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COVID-19 mRNA vaccines: how they work and why they are safe

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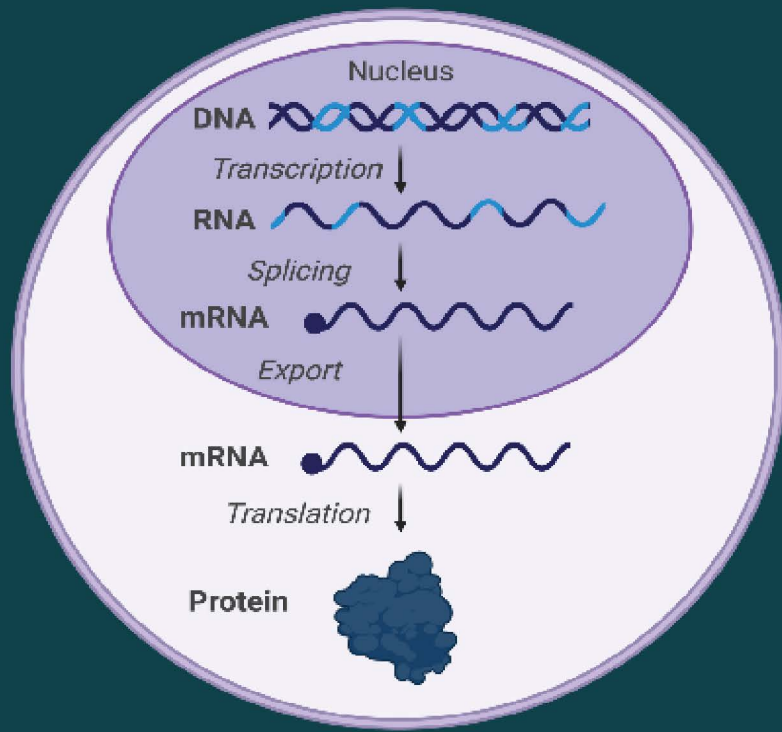


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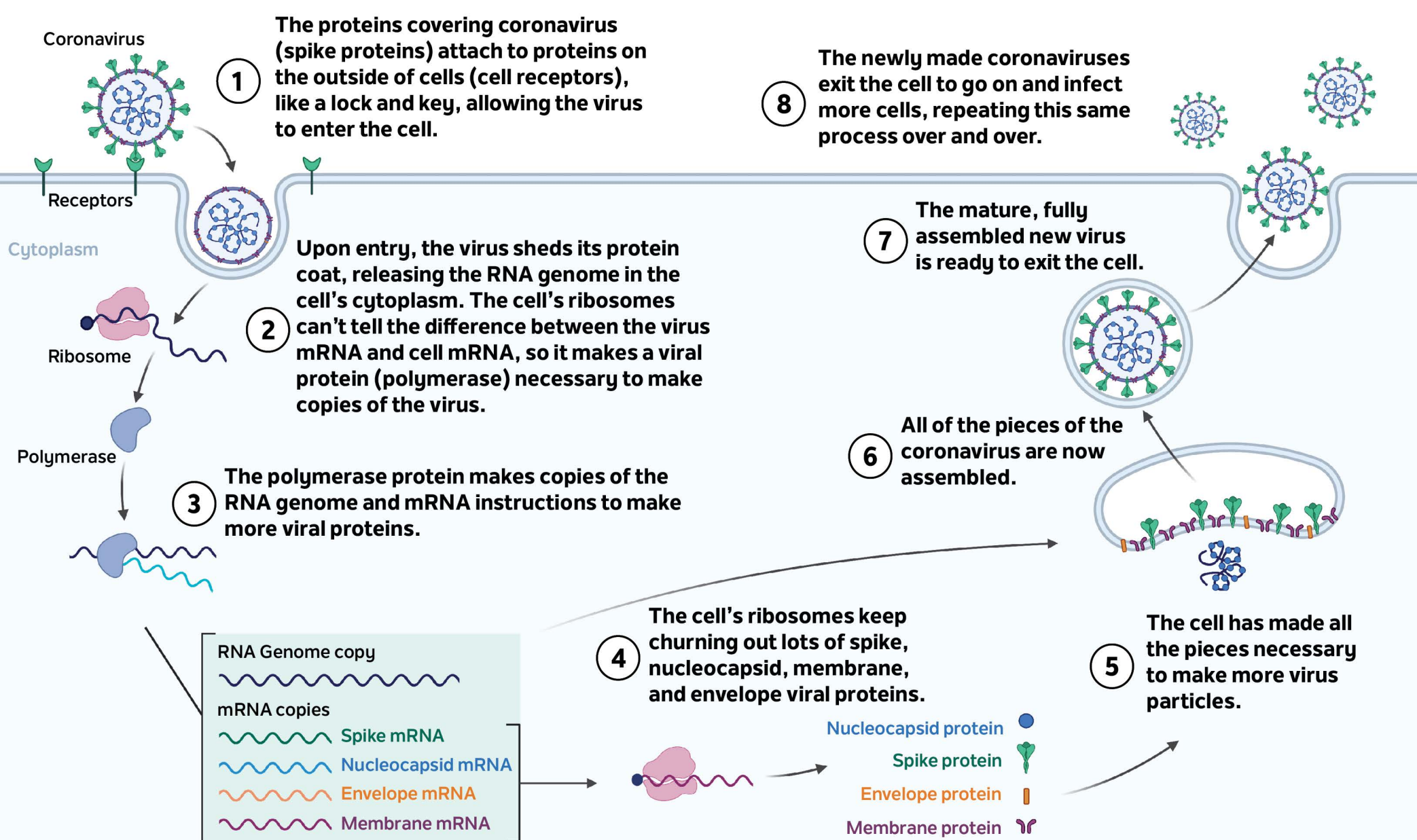
COVID-19 mRNA vaccines: how they work and why they are safe

First, the basics!

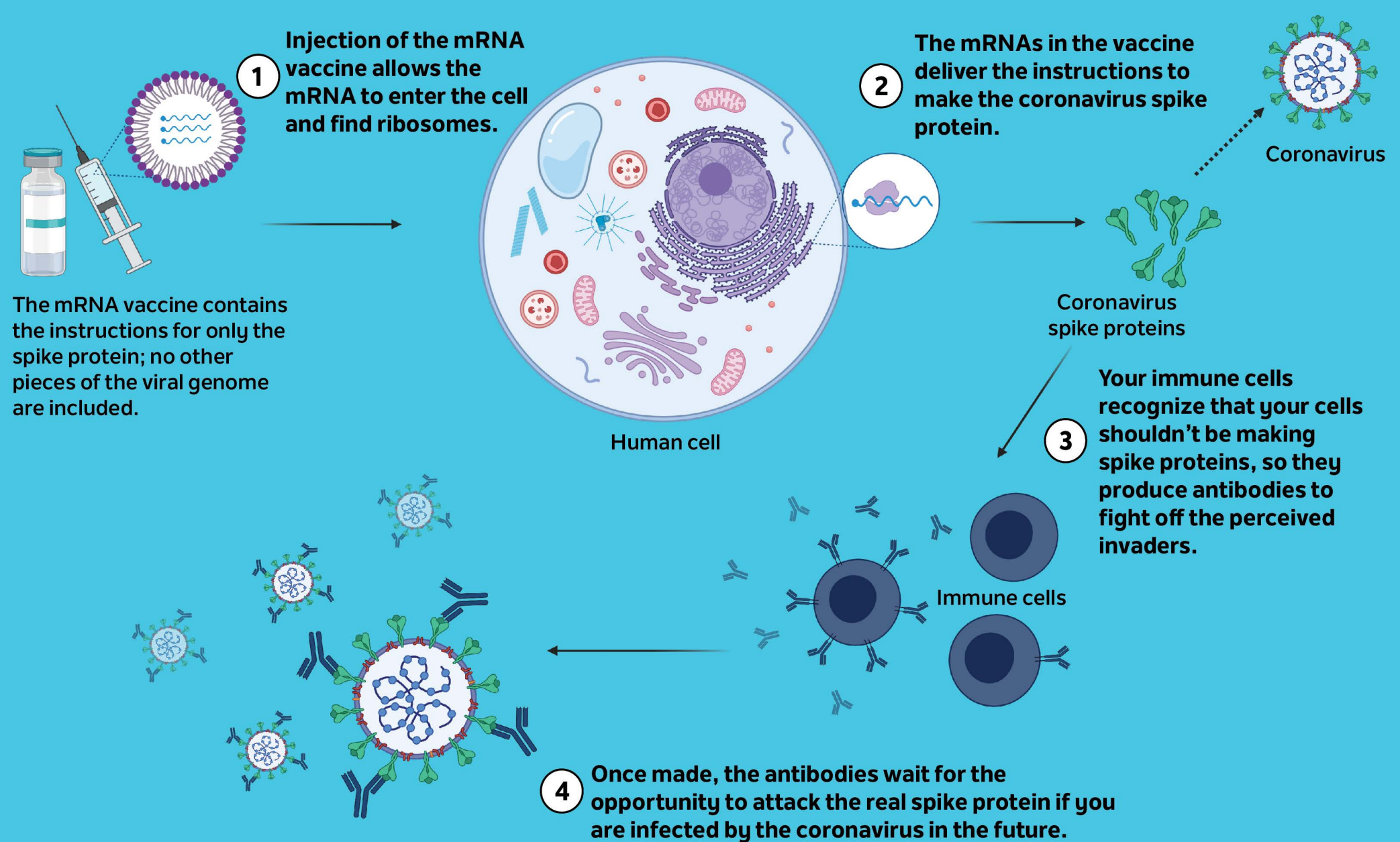


The nucleus of your cells houses all of the instructions (DNA) to make the molecules (proteins) that allow your cells to function. However, the factories that make proteins (ribosomes) are outside of the nucleus (cytoplasm)! To get the information where it needs to go, cells copy pieces of the DNA (transcription) into **messenger RNA molecules** (mRNA, get it!?), which leave the nucleus to find the ribosomes and make proteins (translation). Scientists call this process **'The Central Dogma'**. The coronavirus is different than your cells; it is made of proteins and genetic information, but not in the form of DNA! Scroll on to find out why that is important!

How coronavirus hijacks your cells



How mRNA vaccines work



Dispelling common myths about mRNA vaccines



The vaccine was developed quickly, is it safe?

Scientists have been developing and using mRNA vaccine technology for decades. Approval processes were not changed for these vaccines. Because the groundwork had already been laid, scientists were able to remove mRNA information from a different virus and plug in coronavirus-specific mRNAs for the spike protein. All new vaccines and medications require 3 phases of human trials.



Will the mRNA vaccine change my DNA?

No, mRNA vaccines cannot change your DNA! Why? Because the mRNA in the vaccine cannot and never will enter the nucleus, where your DNA is housed. Remember **'The Central Dogma'** from above? mRNA leaves the nucleus to find the ribosomes in the cytoplasm. The vaccine delivers these mRNAs to the cytoplasm to be translated. Once the spike protein is made, the mRNAs are broken down and cannot be saved for later.



Does the vaccine affect fertility?

No, there are no data to support this myth falsely claiming that antibodies made from the vaccine may attack the placenta. There is no evidence that COVID-19 antibodies (naturally occurring or vaccine-produced) affect fertility. In fact, during the Pfizer vaccine trial, 23 women conceived (12 in the vaccine and 11 in the placebo group). Although protective antibodies might be passed to the baby, the mRNA cannot because it is destroyed too quickly.