WHAT ARE VIRAL VECTOR VACCINES?

SARS-CoV-2

Genetic material
The virus's genetic material. Contains instructions for making proteins.

Spike protein gene
The instructions the virus uses to make the spike protein.

The SARS-CoV-2 virus contains a gene which the virus uses to make its spike protein. Scientists have identified this gene and can alter the genetic material of other viruses to contain it.

VIRAL VECTOR VACCINES FOR COVID-19

VIRAL VECTORS: BENEFITS AND CHALLENGES

VACCINE PRODUCTION

These vaccines can be made relatively quickly. Knowing the genetic code for the viral protein is all that's needed to start development.

SAFETY OF THE VACCINES

The viral vectors used in these vaccines are modified so that they can't cause disease. The genetic instructions for making the SARS-CoV-2 spike protein are broken down in our cells after the protein has been produced.

MINOR SIDE EFFECTS

Viral vectors cause a strong immune response. This can mean that minor side effects such as headache and fever are more common.

VIRAL VECTOR VACCINES

There are two types of viral vector vaccines: replicating viral vector vaccines or non-replicating viral vector vaccines. The vaccines for COVID-19 are non-replicating, which require higher doses but are safer than replicating viral vectors.

REPLICATING
Produce new viral vector particles in cells they enter.

NON-REPLICATING
Don't produce new viral vector particles in cells they enter.

WHAT VIRUSES ARE BEING USED AS VECTORS?

Different viruses can be used as viral vectors in these vaccines. The COVID-19 viral vector vaccine candidates use a range of different viral vectors to deliver their genetic cargo.

HUMAN ADENOVIRUS (Ad) VECTORS
Gamaleya Research Institute (RUS): Ad5 & Ad26
Johnson & Johnson (USA): Ad26
CanSino Biologics (CHN): Ad5

PRIMATE ADENOVIRUS (Ad) VECTORS
Oxford/AstraZeneca (UK): Chimp Ad
ReiThera (ITA): Gorilla Ad

WHAT ARE VIRAL VECTOR VACCINES AND HOW DO THEY WORK?