

# COMMON COMPONENTS OF VACCINES

As well as the active components, vaccines contain a number of other substances. This graphic examines these and the reasons for their inclusion.

## ACTIVE COMPONENTS



A form of the virus, bacteria or toxin that causes the disease is used as the antigen. This antigen is modified from the original form so it no longer causes disease, but still elicits an immune response from the body. To modify the disease-causing agent, it can be treated with specific chemicals, so it cannot replicate. It can also be treated so it does not cause serious disease, or only parts of the disease-causing agent that do not cause serious symptoms can be used.



## ADJUVANTS



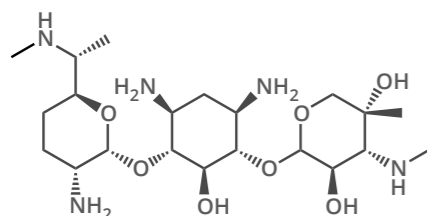
ALUMINIUM HYDROXIDE



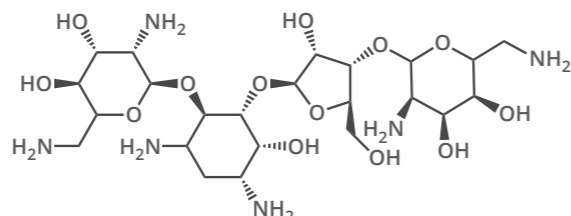
ALUMINIUM PHOSPHATE

Added to enhance the body's immune response to the vaccine. How they work isn't entirely understood, but it's thought they help keep antigens near the site of injection. This means they can be easily accessed by the immune system cells. There is no evidence of any serious adverse effects from adjuvants, though they can cause some minor reaction near the injection site.

## ANTIBIOTICS

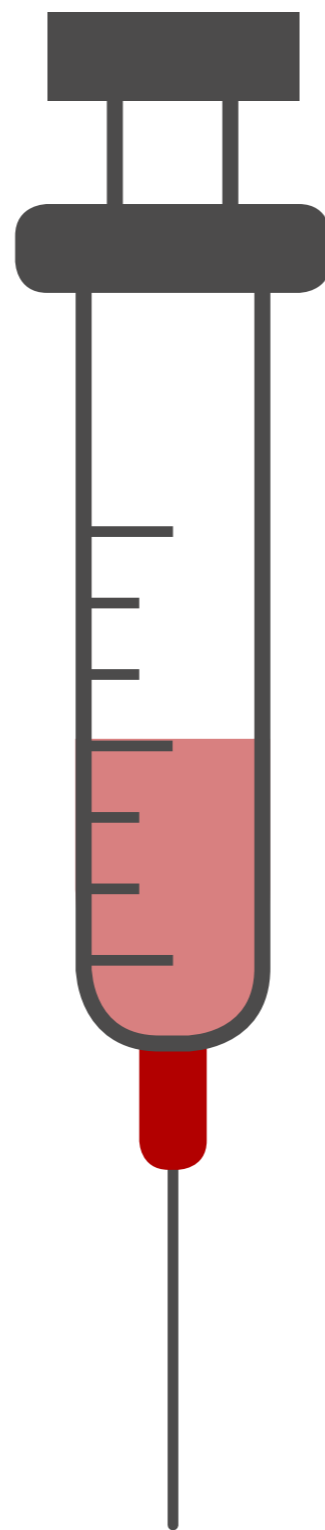


GENTAMICIN

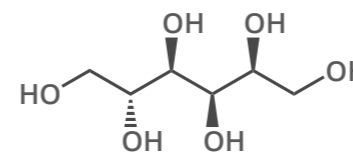


NEOMYCIN

Antibiotics are used in the manufacturing process of the vaccine to prevent bacterial contamination. They are later removed, and only residual quantities remain in the vaccine after the production process.



## STABILISERS



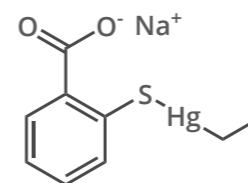
SORBITOL



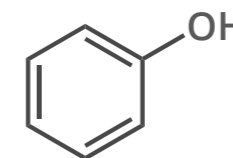
MAGNESIUM SULFATE

Vaccines need to be storable, so stabilisers are added to ensure the various components remain stable and effective. A variety of different stabilisers are used; either inorganic magnesium salts such as magnesium sulfate or magnesium chloride, or mixtures of lactose, sorbitol and gelatin. Monosodium glutamate and glycine are also used in some cases.

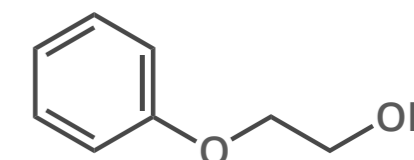
## PRESERVATIVES



THIOMERSAL



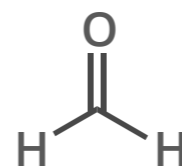
PHENOL



PHENOXYETHANOL

Preservatives help prevent contamination of vaccines. They are used particularly in multi-dose vaccines. Thiomersal is a common preservative, though its use declined in the late 1990s when vaccines were falsely linked to child autism. This link was later shown to be an elaborate medical hoax, and there is no link between thiomersal and autism.

## TRACE COMPONENTS



FORMALDEHYDE

These are left-over from the vaccine production process. Though they are purposefully removed, residual amounts remain. Formaldehyde is one such agent, used to deactivate viruses and detoxify bacteria, but amount remaining is several hundred times lower than the smallest amount known to cause harm in humans.

