

VACCINE IN THE WORKS AGAINST NIPAH VIRUS

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The ChadOx1 vaccine vector was customised to protect against the Nipah virus.

Can a Covishield-like vaccine give protection against the Nipah virus? Preliminary animal trial results seem to suggest so. In July, researchers at the Jenner Institute, Oxford University and the National Institutes of Health, United States, reported that the ChadOx1 vaccine vector, when customised to the Nipah virus, fully protected African green monkeys, a primate species.

No approved vaccine yet exists for the lethal Nipah virus that has killed a 12-year old boy in Kozhikode, Kerala. An outbreak of the virus in the State in 2018 killed 17 of the 18 confirmed with the virus.

The study appears on the pre-print server bioRxiv, indicating that it is yet to be peer-reviewed.

ChAdOx1 is a multi-purpose vaccine vector, meaning it can be customised to carry DNA from a wide variety of pathogens. The version of ChAdOx1 that is used in the Covishield or AstraZeneca vaccine is the ChAdOx1 with a piece of spike protein of SARS-CoV-2.

For the Nipah study, the scientists loaded a piece of glycoprotein from a Nipah virus strain found in Bangladesh, where annual outbreaks occur. This test vaccine for the purposes of the study was called ChadOx1 NiV.

8 monkeys chosen

One group of four monkeys was administered either two shots or a single shot of the ChadOx1NiV and another group of four was given shots of a dummy protein (ChAdOx1 GFP), again vectored by ChAdOx1. All the eight were then “challenged” or artificially infected with the Nipah virus, some given via the nose and others through the throat.

Within three days, the unvaccinated group manifested disease symptoms and within 5-7 days were euthanised after they were confirmed to manifest severe disease. On the other hand, the vaccinated animals showed no disease.

Throat and nose swabs from all unvaccinated animals revealed evidence of replicating virus whereas swabs from one only one vaccinated animal showed such signs of virus.

“These data suggest the vaccine may provide close to complete protective immunity in African green monkeys,” the scientists report in their study, “ If the next pandemic were to be caused by a member of the genus Henipavirus [to which the Nipah virus belongs], the current study could be influential in the development of a rapid vaccine.”

Hamster trial

The study in monkeys follows a study by the group on Syrian hamsters. Encouraging studies on the primates pave the way for trials in people.

For instance, the group’s work on developing a vaccine for the Middle Eastern Respiratory Virus (MERS) and tested in rhesus macaques paved the way for the development of the AstraZeneca vaccine, which was among the first vaccines to be approved.

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