

The report recommends broadening scientific-integrity policies beyond science agencies such as the National Institutes of Health. For instance, the departments of justice and transportation use science to inform decisions on issues such as incarceration and urban planning.

The task force's work builds on the OSTP's efforts under the Obama administration. In 2010, Holdren issued a short but influential memo that laid out basic guidelines for scientific integrity in the federal government. However, those guidelines didn't stand up to the Trump administration. One database, the Silencing Science Tracker – run by the Sabin

Center for Climate Change Law at Columbia University in New York City and the Climate Science Legal Defense Fund – found that the federal government took 339 anti-science actions during the Trump administration.

Each president can override many of the decisions made by the previous incumbent. So, for changes to scientific-integrity policies to be permanent, they will have to be enacted by legislators in Congress, Carter says. "It will be incredibly important to codify a lot of this in legislation," he says.

Congress is currently considering bills that would require agencies to adopt uniform policies on scientific integrity.

low. The findings are prompting researchers to re-evaluate the role of inactivated vaccines in the global fight against COVID-19.

"At this stage, we have to evolve our ideas and adjust our vaccination strategies," says Qiang Pan-Hammarström, a clinical immunologist at the Karolinska Institute in Stockholm.

Inactivated vaccines were key in the campaign for worldwide vaccine coverage last year. They include those made by China's Sinovac and Sinopharm, which together account for nearly 5 billion of the more than 11 billion COVID-19 vaccine doses delivered globally so far, according to numbers compiled by data-tracking firm Airfinity in London. Such products remain crucial for preventing hospitalization and death from COVID-19.

But when researchers in Hong Kong analysed blood from 25 recipients of the two-dose vaccine made by Beijing-based Sinovac, no participants had detectable neutralizing antibodies against Omicron – raising the possibility that all were vulnerable to Omicron infection¹. Sinovac disputes this finding, pointing to internal data showing that 7 out of 20 people who had received its vaccine had tested positive for Omicron-neutralizing antibodies.

Immunity top-up

A third dose of inactivated vaccine helps to restore neutralization activity for many individuals. A 292-person study⁴ by researchers in China found neutralizing antibodies against Omicron in just 8 people tested 8–9 months after a course of the vaccine produced by state-owned Sinopharm in Beijing. After another shot of the vaccine, that number rose to 228 – but levels of neutralizing antibodies in each person's blood remained low. This work has not yet been peer reviewed.

Even if recipients of inactivated vaccines are not protected against infection by Omicron, they should still be shielded from its worst ravages. As molecular virologist Rafael Medina at the Pontifical Catholic University of Chile in Santiago points out: "There are other parts of the immune response that are also playing a role." T cells destroy infected cells; binding antibodies contribute to viral control.

In a preprint published in December⁵, Medina and his co-authors showed that people immunized with Sinovac's vaccine maintain non-neutralizing antibodies that both bind to Omicron and assist immune cells in gobbling up infected cells. This finding has not yet been peer reviewed.

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2. Medigeschi, G. et al. Preprint at medRxiv <https://doi.org/10.1101/2022.01.04.22268747> (2022).
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4. Yu, X. et al. Preprint at medRxiv <https://doi.org/10.1101/2021.12.17.21267961> (2021).
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OMICRON THWARTS SOME OF THE WORLD'S MOST-USED COVID VACCINES

Antibodies elicited by inactivated-virus vaccines struggle to block infection with the new variant.

By Elie Dolgin

The world's most widely used COVID-19 vaccines provide little to no protection against infection with the rapidly spreading Omicron variant, laboratory evidence suggests.

Inactivated-virus vaccines contain SARS-CoV-2 particles that have been treated so they can't cause an infection. Such vaccines

have been distributed widely as part of China's global vaccine diplomacy, helping them to become the jab of choice in many countries.

But numerous experiments show that many people who receive two jabs of an inactivated vaccine fail to produce 'neutralizing' antibodies, which provide a potent safeguard against viral infection of cells^{1–3}. And even after a third dose of an inactivated vaccine, an individual's levels of neutralizing antibodies tend to remain



A man in traditional dress gets a dose of the Sinovac COVID-19 vaccine in Indonesia.