

# WHAT IS SPUTNIK V

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- ▶ Many people are afraid to be vaccinated. As a rule, this fear is caused by the unknown. People do not know how the vaccine works, they are afraid that it will damage their health. In this report I want to show that it is safe

## INTRODUCTION



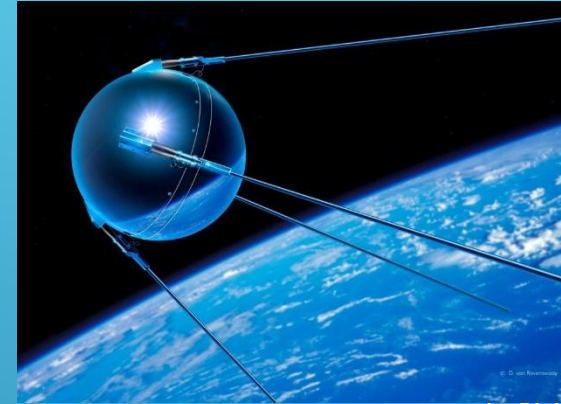
- ▶ Twenty vaccines are authorized by at least one national regulatory authority for public use: one DNA vaccine (ZyCoV-D) two RNA vaccines (Pfizer–BioNTech and Moderna), ten conventional inactivated vaccines (BBIBP-CorV, Chinese Academy of Medical Sciences, CoronaVac, Covaxin, CoviVac, COVIran Barekat, FAKHRAVAC, Minhai-Kangtai, QazVac, and WIBP-CorV), five viral vector vaccines (Sputnik Light, Sputnik V, Oxford–AstraZeneca, Convidecia, and Janssen), and six subunit vaccines (Abdala, COVAX-19, EpiVacCorona, MVC-COV1901, Soberana 02, and ZF2001).<sup>[32][33]</sup> As of July 2021, 330 vaccine candidates were in various stages of development, with 102 in clinical research, including 30 in Phase I trials, 30 in Phase I–II trials, 25 in Phase III trials, and 8 in Phase IV development.<sup>[32]</sup>

# VACCINE

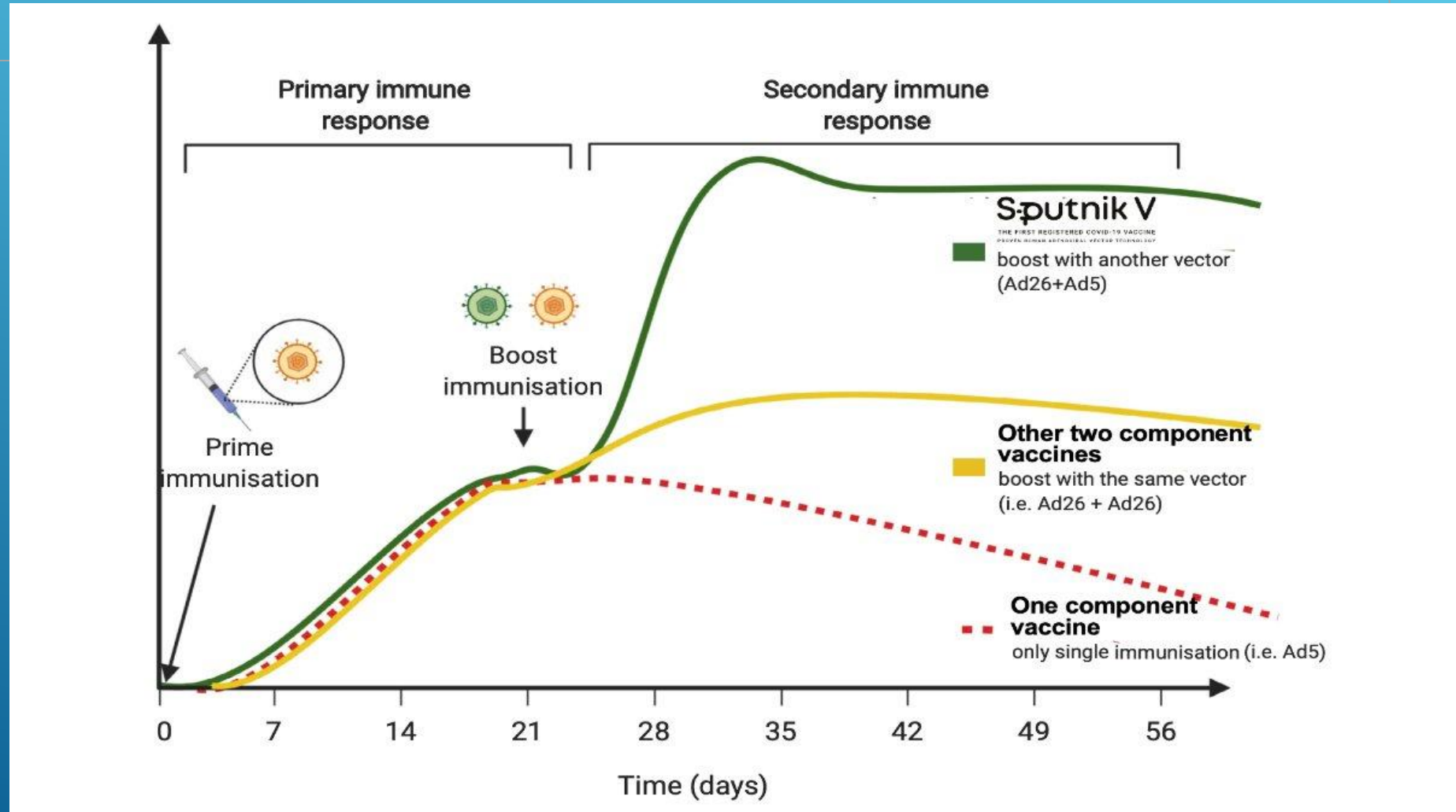


# NAMED SPUTNIK

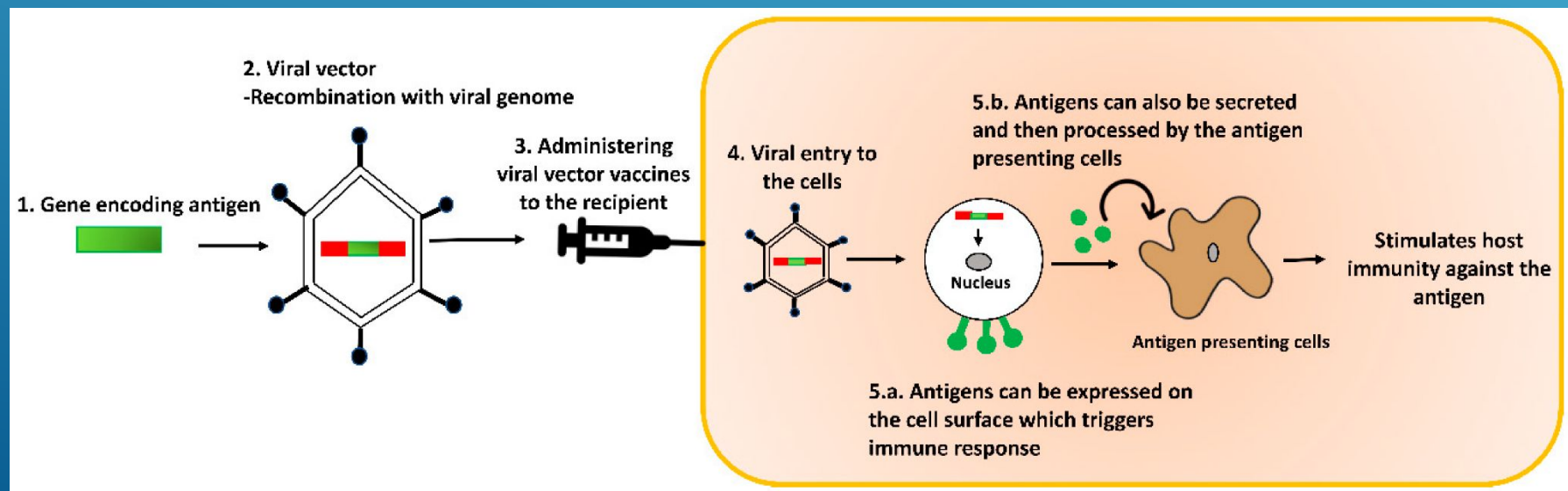
- ▶ Sputnik V is the world's first registered vaccine based on a well-studied human adenovirus vector platform. It has been approved for use in 71 countries with a total population of 4 billion people.
- ▶ The vaccine is named after the first Soviet space satellite. The launch of Sputnik-1 in 1957 reinvigorated space research around the world, creating a so called “Sputnik moment” for the global community.



- ▶ Sputnik V was the first coronavirus vaccine to use a heterogeneous boosting approach based on 2 different vectors for 2 vaccine shots. This approach generates a more sustainable immunity compared to vaccines that use the same delivery mechanism for both shots.



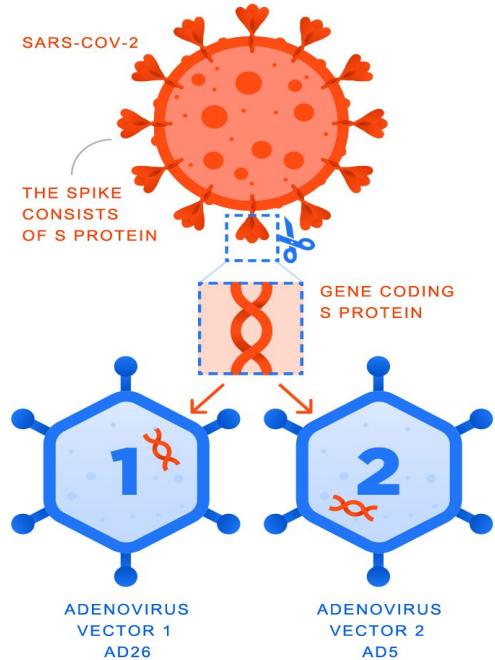
- ▶ Sputnik V is effective against new strains of coronavirus, according to a study by the Gamaleya Research Institute for Epidemiology and Microbiology published in the leading international magazine Vaccines.
- ▶ The vaccine produces protective neutralising antibody titres against new strains, including Alpha B.1.1.7 (first identified in the UK), Beta B.1.351 (first identified in South Africa), Gamma P.1 (first identified in Brazil), Delta B.1.617.2 and B.1.617.3 (first identified in India) and variants B.1.1.141 and B.1.1.317 with mutations in the receptor-binding domain (RBD) identified in Moscow.



# Two-vector vaccine against coronavirus

## Vector creation

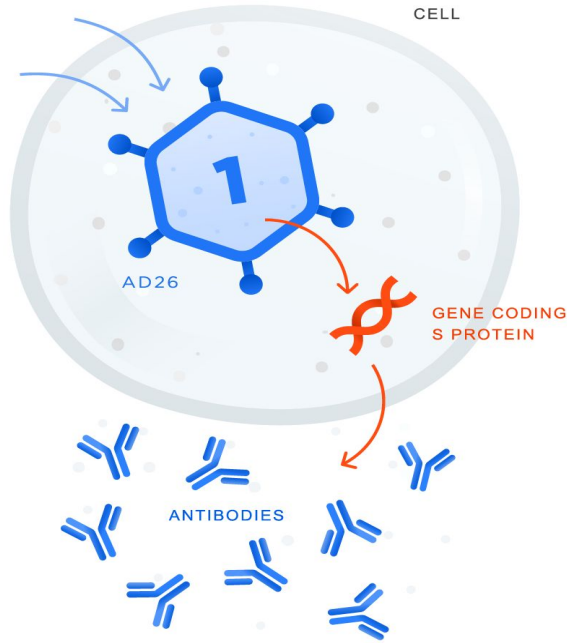
A **vector** is a virus that lacks a gene responsible for reproduction and is used to transport genetic material from another virus that is being vaccinated against into a cell. The **vector** does not pose any hazard to the body. The vaccine is based on an adenoviral vector which normally causes acute respiratory viral infections



A gene coding **S protein** of SARS-COV-2 spikes is inserted into each vector. The spikes form the "crown" from which the virus gets its name. The SARS-COV-2 virus uses spikes to get into a cell

## First vaccination

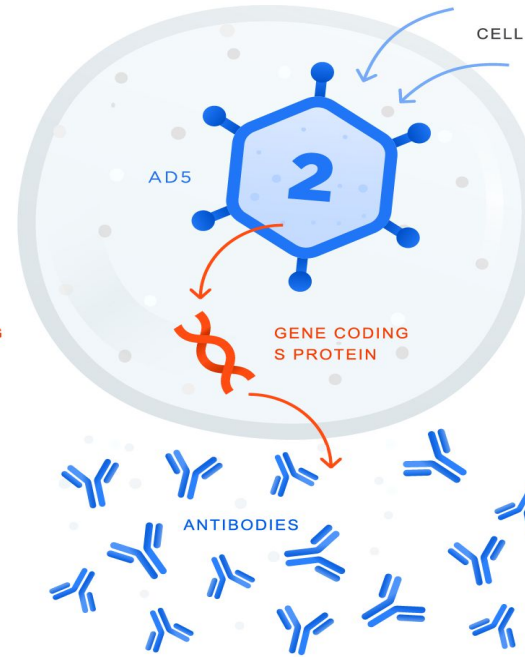
**Vector** with a gene coding **S protein** of coronavirus gets into a cell



The body synthesizes **S protein**, in response, the production of **immunity** begins

## Second vaccination

Repeated vaccination takes place in 21 days



The vaccine based on another adenovirus vector unknown to the body boosts the immune response and provides for long-lasting immunity

The use of two vectors is a unique technology of the Gamaleya Center making the Russian vaccine different from other adenovirus vector-based vaccines being developed globally



- ▶ “Vectors” are vehicles, which can induce a genetic material from another virus into a cell. The gene from adenovirus, which causes the infection, is removed while a gene with the code of a protein from another virus spike is inserted. This inserted element is safe for the body but still helps the immune system to react and produce antibodies, which protect us from the infection.
- ▶ *Human adenoviruses are considered as some of the easiest to engineer in this way and therefore they have become very popular as vectors.*



- ▶ The vaccine's efficacy is 97.6%, based on the analysis of data on the incidence of coronavirus among Russians vaccinated with both vaccine components between December 5, 2020 and March 31, 2021.
- ▶ Efficacy of Sputnik V against COVID-19 was reported at 91.6%. The figure is based on the analysis of data on 19,866 volunteers, who received both the first and second doses of the Sputnik V vaccine or placebo at the final control point of 78 confirmed COVID-19 cases. Sputnik V's efficacy was validated by internationally peer reviewed data published in The Lancet.

STATISTICS

THANK YOU FOR YOUR ATTENTION

