Components of COVID-19 Vaccines Authorized by Health Canada

Ingredients in the Pfizer-BioNTech Comirnaty COVID-19 vaccine

Component	Function	Known to be a potential allergen
Messenger RNA (mRNA)		
Nucleoside-modified mRNA encoding the viral spike (S) glycoprotein of SARS-CoV-2	Active ingredient: • Genetic code that provides the blueprint for our body's cells to make the SARS-CoV-2 spike protein in the cytoplasm, which is then displayed on the cell surface and elicits an immune response	No
Components of the lipid nanoparticle that delivers the mRNA into the cell		
ALC-0159 = 2[(polyethylene glycol)-2000]-N,N-ditetradecylacetamide	• Forms a protective layer that stabilizes the nanoparticle, improves storage stability and reduces non-specific binding to proteins	Yes – Polyethylene glycol (PEG) can be an allergen
1,2-distearoyl-sn-glycero-3-phosphocholine (DSPC)	• Part of the double layer of lipids (lipid bilayer) that forms the nanoparticle	No
Cholesterol	• Provides structural support for the lipid bilayer of the nanoparticle and supports mobility of lipid components	No
ALC-0315 = (4-hydroxybutyl) azanediyl)bis(hexane-6,1-diyl) bis(2-hexyldecanoate)	• Main ingredient in the lipid-nanoparticle that delivers the mRNA into the cell • Cationic (positively charged) lipid that during the manufacturing process, promotes the nanoparticle to assemble into a virus size particle with the negatively charged mRNA in the middle, and facilitates mRNA release from the nanoparticle once inside the cell	No
Additional ingredients		
Potassium chloride	• Salt that forms a buffer to balance the pH (acidity) of the vaccine	No
Monobasic potassium phosphate	• Salt that forms a buffer to balance the pH (acidity) of the vaccine	No
Sodium chloride	• Salt that forms a buffer to balance the pH (acidity) of the vaccine	No
Dibasic sodium phosphate dehydrate	• Salt that forms a buffer to balance the pH (acidity) of the vaccine	No
Sucrose	• Sugar to protect and stabilize the vaccine during freezing and prevent the particles from sticking together	No
Normal saline (provided separately from the vaccine)	• Water and salt solution added as the diluent to the vaccine	No

Notes: Does not contain latex in the stopper

Components of COVID-19 Vaccines Authorized by Health Canada

Ingredients in the Moderna Spikevax COVID-19 vaccine

Component	Function	Known to be a potential allergen
Messenger RNA (mRNA)		
Nucleoside-modified mRNA encoding the viral spike (S) glycoprotein of SARS-CoV-2	Active ingredient: • Genetic code that provides the blueprint for our body's cells to make the SARS-CoV-2 spike protein in the cytoplasm, which is then displayed on the cell surface and elicits an immune response	No
Components of the lipid nanoparticle that delivers the mRNA into the cell		
Polyethylene glycol (PEG) 2000 DMG	• Serves to stabilize and prolong the lifespan of the nanoparticle	Yes – Polyethylene glycol (PEG) can be an allergen
1,2-distearoyl-sn-glycero-3-phosphocholine (DSPC)	• Part of the double layer of lipids (lipid bilayer) that forms the nanoparticle	No
Cholesterol	• Provides structural support for the lipid bilayer of the nanoparticle and supports mobility of lipid components	No
Lipid SM-102	• Ionizable lipid that interacts with mRNA • During the manufacturing process, promotes the nanoparticle to assemble into a virus size particle with the negatively charged mRNA in the middle and facilitates mRNA release from the nanoparticle once in the cell	No
Additional ingredients		
Tromethamine	• Base that forms a buffer and works to balance the pH (acidity) of the vaccine	Yes – tromethamine can be a very rare cause of allergic reactions
Tromethamine hydrochloride	• Salt that forms a buffer and works to balance the pH (acidity) of the vaccine	Yes – tromethamine can be a very rare cause of allergic reactions
Acetic acid	• Acid that forms a buffer to balance the pH (acidity) of the vaccine	No
Sodium acetate	• Salt that forms a buffer to balance the pH (acidity) of the vaccine • Helps to stabilize the particle	No
Sucrose	• Sugar to protect and stabilize the vaccine during freezing and prevent the particles from sticking together	No

Notes: Does not contain latex in the stopper

Components of COVID-19 Vaccines Authorized by Health Canada

Ingredients in the AstraZeneca Vaxzevria COVID-19 vaccine

Component	Function	Known to be a potential allergen
Sources of genetic code for spike protein		
Modified adenovirus (ChAdOx1) containing spike protein genetic code	Active ingredient: • Adenovirus that has been genetically modified to not replicate and to carry the gene for the spike protein of the SARS-CoV-2 virus • Delivers genetic code of the spike protein to the nucleus of the body's cell where mRNA is made and transported to the cytoplasm of the body's cell where the spike protein is then made, displayed on the cell surface and elicits an immune response	No
Additional ingredients		
L-Histidine	• Buffering agent- pH (acidity) control and stability during storage	No
L-Histidine hydrochloride monohydrate	• Buffering agent- pH (acidity) control and stability during storage	No
Magnesium chloride hexahydrate	• Stabilizer – protects the vaccine from adverse conditions (electrostatic interactions)	No
Polysorbate 80	• Surfactant- stabilizes the adenovirus by reducing virus sticking to surfaces and minimizing interactions where the liquid vaccine comes into contact with air	Yes – polysorbate 80 can be a very rare cause of allergic reactions
Ethanol	• Stabilizer- protects the vaccine from adverse conditions (prevents free-radical induced oxidation of the adenovirus)	No
Sucrose	• Cryo-protectant- stabilizes the adenovirus during freezing and thawing, enhances the adenovirus' ability to withstand temperature changes, and acts as a tonicity agent	No
Sodium chloride	• Cryo-protectant- stabilizes the adenovirus during freezing and thawing and acts as a tonicity agent	No
Disodium edetate dihydrate (EDTA)	• Stabilizer- protects the vaccine from adverse conditions (prevents free-radical induced oxidation of the adenovirus)	No
Water	• Liquid in the vaccine vial	No

Notes: Does not contain latex in the stopper

For the latest updates, please visit Canada.ca/covid-vaccine