

# Molecule from approved malaria medicine protects lung cells against COVID-19

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Researchers from Aarhus University have shown that the medicine Atovaquone has a protective effect both before and after infection with the coronavirus in human cells in the laboratory. This means that it can in all probability be used both for the prevention and treatment of COVID-19.

Atovaquone has already been approved by the U.S. Food and Drug Administration (FDA). As part of the medication Malarone, it has been used for the treatment and prevention of malaria since 1999.

"This is an exciting study in which collaboration between research groups in Canada and here at Aarhus University has shown that Atovaquone can be used—in the laboratory at least—to protect lung cells against several variants of the coronavirus," says David Olnier, who is associate professor at the Department of Biomedicine. His laboratory is behind the result.

"Being able to use already approved medicines against COVID-19 would be ideal, because it would save both time and resources during the developmental phase," he says.

For the researchers, the ability of Atovaquone to block infection across different viral variants (both the alpha, beta and delta variants) has been particularly important, together with the fact that the medicine can reduce the [inflammatory response](#) which is known to contribute to the development of COVID-19.

The researchers from Aarhus University do not yet have access to test the drug on the omicron variant, but as soon as possible, they will also investigate whether the drug has an effect against the new variant.

## **Clinical trials in U.S.**

"Although vaccines against COVID-19 have been developed, lives can be saved if approved, inexpensive and available medications prove effective against the disease," says Postdoc Madalina Carter-Timofte, who is the lead author of the study.

"The coronavirus pandemic continues to have major consequences in

terms of individual lives and economies all over the world. While the majority of people in the Western world have access to vaccines, many low-income countries are locked in an unequal struggle against COVID-19 because they don't have the necessary infrastructure or economy to vaccinate the population. The discovery of a new medication against the coronavirus may prevent the spread of infection in both vaccinated and unvaccinated individuals," she explains.

The result from David Olganier's laboratory has major perspectives as this is the first study to show how an inexpensive and widely available anti-malaria drug can block infection with the coronavirus in human lung cells.

However, although the study reveals Atovaquone's potent effect against the virus in a petri dish, it cannot directly confirm the effectiveness of the drug against COVID-19 in a human body.

The research must first be validated in two [clinical trials](#) with patients that are already taking place in the U.S., one at the University of Texas Southwestern Medical Center and the other at the HonorHealth Research Institute in Arizona. Both trials began in 2020 and both are testing Atovaquone in combination with the drug azithromycin in patients with confirmed COVID-19.

"Coronavirus outbreaks with [high mortality rates](#) have now been reported around once a decade since the identification of SARS in China in 2002, followed by the MERS epidemic in Saudi Arabia in 2012. The development of widely effective antiviral drugs, or in this case the reuse of already clinically approved medications against the coronavirus, is extremely important for future public health," emphasizes Madalina Carter-Timofte.

The research was published in *ACS Infectious Diseases*.

**More information:** Madalina Elena Carter-Timofte et al, Antiviral Potential of the Antimicrobial Drug Atovaquone against SARS-CoV-2 and Emerging Variants of Concern, *ACS Infectious Diseases* (2021).

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