

# COVID-19 vaccines online or in development

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With several COVID-19 vaccines either being rolled out or under trial, here is a rundown of the various stages of their development.

- On the market

## PFIZER/BIONTECH

The mRNA vaccine developed by US pharma giant Pfizer and German start-up BioNTech is already approved for use in the European Union, the United States, Canada, Britain and several other nations.

Clinical [trials](#) showed the vaccine, which delivers instructions to the body to help the [immune system](#) identify and destroy COVID-19 molecules, is more than 95 percent effective.

## MODERNA

Another mRNA vaccine, with a 94.1-percent efficacy rate, has been approved for use in the EU, North America, Britain, and several other nations, including Israel and Singapore.

## ASTRAZENECA/OXFORD

This viral vector vaccine is authorised for use in the EU, Britain and other countries such as India.

It was shown to be 60 percent effective in trials, but a relative lack of safety and efficacy data among older participants has led several countries to recommend against administering the vaccine to those over 65.

## SPUTNIK V

Russia's vaccine works in a similar way to the AstraZeneca/Oxford jab, but has a 91.6-percent efficacy according to trial results.

More than a dozen nations have authorised its use, including Belarus, Armenia, Iran, Algeria, Argentina, South Korea and Venezuela.

Its makers have begun the process of asking for approval from the European Medicines Agency. Hungary is the sole EU member state that has started administering doses.

## SINOPHARM

Two vaccines developed in China use the traditional technique of injecting the deactivated virus in order to trigger an [immune response](#).

As well as the United Arab Emirates, Hungary, Cambodia, Peru and Zimbabwe have all started administering the vaccine, which its makers say is 79 percent effective.

## SINOVAC

The other Chinese-developed vaccine uses a similar technique and is authorised for use in China, Chile, Brazil and Turkey.

Others such as Ukraine and Uruguay have pre-ordered doses.

Its makers say it is 50 percent effective against COVID-19 (and 80 percent effective against severe

illness), but trial results have not yet been made public.

#### JOHNSON & JOHNSON

The US pharma giant has asked for emergency use authorisation for its single-shot vaccine in the US and EU.

South Africa became the first country to begin administering the Johnson & Johnson vaccine after saying it would prioritise its procurement over the AstraZeneca jab.

Trials showed it to be 66 percent effective against COVID-19 and up to 85 percent effective against serious forms of infection.

#### BHARAT BIOTECH

This inactivated virus vaccine is used currently in India.

#### CANSINO

A Chinese-made viral vector vaccine was authorised for use in Mexico last week, but has not yet been administered to the public.

- Authorisation pending

#### NOVAVAX

This American vaccine is under rolling review by the EMA, which has the ultimate say on EU medical authorisations.

It is based on "sub-unit" proteins that trigger an immune response without delivering the whole virus.

Its makers say it is 89.3 percent effective.

#### CUREVAC

The German [vaccine](#) entered EMA review last week. It uses similar technology to the Moderna and Pfizer/BioNTech jabs.

- Still in development

The World Health Organization says there are currently 69 vaccines against the novel [coronavirus](#) in human trials.

An additional 180 candidate vaccines are under development, but have yet to begin testing on humans.

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