

mRNA COVID-19 Vaccines

วัคซีนป้องกันโรคโควิด-19 ชนิดเอ็มอาร์เอ็นเอ

COVID-19 is the disease caused by a new coronavirus called SARS-CoV-2. COVID-19 spreads mainly by droplets or aerosols from the nose or mouth of infected person. The onset of symptoms is around 2-14 days. The symptoms of COVID-19 include fever, fatigue, headache, runny nose, sore throat, cough, loss of taste or smell. Some people may experience severe symptoms like pneumonia and death.

What is COVID-19 vaccine?

COVID-19 vaccines come from various technologies of vaccine manufacturing. The mRNA COVID-19 vaccines use genetically engineered mRNA to give your cells instructions for how to make the spike protein found on the surface of the COVID-19 virus. After vaccination, your immune cells begin making the spike protein pieces and displaying them on cell surfaces. This causes your body to create antibodies that will fight the SARS-CoV-2 virus. Thailand has approved two mRNA COVID-19 vaccines as the following:

- COMIRNATY™ (Pfizer-BioNTech)
- COVID-19 Vaccine Moderna™

Efficacy of the vaccine

Vaccine	Efficacy data of vaccine
COMIRNATY™ (Pfizer-BioNTech)	<ul style="list-style-type: none"> ● 93-95% effective in preventing symptomatic COVID-19 infection. ● 95-100% effective against severe COVID-19 disease. (The efficacy of vaccine may vary from country based on clinical trial results)
COVID-19 Vaccine Moderna™	<ul style="list-style-type: none"> ● 82-94 % effective in preventing symptomatic COVID-19 infection.

Who should get the COVID-19 vaccine?

People who are at risk of COVID-19 infection such as medical personnel as well as workers and officials tasked with disease control or are in contact with patients, and people who are at risk of severe COVID-19 disease such as elderly, obesity, and those with lung disease, heart disease, diabetes mellitus, immunocompromised, stroke, cancer, etc.

Each mRNA COVID-19 vaccines has indication in different population as the followings:

COMIRNATY™ (Pfizer-BioNTech)	Indicated for active immunization in individuals 12 years old of age and older for the prevention of COVID-19.
COVID-19 Vaccine Moderna™	Indicated for active immunization in individuals 18 years old of age and older for the prevention of COVID-19.

The safety and efficacy of COVID-19 vaccine in pregnancy and breastfeeding have not been yet established. Breastfeeding and pregnancy after the first 12 weeks could be considered to receive the COVID-19 vaccine but after a discussion of the benefits and risks with their healthcare professional.

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How the COVID 19 vaccine is given?

Vaccines are injected intramuscularly to the upper arm muscle following the schedule as below:

mRNA COVID-19 Vaccine	Dose and schedule		
	Dose (milliliter)	Number of doses	Dosing interval between two doses
COMIRNATY™ (Pfizer-BioNTech)	0.3	2 doses	3 weeks after the first dose.
COVID-19 Vaccine Moderna™	0.5	2 doses	4 weeks after the first dose.

Since there is no study regarding the interchangeability of COVID-19 vaccines, individuals are recommended to receive their second dose with the same type of vaccine as the first dose. Therefore, it is still recommended to inject the same brand until further research is done. It is not yet known how long the vaccine will be effective and when a booster immunization might be required.

What if people cannot get the COVID-19 vaccine on schedule?

If people miss a scheduled injection, your doctor will decide when to give the missed injection. Please follow the instructions of your doctor, pharmacist, or nurse regarding follow-up injection.

Who should not get COVID-19 vaccine?

- Anyone who has had a life-threatening allergic reaction to COVID-19 vaccine or any component of the vaccine.
- Anyone suffering from an acute severe febrile illness. However, the presence of a minor illness, such as cold, and/or low-grade fever should not delay vaccination.

Who should be special precautions for the COVID-19 vaccine?

- Anyone who has an immunocompromised disease such as HIV (human immunodeficiency virus), or take a medicine that affects the immune system (such as high-dose corticosteroids or chemotherapy) because it is not known whether individuals with impaired immune responsiveness will elicit the same response as immunocompetent individuals.
- Anyone with thrombocytopenia, any coagulation disorder or to persons on anticoagulation therapy, because bleeding or bruising may occur following an intramuscular administration.

What is the common side effects?

The most common side effects after getting the vaccines were pain, swelling, itching, or redness at the injection site, followed by fatigue, headache, muscle pain, fever, chills, and nausea. Most of which are mild or moderate and go away within a few days on their own. No data on long-term side effects.

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Specific side effects of each COVID-19 vaccine

- **COMIRNATY™ (Pfizer-BioNTech)** has side effects listed below according to the following frequency categories:

Frequency	Side effects
Very common ($\geq 1/10$)	Injection site: pain, swelling Chills, fatigue, fever, headache, myalgia, arthralgia, diarrhea
Common ($\geq 1/100, < 1/10$)	Injection site: redness Nausea, vomiting
Uncommon ($\geq 1/1000, < 1/100$)	Lymphadenopathy, Hypersensitivity reaction e.g. rash, pruritus, urticarial, angioedema)
Rare ($\geq 1/10000, < 1/1000$)	Acute peripheral facial paralysis
Unknown frequency	Anaphylaxis, myocarditis, pericarditis

- **COVID-19 Vaccine Moderna™** has side effects listed below according to the following frequency categories:

Frequency	Side effects
Very common ($\geq 1/10$)	Injection site: pain, swelling Chills, fatigue, fever, headache, myalgia, arthralgia, nausea, vomiting
Common ($\geq 1/100, < 1/10$)	Injection site: erythema, urticarial, rash
Uncommon ($\geq 1/1000, < 1/100$)	Injection site: pruritus
Rare ($\geq 1/10000, < 1/1000$)	Acute peripheral facial paralysis, facial swelling
Unknown frequency	Anaphylaxis, hypersensitivity, myocarditis, pericarditis

What if severe side effects occur?

If abnormal symptoms occur such as rash, face or throat swelling, breathing difficulty, chest pain, arm or leg weakness, please go to the hospital immediately.

Drug interactions between COVID-19 vaccine and others

COVID-19 vaccines are the new vaccines without data of using COVID vaccines with other types of vaccines. It is recommended to avoid other vaccines at least 2-4 weeks depending on the type of COVID-19 vaccines and concurrent vaccines. To avoid interaction from vaccine injection and immune response disturbance, vaccine injection should be supervised by a doctor.

Remarks

- Observe side effects at the hospital for at least 30 minutes and then continue to observe side effects at home.

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- If you experienced any side effects, please inform the doctor, pharmacist, and medical personnel before getting next COVID-19 vaccine.
- Vaccine cannot protect you entirely from COVID-19 disease but it can protect you from severe COVID-19 disease. Therefore, people who get the COVID-19 vaccine can be infected without symptoms or mild symptoms. You need to maintain to comply with prevention measures such as social distancing, wearing a face mask, and frequently washing hands.
- Get a vaccine as schedule and keep the vaccine record with you.
- If you have any further questions about COVID-19 vaccines, you can ask your doctor, pharmacist, or medical personnel.

References

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