Medical Xpress

Study suggests staying current with COVID-19 vaccinations helps combat emerging variants

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A COVID-19 vaccine is prepped at an OHSU clinic. New research from OHSU reveals a strong immune response to an updated vaccine in the fall of 2023, suggesting a clear benefit for people receiving updated vaccinations regularly, especially older adults and those with underlying medical conditions. Credit: OHSU/Christine Torres Hicks

New research using live SARS-CoV-2 virus reveals an updated vaccine provides a strong immune response against previous strains and emerging variants.

The findings by researchers at Oregon Health & Science University (OHSU), published as a preprint in *medRxiv*, suggest a clear benefit in receiving updated vaccinations on a regular basis, especially among older people or those with underlying medical conditions.

"The virus is still circulating, it's continuing to evolve, and it remains dangerous," said co-senior author Fikadu Tafesse, Ph.D., associate professor of molecular microbiology and immunology in the OHSU School of Medicine. "Sooner or later, there will be another variant that evades the immunity we have already built up. Our study demonstrates that it's worthwhile to update our immune repertoire."

As the pandemic has receded from public consciousness, vaccine uptake has waned in the U.S., according to federal data.

The new study is the latest in laboratory research at OHSU testing variants of the SARS-CoV-2 virus. The project relies upon more than 2,000 university employees who have volunteered to have their blood drawn before, during and after vaccination. The research project began early in the pandemic with antibody testing.

In the latest study, researchers isolated blood drawn from 55 people before and after they received an updated vaccine beginning last fall that targets the XBB.1.5 subvariant of the omicron variant of the virus.

They found a strong response in terms of the levels of antibodies generated, and their ability to neutralize the original strain of SARS-CoV-2 plus new variants that have emerged since the novel coronavirus arrived in late 2019. Importantly, the vaccine appeared to generate a

strong response against the JN.1 variant that is now circulating broadly worldwide—suggesting regularly updating the vaccine will be useful in confronting emerging variants.

The study marks another milepost in the evolution of the SARS-CoV-2 virus.

"Overall, this work strongly supports use of the updated vaccine," said co-senior author Marcel Curlin, M.D., associate professor of medicine (infectious diseases) in the OHSU School of Medicine and medical director of OHSU Occupational Health. "In the big picture, COVID-19 is not going away but lining up alongside the other common respiratory illnesses such as flu and RSV, which cause relatively mild disease for most people and a lot of harm to a few."

In contrast to most other research studies, OHSU is among the first to test the ability of vaccine-elicited antibodies in blood serum to block infection of a live virus in a biosafety level 3 laboratory. In addition to Tafesse and Curlin, co-authors include Xammy Huu Nguyenla, Mastura Wahedi, Timothy Bates and Mila Trank-Greene of OHSU.

More information: Xammy Huu Nguyenla et al, Humoral Immunity Elicited by the XBB.1.5 Monovalent COVID-19 Vaccine, *medRxiv* (2024). DOI: 10.1101/2024.03.25.24304857

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