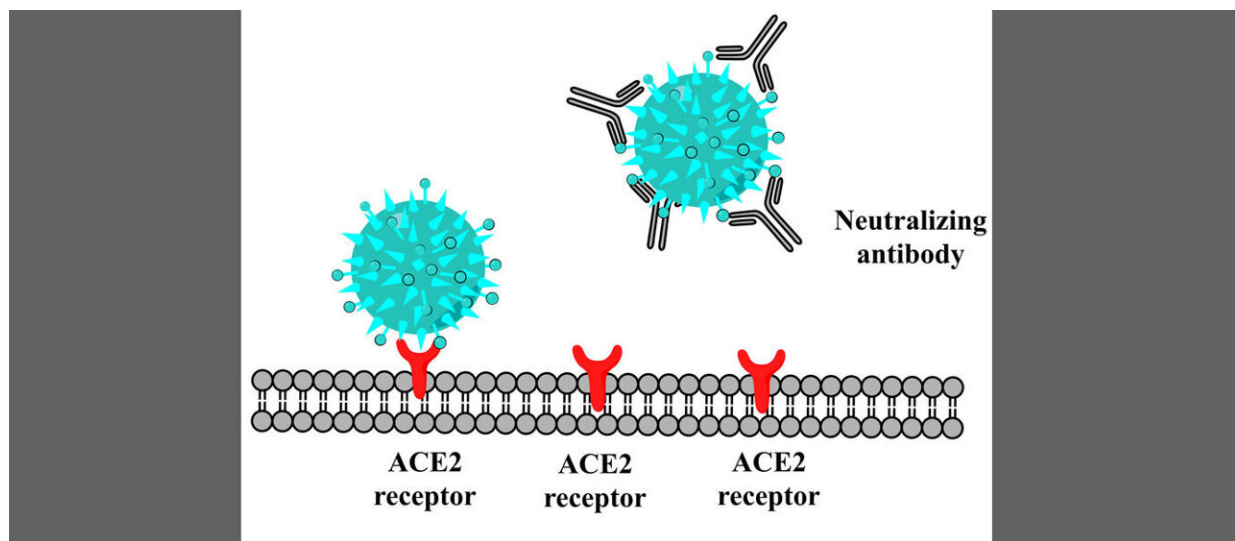


New method uses yeast to grow antibodies against SARS-CoV-2 and other viruses

April 27 2021, by Alexander Frey



Credit: Aalto University

The current outbreak of a rapidly spreading global disease has caused an urgent need for effective therapies. Many vaccines, however, pose logistical challenges; they must often be transported and stored at very low temperatures, and aren't always available. One solution may be a low-cost, low-tech method of producing neutralizing antibodies, facilitating global access to preventative care in future crises.

Baker's yeast, a common kitchen and laboratory ingredient, may be the key. Researchers at Aalto University in Finland have demonstrated that

[yeast cells](#) can be used to produce neutralizing [antibodies](#) against SARS-CoV-2.

"Yeast is a well-known, safe and economical production organism with a long track-record in producing insulin. In contrast to currently available antibody production technology, yeast-based production is a safe, low-cost, and low-tech alternative to produce a variety of therapeutic antibodies," says Professor Alexander Frey from Aalto University.

Antibodies are an essential part of our immune response that provides protection against previously encountered pathogens and administering neutralizing antibodies is effective: immediate protection can be achieved, in contrast to active immunization. When other treatments are unavailable, they could be given to risk groups or people that cannot be vaccinated, with some evidence suggesting protection may last for up to half a year.

Currently, neutralizing antibodies are collected from the blood of recovered patients and administered to others, but this is neither profitable nor desirable. The new method under development at Aalto University uses the deciphered coding sequences of patient-derived antibodies and inserts the [genetic information](#) into yeast to produce the treatment.

The research to date confirms the feasibility of producing neutralizing antibodies against SARS-CoV-2 in yeast, opening a potential path for more effective and more accessible preventative treatment on a global scale.

"The basic know-how and facilities required for yeast cultivations is available almost worldwide, so a lot of people could have access to the available treatment, which is why we hope that this method will be further developed to industrial scale," Frey explains. "The concepts and

solutions developed in this Master's theses and other related projects are applicable to other scenarios as well, where rapid on-demand and decentralized production, simplifying the logistics of production and delivery, might be required. We believe the technology can help ensure worldwide and fair access to all available treatment options."

The researchers are currently continuing their work to produce and characterize the produced antibody in more detail. At the same time, they are also working to further modify the [yeast](#) itself to increase productivity.

More information: Majority of people who have had a coronavirus infection retain antibodies for over six months, 21.12.2020

[thl.fi/en/web/thlfi-en/-/thl-s ... -for-over-six-months](https://thl.fi/en/web/thlfi-en/-/thl-s...-for-over-six-months)

Provided by Aalto University

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