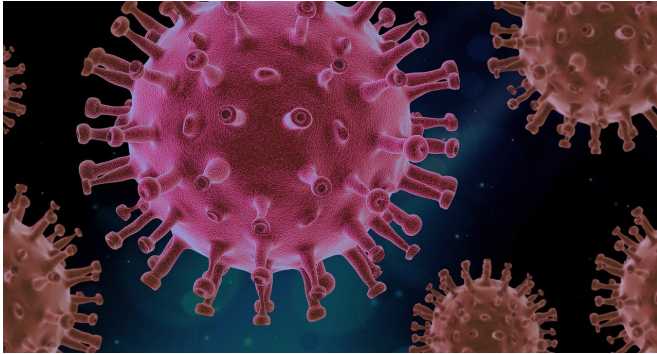


# Study confirms virus variants reduce protection against COVID-19

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A new laboratory study from Oregon Health & Science University finds that blood serum drawn from people previously vaccinated or naturally infected show "significantly reduced" defense against two widely circulating variants of the novel coronavirus SARS-CoV-2.

Researchers said that their findings emphasize the importance of vaccinations combined with maintaining public health measures to cut off the spread of the SARS-CoV-2 virus.

"We know that the virus continues to evolve for its own advantage," said co-senior author Fikadu Tafesse, Ph.D., assistant professor of molecular microbiology and immunology in the OHSU School of Medicine.

Researchers found that two variants of concern—B.1.1.7, originating in the U.K., and B.1.351, originating in South Africa—show reduced neutralization by antibodies in the blood of almost 100 people who were vaccinated with the Pfizer vaccine or previously infected by the virus. In the case of the B.1.351 [variant](#), researchers measured a nine-fold reduction in effectiveness compared to the original SARS-CoV-2 virus.

Even so, researchers took it as a positive development that vaccination and earlier infections still mustered some residual protection against the two variants of concern. That finding appears to be consistent with a general reduction in the rate of hospitalizations and deaths worldwide, despite the increasing prevalence of the variants.

The OHSU findings are generally consistent with other recent reports.

In contrast to other laboratory studies using non-replicative versions of the variants, the OHSU researchers used authentic virus variants isolated from patients and obtained by OHSU from a national repository.

Scientists cultivated a cell line of the original SARS-CoV-2 virus along with the two variants in a Biosafety Level 3 laboratory on OHSU's Marquam Hill campus. They pulled samples of each virus type, mixing each with blood samples collected from a total of 50 people in Oregon who received the Pfizer vaccine along with 44 who were previously infected with the coronavirus.

Researchers then measured the effectiveness of antibodies in blocking infection for each strain of the virus.

## Findings suggest need for continued precaution around older adults

The researchers found the reduction in antibodies was especially pronounced in people 50 and older.

The heightened susceptibility of older adults is concerning, said co-senior author Bill Messer, M.D., Ph.D., assistant professor of molecular microbiology and immunology and medicine (infectious diseases) in the OHSU School of Medicine.

"The people who surround our older and more

vulnerable populations need to get vaccinated and minimize exposure to the virus," Messer said. "You can't just walk into a nursing home because they're all vaccinated. If you're not vaccinated, that's still a problem."

Co-senior author Marcel Curlin, M.D., associate professor of medicine (infectious diseases) in the OHSU School of Medicine, said the findings suggest that the Pfizer vaccine continues to provide some level of protection against variants even though the overall level of neutralizing antibodies is lower than against the earlier strain of SARS-CoV-2.

He said the findings mean that it's likely people will need vaccine boosters in the future, similar to an annual influenza shot.

Curlin, who also studies the HIV virus, said he's optimistic that widespread vaccinations combined with tried-and-true public health measures such as physical distancing and masking will break the momentum of the pandemic. Over time, he's confident in the ability of vaccines to effectively subdue the novel coronavirus.

"Influenza has a much larger potential for variability than the coronavirus," he said. "Hopefully, coronaviruses will be easier to manage."

Messer agreed.

"We have learned to cope with influenza," he said. "I think we will learn to do the same with COVID-19 as well."

**More information:** Timothy A. Bates et al, Neutralization of SARS-CoV-2 variants by convalescent and BNT162b2 vaccinated serum, *Nature Communications* (2021). [DOI: 10.1038/s41467-021-25479-6](https://doi.org/10.1038/s41467-021-25479-6)

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