint', so that the next time the same virus tries to infect you, they will be ready to fight it off straight away before you become ill.



So, what is a virus?

Viruses are microscopic particles that can cause diseases in living things. Many, many viruses exist and all of them are made up of either **DNA** or **RNA** (the **genetic information** that helps them to reproduce) and a **protective coat of protein** to keep this genetic information safe. When a virus infects you, its protective coat also helps it to invade your cells so that it can start to replicate.

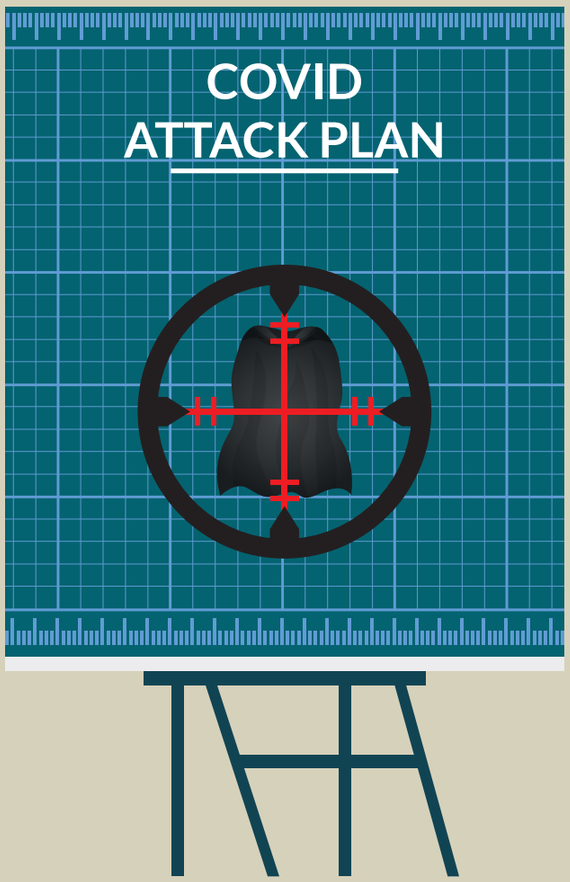




The **coronavirus** contains RNA and its protective protein coat is particularly effective, which is why it is so **infectious.**

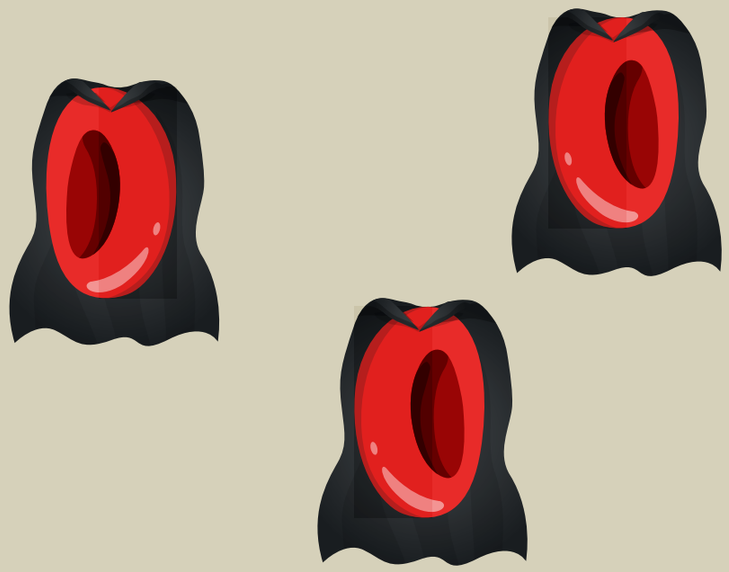
The clever part - how do coronavirus vaccines work?

Vaccines work by ‘tricking’ your immune cells into thinking that your body has been infected and firing up your natural immune response. Different vaccines do this in slightly different ways.



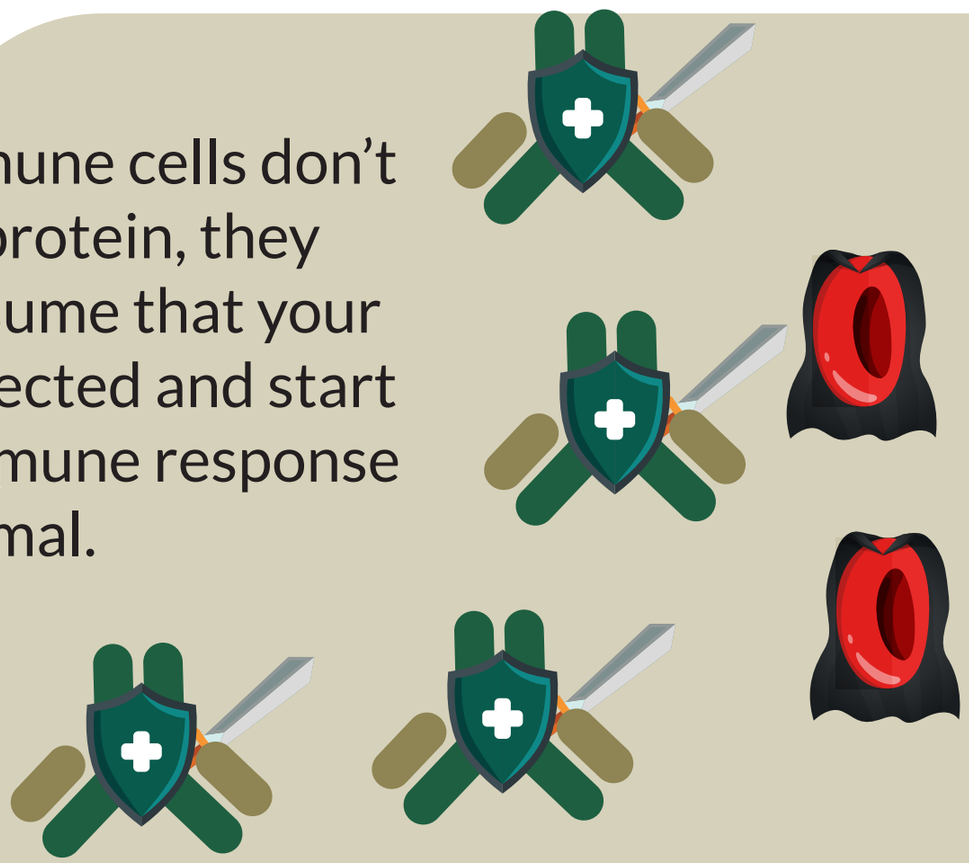
The **coronavirus vaccines** target the coronavirus’s protective protein coat using what’s known as a **messenger RNA** (or **mRNA**). The mRNA in the vaccine contains a **copy** of the information that the coronavirus uses to make more protective protein, stolen from its RNA.

When you’re injected with the vaccine, the **mRNA** carries this information to your cells, which follow the instructions and start making the new protein.



The clever part - how do coronavirus vaccines work?

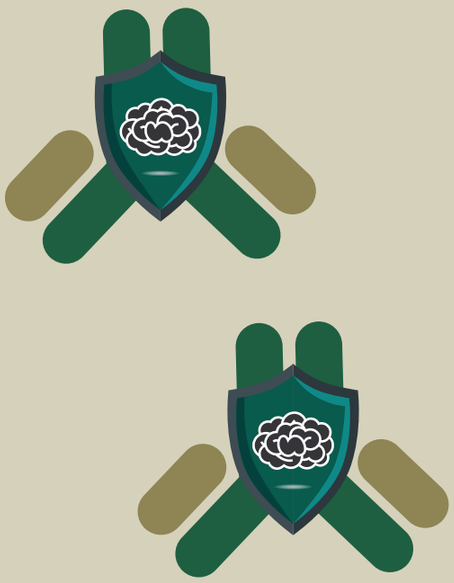
Because your immune cells don't recognise the protein, they automatically assume that your body has been infected and start to launch their immune response as normal.



As they begin to attack the protein and create antibodies, they draw on all your body's resources, which is why you may experience some unwanted **side effects**, such as fever, chills or muscle soreness. These symptoms are completely normal and are usually mild and short-lived.

Once your immune cells have finished destroying the 'replica' protein, your memory cells will store away all the information they have collected about how to combat it, so that they're fully prepared if they ever encounter it again.

Covid Blueprints



Yay - you're now immune!

Now that they've had a 'practice run', if you are ever infected by the actual coronavirus, your immune cells will recognise its protein coat and this time they'll be ready to attack it immediately and fight it off before it can take hold and make you sick.

Even if the virus **mutates** (or changes its form), because it can no longer use its protective protein coat, it will find it much harder to get into your cells and will therefore be less infectious and less likely to cause serious illness.

But isn’t there a risk that the vaccine will give me coronavirus?

No. The coronavirus vaccines contain no actual parts of the virus, so they can’t infect you.

The mRNA instructions that were given to you with the vaccine will be broken down and removed by your body once it has taken effect, as they won’t be needed anymore.

GET YOUR OWN PROTECTIVE COAT, GET VACCINATED

REMEMBER: Even after you have had the vaccine, it is still possible that you may get or spread coronavirus so it’s important that you continue to adhere to local restrictions in your area and follow the government guidance on washing your hands, wearing a face covering and social distancing.
Hands. Face. Space.

MEDIGOLD HEALTH

Keeping people in work safe and well