

Introduction to COVID-19 vaccine

It was the end of January when this page was written, and the BC Provincial Government had just announced the schedule for the COVID 19 vaccination. So far, only two vaccines have been approved by Health Canada. They are those developed by Pfizer/BioNTech and Moderna. Additionally, two other vaccines are currently being evaluated: AstraZenaca and Johnson&Johnson. But it is believed they will be approved soon.

Vaccine Pharmacology¹

Pfizer and Moderna's vaccines use the principle of mRNA (messenger ribonucleic acid). A small segment of Covid 19 virus mRNA was produced in the laboratory. When this mRNA segment is injected into the human body, it will cause the body cells to produce a spike protein similar to the Covid 19 virus and express it on the cell surface, thereby stimulating the immune system to produce antibodies and achieving immune effects. . There is no exposure to the Covid 19 virus throughout the vaccination process, and this mRNA segment will naturally disintegrate soon after being absorbed by human cells, and the recipient will never be infected with Covid 19 virus due to these vaccines.

The vaccines of AstraZenaca and Johnson&Johnson apply another principle. Part of the gene of the Covid 19 virus is artificially made and implanted into a virus that is harmless to the human body. When this harmless virus is injected into the human body, it will also stimulate the immune system to produce antibodies. Like the above two vaccines, there is no exposure to the Covid 19 virus throughout the vaccination process.

Study population (at the time of application submission)^{2, 3, 4, 5}

Pfizer/BioNTech - 43,000

Moderna - 25,654

AstraZenaca - over 20,000

Johnson&Johnson - 45,000 (still in progress)

Storage environment

Pfizer/BioNTech: -70 C° ; 2 C° to 8 C° can be stored for 5 days; room temperature can be stored for 2 hours; diluted can be stored for 6 hours

Moderna: -20 C° ; 2 C° to 8 C° can be stored for 30 days; room temperature can be stored for 12 hours; diluted can be stored for 6 hours

AstraZenaca: 2 C° to 8 C° ; can be stored for 6 months

Johnson&Johnson: -20 C° can be stored for 2 years; 2 C° to 8 C° can be stored for 3 months

Vaccination course (over 18 years old)

Pfizer/BioNTech-0.3mL per dose, two doses in total, 21 days apart (up to 42 days)

Moderna-0.5mL per dose, two doses in total, 28 days apart (up to 42 days)

AstraZenaca-two doses, 28 days apart

Johnson&Johnson-just one dose

Common side effects

All the above four vaccines have the same side effects: fatigue, headache, low-grade fever, cold symptoms, soreness at the injection site, these symptoms usually last for one to two days. So far, no serious effects of these vaccines on the human body have been found

Successful rate

Pfizer/BioNTech-54% after 14 days of the first dose; 95% after 7 days of the second dose

Moderna-92% after 14 days of the first dose; 94% after 14 days of the second dose

AstraZenaca-62% to 90% 14 days after two doses

Johnson & Johnson-66% to 85%

Precautions

-Everyone has different health conditions. If you have special physical conditions, you can ask your family doctor whether you are suitable for vaccinating the new crown pneumonia.

– Information about the new coronary pneumonia and its vaccine is constantly updated. Readers should pay attention to the latest and reliable news or scientific reports.

1. <https://ca-pharmacist.therapeuticresearch.com/Content/Segments/PRL/2021/Jan/COVID-19-Vaccines-S2101001>
2. <https://www.pfizer.com/news/press-release/press-release-detail/pfizer-and-biontech-announce-publication-results-landmark>
3. <https://www.modernatx.com/cove-study>
4. <https://www.bbc.com/news/health-55228422>
5. <https://www.prnewswire.com/news-releases/johnson--johnson-announces-single-shot-janssen-covid-19-vaccine-candidate-met-primary-endpoints-in-interim-analysis-of-its-phase-3-ensemble-trial-301218035.html>