

Vaccine Ingredients

- Pfizer
- Moderna
- AstraZeneca

What's in the **Pfizer-BioNTech** vaccine?



mRNA

Active ingredient -
makes it work



FAT

Protects the mRNA



SALT

Balances the acidity or
preservative



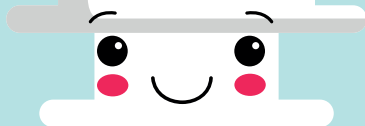
SUGAR

Keeps the structure



WATER

Main ingredient



INGREDIENT	TYPE	USE IN VACCINE	USE IN OTHER THINGS
mRNA	Acid	Teaches body to recognise Covid-19 spike protein	In all living cells, used in other vaccines and for cancer treatment
(4-hydroxybutyl)azanediyl bis(hexane-6, 1-diyl)bis(2-hexyldecanoate).	Fat	<ul style="list-style-type: none"> • Protects the mRNA acid and delivers it to the cell more smoothly • Helps the injection site absorb the vaccine. 	<ul style="list-style-type: none"> • Toothpaste • Skin creams • Some medications and cosmetics
2 [(polyethylene glycol)-2000]-N,N-ditetradecylacetamide	Fat		
1,2-Distearoyl-sn-glycero-3-phosphocholine.	Fat		
Cholesterol	Fat		
Potassium chloride	Salt	<ul style="list-style-type: none"> • Makes the vaccine the right pH for the human body • Balances out the acidity of the vaccine 	Medications to treat low potassium
Monobasic potassium phosphate.	Salt		<ul style="list-style-type: none"> • Food additive • Medication to treat kidney stones
Sodium chloride	Salt		Table salt
Dibasic sodium phosphate dihydrate	Salt		Desserts and condensed milk and puddings
Sucrose	Sugar	Helps the molecules keep their shape	Most food and in your coffee/tea

What's in the **Moderna** vaccine?



mRNA

Active ingredient -
makes it work



ACID

Stabiliser or emulsifier



FAT

Protects the mRNA



SALT

Balances the acidity or
preservative



SUGAR

Keeps the structure



WATER

Main ingredient



INGREDIENT	TYPE	USE IN VACCINE	USE IN OTHER THINGS
mRNA	Acid	Teaches body to recognise Covid-19 spike protein	In all living cells, used in other vaccines and for cancer treatment
Tromethamine	Acid stabilizer	Helps the vaccine be stable and not 'go off'	Medication to reduce acid in urine and blood
Tromethamine hydrochloride	Acid stabilizer		
Acetic acid	Acid		<ul style="list-style-type: none"> • Main ingredient in vinegar • Wine, cheese and orange juice • Used to make vitamin supplements and antibiotics
SM-102	Fat	<ul style="list-style-type: none"> • Protects the mRNA acid and delivers it to the cell more smoothly • Helps the injection site absorb the vaccine 	<ul style="list-style-type: none"> • Toothpaste • Skin creams • Some medications and cosmetics
Polyethylene glycol (PEG) 2000 dimyristoyl glycerol (DMG)	Fat		
1,2-distearoyl-sn-glycero-3-glycero-3-phosphocholine (DSPC)	Fat		
Cholesterol	Fat		In all animal products
Sodium acetate	Salt	<ul style="list-style-type: none"> • Makes the vaccine the right pH for the human body • Balances out the acidity of the vaccine 	<ul style="list-style-type: none"> • Flavour crisps • Nutrition injections where a person has low sodium levels in their blood
Sucrose	Sugar	Helps the molecules keep their shape	Used in most food and in your coffee/tea

What's in the **AstraZeneca** vaccine?



DNA

Active ingredient -
makes it work



ACID

Stabiliser or emulsifier



ALCOHOL

Preservative



SALT

Balances the acidity or
preservative



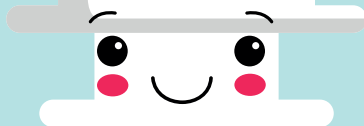
SUGAR

Keeps the structure



WATER

Main ingredient



INGREDIENT	TYPE	USE IN VACCINE	USE IN OTHER THINGS
DNA (Modified virus)	Acid	Teaches body to recognise Covid-19 spike protein	Present in all living cells – used for other vaccines, like flu and ebola
Polysorbate 80	Acid	The vaccine has a combination of oil and water, so this helps it stick together	<ul style="list-style-type: none"> • Soap, cosmetics, mouthwash and eyedrops • Ice cream (stop it from melting too quickly) • Some flu vaccines • Heart medications for irregular heartbeat
Ethanol (amount in one dose of vaccine is less than in a slice of bread or a banana)	Alcohol	Used as a preservative - stops contamination from bacteria and the vaccine 'going off'	Wine, beer and spirits
L-histidine	Acid (amino)	Helps to make the vaccine work better – as amino acids make protein, which the vaccine asks your body to make	<ul style="list-style-type: none"> • All meat, fish, chicken, nuts and seeds • Arthritis and allergy medication
L-histidine hydrochloride monohydrate	Acid		Cosmetics, toothpaste and perfume
Disodium edetate dihydrate	Salt	Used as a preservative to stop bacteria contamination and stop the vaccine 'going off'	Cosmetics
Sodium chloride	Salt	<ul style="list-style-type: none"> • Makes the vaccine the right pH for the human body 	Table salt
Magnesium chloride hexahydrate	Salt	<ul style="list-style-type: none"> • Balances out the acidity of the vaccine 	Baby formula milk, nutrition supplements and tofu
Sucrose	Sugar	Helps the molecules keep their shape	Used in most food and in your coffee/tea

