

Vaccines

Myth vs. Fact



There are many myths circulating about the COVID-19 vaccine. In this resource, KGI Dean of Research Dr. Larry Grill, PhD and KGI Professor Dr. Animesh Ray, PhD clear up confusion with reliable facts.



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MYTH:

I already had COVID-19, so there's no need to get the vaccine.

FACT:

We don't yet know how long natural immunity to COVID-19 might protect us from becoming reinfected. In addition, research has shown that the vaccine may provide better protection against COVID-19 than natural immunity from previous infection.



MYTH:

Women shouldn't get the COVID-19 vaccine because it affects fertility.

FACT:

This myth first showed up on social media, when a fake report stated that the coronavirus spike protein was identical to another spike protein known as "syncitin-1," which plays a key role in placental growth and attachment in the early stages of pregnancy. According to the fake report, the COVID-19 vaccine would teach a woman's immune system not only to fight off the coronavirus, but also syncitin-1, causing problems with fertility.

In reality, the two spike proteins are completely different—they just happen to look somewhat similar in appearance. The COVID-19 vaccine doesn't cause a woman's body to reject the syncitin-1 protein; in fact, if this were true, then most women would already be infertile, as the common cold virus also has a very similar spike protein structure.

MYTH:

**The COVID-19 vaccine was developed too quickly.
How can we trust that it's safe and effective?**

FACT:

While it's true that the COVID-19 vaccine was developed quickly, it does have enough safety and efficacy data to be trustworthy. Here's why these companies were able to make life-saving COVID-19 vaccines so quickly:

- Both Moderna and Pfizer used a method of vaccine creation that has been in development for several years, enabling both companies to start working on their vaccines early on in the pandemic.
- Researchers did not skip any safety or testing steps; rather, they worked on more than one step at a time to enable them to gather the necessary information more quickly.
- The first two vaccines to hit the market were developed using messenger RNA, or mRNA—a cutting-edge approach that is much faster than more old-fashioned ways of making vaccines.
- Unlike less-common diseases, COVID-19 is very contagious and very widespread, so it only took a few months to collect enough data to learn that the vaccines were effective.

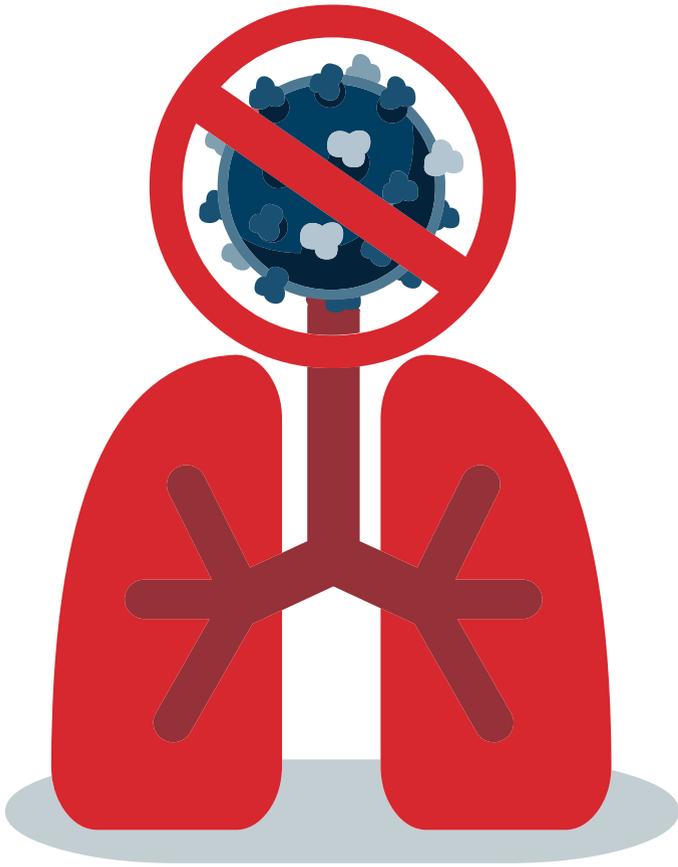
MYTH:

Once I get vaccinated against COVID-19, I don't have to worry about social distancing and wearing a mask.

FACT:

You'll still need to take the proper precautions, including wearing a mask and staying at least six feet away from others, even after getting the COVID-19 vaccine. While the vaccine will help prevent moderate to severe COVID-19 infections, it does not block the virus from entering your body, and you may still be able to carry the virus and transmit it to others.





MYTH:

The COVID-19 vaccine alters your DNA.

FACT:

The mRNA in the first two COVID-19 vaccines does not go into the nucleus of your cells (where your DNA is located). All the mRNA does is stimulate your cells to make copies of a certain protein to help your immune system, and then it breaks down and is eliminated from your body. It does not affect your DNA in any way.

MYTH:

The COVID-19 vaccine will give you COVID-19.

FACT:

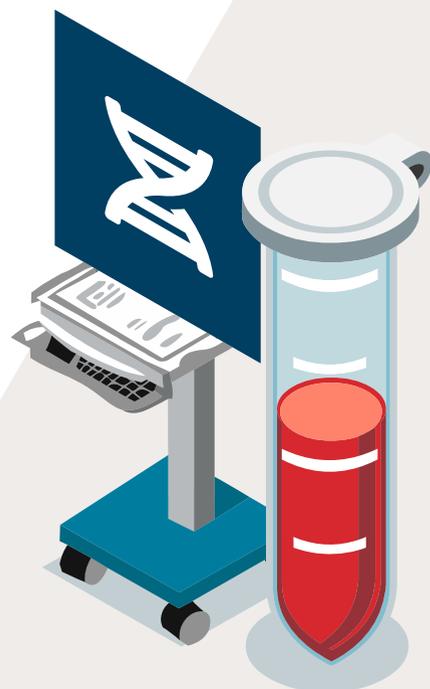
The COVID-19 vaccine does not (and simply cannot) give anyone COVID-19, as it does not contain the virus at all. The mRNA vaccine works by encouraging your own cells to make copies of a special protein that is contained in the coronavirus. This helps your immune system recognize the real virus—and fight it off—if it ever enters your body. The protein is not a virus, and does not cause any type of infection.

MYTH:

The COVID-19 vaccine causes dangerous side effects.

FACT:

Like most vaccines, there can be mild side effects from the COVID-19 vaccine, but these symptoms typically last no more than one to two days. While they may be uncomfortable, these side effects are good signs—they show that the vaccine is doing its job and putting your immune system to work.



MYTH:

The technology being used to make the mRNA COVID-19 vaccines is very new, and not fully tested.

FACT:

This messenger RNA technology being used to develop the new COVID-19 vaccines has been around for about 20 years. It was originally created by vaccine manufacturers so that they could quickly respond to novel viruses, like COVID-19.

MYTH:

The COVID-19 vaccine was created using fetal tissue, and/or contains suspicious materials.

FACT:

The two COVID-19 vaccines that are currently in use contain messenger RNA, along with ingredients like fats (to protect the mRNA), salt, and a little bit of sugar. The vaccines were not created using fetal tissue, and they don't contain suspicious items like tracking devices, implants, or microchips.

MYTH:

If we can develop a vaccine for COVID-19 so quickly, we should be able to make vaccines for every disease.

FACT:

There are many thousands of viruses that cause disease, and they are each quite different. Some, like influenza, mutate every year, while what we call the "common cold" can be caused by literally hundreds of viruses. Developing a vaccine for one, or even a dozen cold viruses, wouldn't be effective.





About Dr. Larry Grill



Professor Grill, who joined KGI in August 2013, is the Dean of Research at KGI. In addition to teaching courses at KGI, he also teaches undergraduates at the Keck Science Department of The Claremont Colleges.

His lab's research at KGI is focused on low-cost vaccines for developing countries. The primary collaborator for this effort is the Botswana Vaccine Institute in Gaborone, Botswana. The focus of these efforts has been to address animal diseases that are devastating to smallholder farmers in Africa. With the disastrous COVID-19 outbreak, the research is now targeting the development of low-cost COVID-19 vaccines for the African countries.

About Dr. Animesh Ray



Professor Ray, who joined KGI in July 2001, earned his PhD in microbial genetics from Monash University in Melbourne, Australia. His PhD research led to the identification of a gene for efficient plasmid maintenance in *Escherichia coli* and a method for generating a multi-copy infectious plasmid that is packageable inside a virus coat—an early example of synthetic biology.

His current research work involves systems biology of Huntington's disease, chromosome instability, non-coding RNAs in cancers, and cancer drug resistance mechanisms.

About Keck Graduate Institute (KGI)

KGI, a member of The Claremont Colleges, is a recognized leader in biotechnology and healthcare education. KGI offers innovative postgraduate degrees and certificates that integrate life and health sciences, business, pharmacy, engineering, and genetics, with a focus on industry projects, hands-on industry experiences, and team collaboration.

With an entrepreneurial approach and industry connections, KGI provides pathways for students to become leaders within healthcare and the applied life sciences. KGI consists of four schools: Henry E. Riggs School of Applied Life Sciences, School of Medicine, School of Pharmacy and Health Sciences, and the Minerva Schools at KGI.

