

## Frequently Asked Questions

### ABOUT THE COVID-19 VACCINE

#### 1. How many types of COVID-19 vaccines are there?

There are 5 main types of COVID-19 vaccines which have been announced:

- a. mRNA vaccines: e.g. Pfizer-BioNTech, Moderna, Arcturus
- b. virus vectored vaccines: e.g. Astra-Zeneca, Gamaleya, Can-Sino
- c. inactivated virus vaccines: e.g. Sinovac, Bharat
- d. protein subunit vaccines: e.g. Novavax, Sanofi-Pasteur
- e. virus-like particle (VLP) vaccines: e.g. Medicago

#### 2. How do mRNA vaccines work?

The COVID-19 mRNA vaccine consists of messenger ribonucleic acid (mRNA) that carry instructions to make the spike protein of the virus. The mRNA used in the vaccine is synthesised and not extracted from actual viruses. After being given by intramuscular injection, the vaccine mRNA is taken up by cells which then produce the spike protein. This stimulates the production of a good antibody and cellular immune response to the spike protein that protects the vaccinated person because the spike protein is an important part of the SARS CoV-2 virus. The spike proteins are however incapable of forming SARS CoV-2 viruses or causing COVID-19 infection. The vaccine mRNA only persists for two days before it is naturally broken down by the body. It does not enter the nucleus of cells and hence cannot interfere with the DNA of the vaccine recipient.

#### 3. Are mRNA vaccines a form of genetic modification?

No, they are not a form of genetic modification. The mRNA vaccine is in a form that is cannot be converted back to DNA. Since our human genome is made up of DNA, there is no possibility that the COVID-19 mRNA will interfere with or modify human DNA. The mRNA is completely degraded within 48 hours of introduction to the human body.

The spike protein generated through the introduction of the COVID-19 mRNA is recognised by the body's immune system to develop an immune response (e.g. generation of antibodies), similar to what happens in a natural infection against COVID-19.

#### 4. Are the COVID-19 vaccines halal?

The Islamic Religious Council of Singapore (MUIS)'s position is that COVID-19 vaccines are permissible for Muslim use. Please refer to MUIS' religious position on the COVID-19 vaccine here: <https://www.muis.gov.sg/Media/Media-Releases/13-Dec-20-Religious-Position-on-COVID-19-Vaccine>

#### 5. Who shouldn't be vaccinated?

The COVID-19 vaccine is currently not recommended for:

- Persons with a severely weakened immune system (e.g. recent organ transplant, or HIV infection with CD4 count < 200)
- Persons with a very low platelet count of < 50k

- 6. I understand that there may be more than one strain of COVID-19. Will the vaccine cover us fully against all strains? What about the recent COVID-19 variants in UK, will the vaccines protect against such variants or future variants?**

There is no evidence at this time suggesting that the Pfizer-BioNTech and Moderna's vaccines do not protect against specific COVID-19 strains, including the UK's reported variant. MOH is closely monitoring this issue.

*Source: Ministry of Health*

*For more information about the COVID-19 vaccine, please visit:*

<https://www.moh.gov.sg/covid-19/vaccination>