

What's in a COVID-19 Vaccine?

Manufacturer and Name: ModernaTX, Inc.
Type of vaccine: mRNA

Scientists have studied how to use mRNA to protect us from viruses for a long time. They used that knowledge to make COVID-19 vaccines using mRNA that are as safe and effective as possible. Learn more about what is—and isn't—part of these COVID-19 vaccines.

Each ingredient in this vaccine has a specific job.

1 mRNA, or messenger RNA

mRNA is a natural genetic material naturally found in the body. It teaches the body's cells how to make proteins. The modified mRNA in this vaccine teaches your body how to make a protein usually found on the surface of the virus that causes COVID-19. Whenever your body sees that protein, it starts making antibodies. Those antibodies then stand ready to seek and destroy the virus if it shows up later. mRNA is the active ingredient in this vaccine, meaning it's what helps protect you from COVID-19.

2 Lipids, which are fatty, oil-like particles.

Lipids* form a protective layer around the mRNA to keep it safe on its journey to the cells.

3 A saline (salt-based) solution called a tris buffer.

The tris buffer keeps all the vaccine ingredients exactly the same from the time they are made and shipped until they are given to a people. It is made with:

- Sodium acetate, a salt compound
- Tromethamine and tromethamine hydrochloride (the "tris" in tris buffer), compounds used in drugs and vaccines to keep the pH (or acid) levels close to those normally found in the human body
- Acetic acid, which is the main component in vinegar besides water
- Sucrose (sugar)

What isn't in it?

The vaccine's mRNA can't change your DNA. There is **no live or whole SARS-CoV-2 virus** in this vaccine, so you can't get COVID-19 from it. Eggs, preservatives, fetal cells or any other kind of cell, mercury, and latex are also **not** part of any mRNA vaccines or their packaging.

* Full chemical names of lipids in this vaccine: SM-102, polyethylene glycol (PEG) 2000 dimyristoyl glycerol (DMG), cholesterol, and 1,2-distearoyl-sn-glycero-3-phosphocholine (DSPC).



What's in a COVID-19 Vaccine?

Manufacturer and Name: Pfizer, Inc., and BioNTech: BNT162b2
Type of vaccine: mRNA

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Lipids* form a protective layer around the mRNA to keep it safe on its journey to the cells.

3 A saline (salt-based) solution called phosphate buffer solution (PBS).

The buffer solution keeps all the vaccine ingredients exactly the same from the time they are made and shipped until they are given to people. It is made with salt compounds** and sucrose (sugar).

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* Full chemical names of lipids in this vaccine: (1,4-hydroxybutyl)azane diethylbis(hexane-6,1)-diyl bis(2-hexyldecanoate), 2 [(polyethylene glycol)-2000]-N,N-ditetradecylacetamide, 1,2-distearoyl-sn-glycero-3-phosphocholine, and cholesterol.

** Full chemical names of the salt compounds in this vaccine: potassium chloride, monobasic potassium phosphate, sodium chloride, and dibasic sodium phosphate dihydrate.



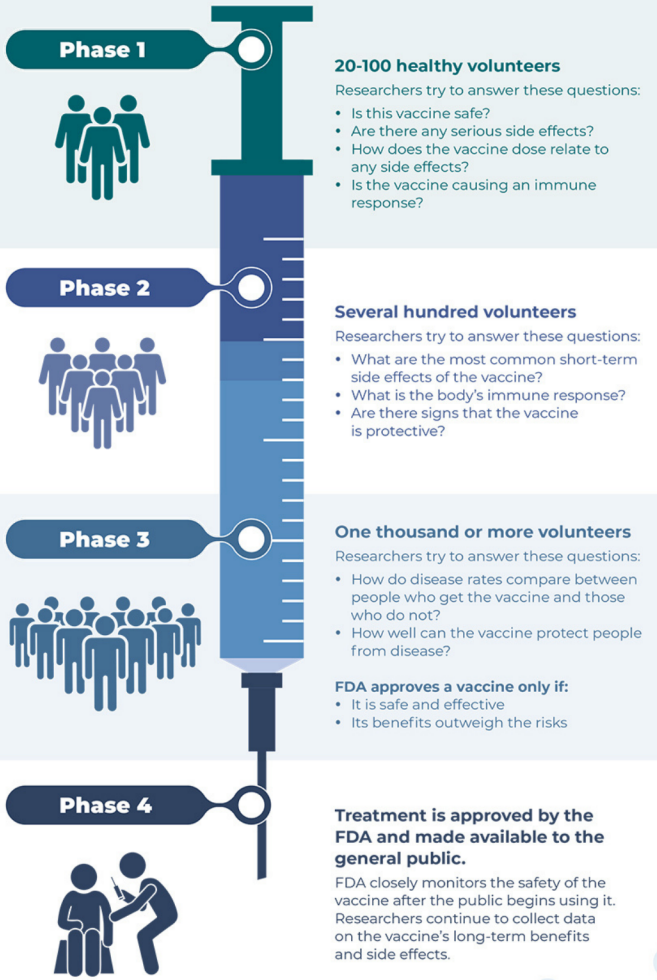
NETWORK COMMUNITY-ENGAGED PRIMARY CARE RESEARCH (NCPCR)

A Coalition to Advance COVID-19 Equity (CACE)

The Journey of a Vaccine

How a new vaccine is developed, approved, and manufactured

The U.S. Food and Drug Administration (FDA) sets rules for the four phases of clinical research so that researchers can learn about the effects of new therapies while keeping volunteers safe. This includes trials of new vaccines to protect against infection; researchers always test vaccines with adults first.



Vaccine Adverse Event Reporting System (VAERS)

VAERS, a national monitoring program run by the FDA and the Centers for Disease Control and Prevention, collects and reviews reports of any health problems that develop after a person gets a vaccine. Anyone can submit a report, including patients and healthcare professionals.

Medical recommendations for taking the vaccine may change if safety monitoring reveals new information about its risks. vaers.hhs.gov

For more information, visit [cdc.gov/vaccinesafety](https://www.cdc.gov/vaccinesafety)

Source: <https://www.cdc.gov/vaccines/parents/infographics/journey-of-child-vaccine.html>



Johnson & Johnson COVID-19 Vaccine

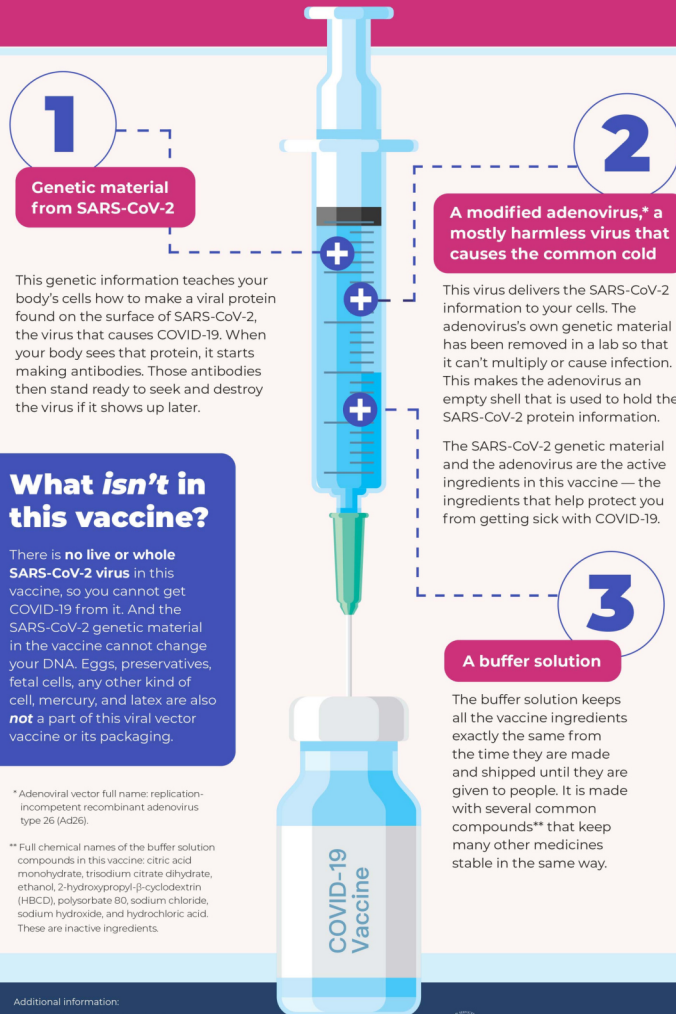


What's in a COVID-19 Vaccine?

Manufacturer: Johnson & Johnson
Type of vaccine: Viral vector, adenovirus

Scientists have studied how to use viral vector vaccines safely and effectively for a long time. This knowledge helped them make viral vector vaccines against diseases like Ebola. Some COVID-19 vaccines are made the same way. Learn more about what is — and isn't — part of this viral vector COVID-19 vaccine.

Each ingredient in this vaccine has a specific job.



What isn't in this vaccine?

There is **no live or whole SARS-CoV-2 virus** in this vaccine, so you cannot get COVID-19 from it. And the SARS-CoV-2 genetic material in the vaccine cannot change your DNA. Eggs, preservatives, fetal cells, any other kind of cell, mercury, and latex are also **not** a part of this viral vector vaccine or its packaging.

* Adenoviral vector full name: replication-incompetent recombinant adenovirus type 26 (Ad26).

** Full chemical names of the buffer solution compounds in this vaccine: citric acid monohydrate, trisodium citrate dihydrate, ethanol, 2-hydroxypropyl-β-cyclodextrin (HPBCD), polysorbate 80, sodium chloride, sodium hydroxide, and hydrochloric acid. These are inactive ingredients.

Additional information:

Vaccines for people with allergies

Sources:

CDC. Understanding and Explaining Viral Vector COVID-19 Vaccines.

Janssen Biotech, Inc. FDA Briefing Document: Janssen Ad26.COV2.S Vaccine for the Prevention of COVID-19. Vaccination.



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