Vaccine to prevent a dangerous tropical disease receives approval

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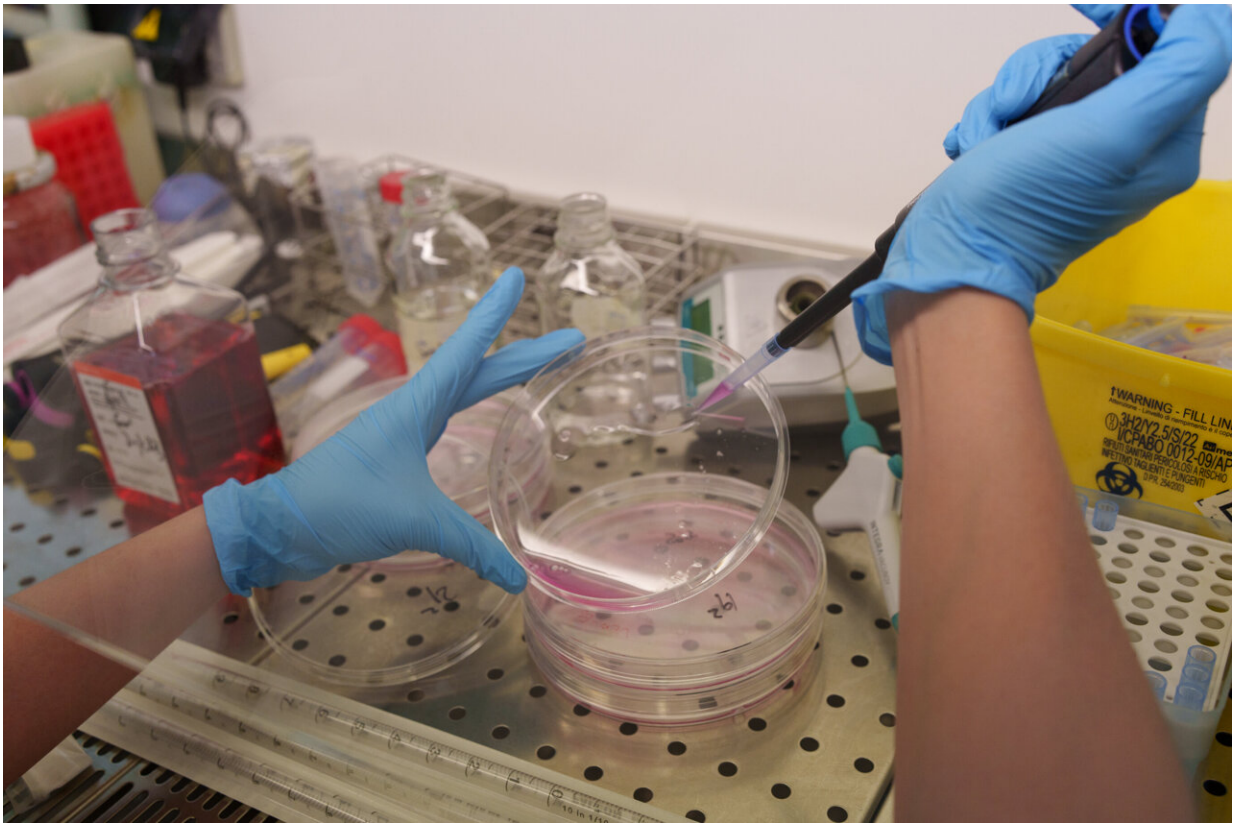

Work in Tartu University's virology lab. Author Kaspar Koolmeister. Credit: Kaspar Koolmeister

The chikungunya virus is widespread in tropical regions, where it is spread to humans by mosquitoes of the genus Aedes. Chikungunya is

characterized by high fever, headache, muscle and joint pain, rash, and sometimes diarrhea. This viral disease has become a global health threat.

At least five million cases of chikungunya virus infection have been reported in the last 15 years. The highest risk of infection is in tropical and subtropical regions of Africa, Southeast Asia, and parts of the Americas where mosquitoes carrying the virus are endemic. However, the chikungunya virus has also spread to new geographical areas, causing a rise in the global prevalence of the disease. So far, there is no specific medicine for the disease.

According to Professor Andres Merits, head of the working group that prepared the vaccine candidate at the University of Tartu, the vaccine was assembled on a desk in room 435 of the Institute of Technology. Merits made a synthetic copy of the chikungunya virus genome, which was attenuated by introducing mutations into it by then-UT virologists Aleksei and Valeria Lulla.

The virus was first made in January 2011; then it was analyzed and subjected to pre-clinical trials in collaboration with researchers from Sweden, the UK, France, and other countries.

"This is a major achievement—probably the first in Estonian research—where a vaccine designed and made by us becomes available for human use," said Merits.

Obtaining FDA approval is the most important step in the drug development process, which opens up the possibility of using the vaccine in the US. In other regions, it will require approval by other regulatory authorities, such as the European Medicines Agency in Europe. Usually, the FDA is the first to give approval, with others following suit sometime later.

The application to the FDA was submitted in February 2023, and the approval was issued quickly. The approval will be followed by a rigorous follow-up to further assess the effectiveness of the vaccine and the adverse effects of its use.

According to Merits, the biggest market for the vaccine is likely to be Brazil and other South American countries, as well as Southeast Asia, where the virus is a major problem. In the US, the vaccine is primarily intended for people wishing to travel to high-risk areas.

Provided by Estonian Research Council

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