



## New Study Suggests Two Paths to “Super Immunity” for COVID-19

(Source: An article from World Pharma News)

New laboratory research from Oregon Health & Science University (OSHU) reveals more than one path toward robust immunity from COVID-19. A new study finds that two forms of immunity - breakthrough infections following vaccination or natural infection followed by vaccination - provide roughly equal levels of enhanced immune protection.

The new study was published in the journal *Science Immunology*. "It makes no difference whether you get infected-and-then-vaccinated, or if you get vaccinated-and-then-a-breakthrough infection," said co-senior author Fikadu Tafesse, Ph.D., assistant professor of molecular microbiology and immunology in the OHSU School of Medicine. "In either case, you will get a really, really robust immune response - amazingly high."

The research follows an OHSU study published in December that described extremely high levels of immune response following breakthrough infections, so-called "super immunity." That study was the first to use multiple live SARS-CoV-2 variants to measure cross-neutralization of blood serum from breakthrough cases. The new study found that it doesn't matter whether someone gets a breakthrough infection or gets vaccinated after a natural infection. In both cases, the immune response measured in blood serum revealed antibodies that were equally more abundant and more potent - at least 10 times more potent - than immunity generated by vaccination alone.

The study was conducted before the emergence of the omicron variant, but researchers expect the hybrid immune responses would be similar with the new highly transmissible variant. "The likelihood of getting breakthrough infections is high

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## In Brief...

◆ **McKesson Corporation** announced that *James H. Hinton* and *Kathleen Wilson-Thompson* have been elected to McKesson's Board of Directors. McKesson expects Hinton will be appointed to the Compliance Committee and Governance Committee, and Wilson-Thompson to the Compensation Committee and Governance Committee. The elections of both increases McKesson's board from nine to eleven members.

◆ **Pfizer Inc.** and **BioNTech** announced the initiation of a clinical study to evaluate the safety, tolerability and immunogenicity of an Omicron-based vaccine candidate in healthy adults 18 through 55 years of age. The study will examine different regimens of the current Pfizer-BioNTech COVID-19 vaccine or an Omicron-based vaccine and will draw upon some participants from the companies' Phase 3 COVID-19 booster study as part of ongoing efforts to address Omicron and determine the potential need for variant-based vaccines.

◆ **Walgreens** announced that its *Supplier Diversity Summit*, which is set to take place during *ECRM's Supplier Diversity Week*, will be held from April 5 to 8. Taking place virtually, the event is targeted to provide diverse vendors the opportunity to connect with Walgreens' merchandising team. Walgreens will focus on highlighting and sourcing from suppliers that are at least 51% owned, operated and managed by individuals who are disadvantaged, disabled, military veterans, LGBTQ+, minorities or women.

◆ **AmerisourceBergen** reported in its 2022 first quarter ended December 31, 2021, revenue increased 13.5% year-over-year to US\$59.6 billion. "AmerisourceBergen continues to play an important role in supporting the COVID response, both in the U.S. and abroad," said *Steven H. Collis*, Chairman, President

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## Japanese Government Panel Drafts Proposal for Bill to Bolster Supply Chains

(Source: An article by JIHO, Inc. for PharmaJapan)

On January 19th, a Japanese government council drew up a draft proposal related to a bill to promote economic security. The proposal is designed to enhance supply chains for resources essential to people's lives such as drugs, and calls for a system to support various mid- and long-term initiatives by private companies.

The draft proposal compiled by the council on economic security legislation focuses on several different areas: 1) strengthening existing supply chains; 2) security and reliability of key infrastructures; 3) technical cooperation between the public and private sectors; and, 4) secrecy of patent applications. Citing the COVID-19 crisis as an example of the situation that

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## Path to Super Immunity (cont.)...

because there is so much virus around us right now," Tafesse said. "But we position ourselves better by getting vaccinated. And if the virus comes, we'll get a milder case and end up with this super immunity." Researchers recruited a total of 104 people, all OHSU employees who were vaccinated by the Pfizer vaccine, and then carefully divided them into three groups: 42 who were vaccinated with no infection, 31 who were vaccinated after an infection, and 31 who had breakthrough infections following vaccination.

Controlling for age, sex and time from vaccination and infection, the researchers drew blood samples from each participant and exposed the samples to three variants of the live SARS-CoV-2 virus in a Biosafety Level 3 lab located at OHSU's Marquam Hill campus. The study found that both of the groups with "hybrid immunity" generated greater levels of immunity compared with the group that was vaccinated with no infection.

With the wildly contagious omicron variant now circulating across the globe, the new findings suggest each new breakthrough infection potentially brings the pandemic closer to the end. "I would expect at this point many vaccinated people are going to wind up with breakthrough infections - and hence a form of hybrid immunity," said senior co-author Bill Messer, M.D., Ph.D., assistant professor of molecular microbiology and immunology and medicine (infectious diseases) in the OHSU School of Medicine.

Over time, the virus will run into an ever-expanding pool of human immunity. OHSU scientists say they haven't tested multiple rounds of natural infection, although many people will likely find themselves in that category given that millions of people in the United States and around the world remain entirely unvaccinated. With the spread of the highly contagious omicron variant, many unvaccinated people who were previously infected are likely to confront the virus again. For that group, previous research reveals a much more variable level of immune response than vaccination.

Messer stated, "I can guarantee that such immunity will be variable, with some people getting equivalent immunity to vaccination, but most will not," he said. "And there is no way, short of laboratory testing, to know who gets what immunity. Vaccination makes it much more likely to be assured of a good immune response." Senior co-author Marcel Curlin, M.D., agreed. "Immunity from natural infection alone is variable. Some people produce a strong response and others do not," said Curlin, associate professor of medicine (infectious diseases) in the OHSU School of Medicine and director of OHSU Occupational Health. "But vaccination combined with immunity from infection almost always provides very strong responses."

## Japanese Government (cont.)...

had endangered public health, livelihood and economic activity by disrupting the supply of essential resources, the draft proposal stresses the need to establish a system under which the public and private sectors play their respective role to ensure the stable supply of essential resources needed.

As resources essential to people's lives, the draft proposal cites resources necessary for public health such as drugs as well as resources people depend on in their lives and economic activities such as semiconductors. Based on the government's stable supply guidelines, which will be compiled in the future, ministers with jurisdiction over the production of these resources will plan specific initiatives.

In planning these initiatives, the draft proposal notes that ministers will also need to take into account the degree of current dependence on other countries for essential resources and raw materials needed for production and the probability of future dependence. In addition, it stresses the need to ensure flexibility so that designated resources can be added or removed through ministerial ordinances or other means.

After private companies draft plans to ensure stable supplies, ministers with jurisdiction will determine whether these plans are compatible with their own planned initiatives. The draft proposal calls for the establishment of a system that not only supports the establishment of production infrastructure but provides medium and long-term financial and economic support for a variety of private-sector initiatives to diversify supply sources, stockpile essential resources, develop and improve production technologies, and develop substitute products.

Some council members have pointed out that under the COVID-19 pandemic, it has been increasingly difficult to accurately grasp the state and condition of supply chains. Therefore, the draft proposal also cites the need for a legal framework that would empower the government to conduct necessary surveys and require companies to cooperate.

Once finalized, the council will then submit the proposal to the economic security minister Takayuki Kobayashi.

## In Brief (cont.)...

and CEO of AmerisourceBergen. "We are proud of the work our teams do in leveraging our capabilities and expertise to deliver innovative solutions to help advance pharmaceutical innovation and access."

- ◆ *Cardinal Health* once again has earned the perfect score of 100% on the **Human Rights Campaign Foundation's Corporate Equality Index (CEI)**, a national benchmarking tool to measure corporate policies and practices related to LGBTQ+ (lesbian, gay, bisexual, transgender, queer and other) workplace equity. Organizations that have earned a 100% rating are recognized as a "Best Place to Work for LGBTQ+ Equality." This is the 14th year in a row that Cardinal Health has received a perfect score.

- ◆ **GlaxoSmithKline** will pursue alternative plans for the consumer division following **Unilever's** abandoned buyout bid. GSK rejected Unilever's final bid received in late December, calling it a "fundamental under-evaluation" of its business. Unilever has seen a 4% annual growth rate over the 2019-2021 period, outpacing competitors.

- ◆ Nearly 30 generic drugmakers in Asia, Africa and the Middle East will make an inexpensive version of **Merck's** COVID-19 therapy drug *molnupiravir* under a landmark U.N.-backed deal to give poorer nations wider access to a drug seen as a weapon in fighting the pandemic. Under the deal, negotiated by the U.N.-backed **Medicines Patent Pool** with Merck, the U.S. company will not receive any royalties for the sale of the low-cost version of the pill while the pandemic continues.

- ◆ **Takeda Pharmaceutical's** inflammatory bowel disease (IBD) treatment *Entyvio (vedolizumab)* will be delayed three to five years later than the company's previous assumption of May 2026, according to CEO Christophe Weber. Takeda has obtained patents that cover various aspects of *Entyvio*, including formulation, dosing and a process for manufacturing, which will not expire in the U.S. until 2032.

(Sources: Company Press Releases, Drug Store News, FiercePharma, Pharma Japan, Scrip Intelligence & World Pharma News)