



One Coronavirus Vaccine May Protect Against Other Coronaviruses

(Source: An Staff Article for World Pharma News)

Northwestern University Medicine scientists have shown for the first time that coronavirus vaccines and prior coronavirus infections can provide broad immunity against other, similar coronaviruses. The findings build a rationale for universal coronavirus vaccines that could prove useful in the face of future epidemics.

"Until our study, what hasn't been clear is if you get exposed to one coronavirus, could you have cross-protection across other coronaviruses? And we showed that is the case," said lead author Pablo Penaloza-MacMaster, assistant professor of microbiology-immunology at Northwestern University Feinberg School of Medicine. The findings were recently published in the *Journal of Clinical Investigation*.

The three main families of coronaviruses that cause human disease are Sarbecovirus, which includes the SARS-CoV-1 strain that was responsible for the 2003 outbreak of Severe Acute Respiratory Syndrome (SARS), as well as SARS-CoV-2, which is responsible for COVID-19; Embecovirus, which includes OC43, which is often responsible for the common cold; and Merbecovirus, which is the virus responsible for Middle East Respiratory Syndrome (MERS), first reported in 2012.

Plasma from humans who had been vaccinated against SARS-CoV-2 produced antibodies that were cross-reactive (provided protection) against SARS-CoV-1 and the common cold coronavirus (OC43), the study found. The study also found mice immunized with a SARS-CoV-1 vaccine developed in 2004 generated immune responses that protected them from intranasal exposure by SARS-CoV-2. Lastly, the study found prior coronavirus infections can protect against subsequent infections with other coronaviruses.

Experiments involving rodents that had been immunized with COVID-19 vaccines and later were exposed to the common cold coronavirus (HCoV-OC43, which is different from a SARS strain) were partially protected against the common cold, but the protection was much less robust, the study found. The reason, the scientists explain, is because both SARS-CoV-1 and SARS-CoV-2 are genetically similar - like cousins of one another - while the common cold coronavirus is more divergent from SARS-CoV-2.

"As long as the coronavirus is greater than 70% related, the mice were protected," Penaloza-MacMaster said. "If they were exposed to a very different family of coronaviruses, the vaccines might confer less

Will there ever be one universal coronavirus vaccine? Given how different each coronavirus family is, that answer is "likely no," said the study authors. But there may be a path forward for

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In Brief...

♦ **Walgreens Boots Alliance** finished its fiscal year with strong growth for the 4th quarter and for the full year. Sales for the quarter totaled US\$34.8 billion and full-year sales totaled US\$132.5 billion. Operating income increased 22.9% to US\$1.2 billion, attributed to growth in gross profit in pharmacy and retail in its U.S. business as well as strong performance and recovery in the United Kingdom. Separately the company announced it is expanding mental health first aid training for more than 27,000 Walgreens pharmacists and rolling out new services to meet the growing need in communities across Europe and the United Kingdom. It announced the launch of a business segment focused on Walgreens Boots Alliance's capabilities in primary care, post-acute care and home care — including its investments in **VillageMD** and **CareCentrix**. Walgreens was also named *Drug Store News' 2021 Retailer of the Year*.

♦ As part of efforts to securely deliver COVID-19 vaccines to countries worldwide, **AmerisourceBergen's** network of global businesses is supporting the collective distribution of more than 75 million vaccines across 30-plus countries. Since December 2020, **Innomar Strategies** and **World Courier**, both a part of AmerisourceBergen, have worked with various government agencies and supply chain partners to deliver COVID-19 vaccines across the world. Likewise, **Alliance Healthcare**—which AmerisourceBergen acquired in June from Walgreens Boots Alliance—has supported vaccine distribution efforts across Europe. "We are incredibly proud of the support our teams continue to provide to enable reliable access to COVID-19 vaccines around the world—from islands off Norway to remote regions in northern Canada. However, we know the global vaccination rollout is still in its early

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Patients in Europe Becoming More Concerned with How Medicines are Made

(Source: A Staff Article for European Pharmaceutical Manufacturer)

In a survey pharma manufacturer Teva asked 3,000 patients with chronic conditions from France, Germany, The Netherlands, Spain, Croatia and The Czech Republic about how important issues including sustainability, competitiveness, and the supply chain are to them.

The research points to people taking a greater interest in Europe's role in medicine manufacturing following the Covid-19 pandemic. It shows that 7 in 10 patients want to know where their drugs are made as the pandemic has exposed weaknesses in the supply chain of global medicine production.

To support countries' medicine production, 84% of those surveyed said they'd like their government to support

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One Coronavirus (cont.)...

developing a vaccine for each coronavirus family (Sarbecovirus, Embecovirus and Merbecovirus), they said.

"Our study helps us re-evaluate the concept of a universal coronavirus vaccine," Penaloza-MacMaster said. "It's likely there isn't one, but we might end up with a generic vaccine for each of the main families of coronaviruses, for example a universal Sarbecovirus vaccine for SARS-CoV-1, SARS-CoV-2 and other SARS-related coronaviruses; or a universal Embecovirus for HCoV-OC43 and HKU1 that cause common colds."

In the study, Penaloza-MacMaster collaborated with Northwestern Medicine physician Dr. Igor Koralnik, chief of neuro-infectious disease and global neurology at Feinberg, and Lavanya Visvabharathy, a postdoctoral research associate in neurological manifestations of COVID-19 at Feinberg, to evaluate immune responses in humans who received SARS-CoV-2 vaccines, as well as in COVID-19 patients admitted to Northwestern Memorial Hospital.

"We found that these individuals developed antibody responses that neutralized a common cold coronavirus, HCoV-OC43," Penaloza-MacMaster said.

Prior to the COVID-19 pandemic, Penaloza-MacMaster had studied HIV vaccines for a decade. His knowledge about how the HIV virus mutates led him to question cross-reactivity within coronavirus vaccines.

"A reason we don't have an effective HIV vaccine is because it's hard to develop cross-reactive antibodies," Penaloza-MacMaster said. "So, we thought, 'What if we tackle the problem of coronavirus variability (which is critical for developing universal coronavirus vaccines) the same way we're tackling HIV vaccine development?'"

Patients (cont.)...

pharmaceutical manufacturing investments to avoid over-dependencies on countries outside of Europe.

With a large majority of active pharmaceutical ingredients (APIs) being developed in Asia, Europe has lost its leadership position in API manufacturing in the off-patent generics sector – especially for essential drugs like paracetamol. Teva says the findings point to a need to rebalance the global pharmaceutical market so patients in every region have reliable access to medicines.

Almost three quarters (73%) of those surveyed think the pharma industry is strategically important for Europe as we move out of the pandemic, because it can ensure stability and reliability of medicine supplies. The environment was highlighted as a top concern for patients, with 65% wanting medicines to be made in a way that's environmentally sustainable.

More than half (55%) of patients see the benefits of drugs manufactured in Europe linked to the potential of transport reduction-related environmental impact. And over a third (35%) of people think Europe guarantees greener production.

Following the pandemic, the study found 85% of patients see the pharmaceutical industry as crucial to driving recovery. People cited jobs creation and supporting the local economy as the top benefit for promoting medicine manufacturing in Europe (57%), closely followed by a desire for better access to essential drugs and reducing reliance on overseas supply (56%).

Furthermore, more than 70% of European patients want to see Europe remain as competitive as other regions and expect their government to take action to support this.

In Brief (cont.)...

stages and a tremendous amount of work is still needed to ensure people worldwide have access to these vaccines," said *Doug Cook*, EVP and President, Business Group—Global, at AmerisourceBergen. "As supply increases, we remain prepared and ready to leverage our logistical expertise and distribution capabilities to support urgent efforts to broaden access globally."

- ◆ **AstraZeneca's** antibody cocktail against COVID-19, which has proven to work as a preventative shot in the non-infected, was also shown to save lives and prevent severe disease when given as treatment within a week of first symptoms. The drug, a combination of two antibodies called *AZD7442*, reduced the risk of severe COVID-19 or death by 50% in non-hospitalized patients who have had symptoms for seven days or less, according to company sources.

- ◆ **Merck** has requested emergency authorization for its experimental pill to treat mild-to-moderate cases of COVID-19, in what would add a promising new tool to the global fight against the virus. Merck submitted the application for *molnupiravir*, which it said earlier this month was shown to reduce coronavirus hospitalizations by 50 percent in early trials, to the **US Food and Drug Administration (FDA)**. Merck said it was working "with regulatory agencies worldwide to submit applications for emergency use or marketing authorization in the coming months".

- ◆ **Johnson & Johnson (J&J)** welcomes the U.S. government's decision to donate 17 million doses of the J&J COVID-19 single-shot vaccine to countries in the African Union (AU). The U.S. is providing these doses through **COVAX**, committed to the AU, under an agreement signed recently by the U.S. government, J&J, and **Gavi, the Vaccine Alliance**. A total of nearly 50 million doses of the J&J's vaccine have now been committed for donation by the U.S. government to approximately 40 countries across four continents via COVAX. To date, roughly half of these doses have been shipped.

- ◆ **Zuellig Pharma** has been awarded the Platinum Medal 2021 by sustainability ratings specialist **EcoVadis**. The award is the highest accolade to be awarded to a company for its sustainability efforts and positions Zuellig Pharma in the top 1% of all assessed companies worldwide. Zuellig Pharma was awarded a Silver Medal in 2020 and a Gold Medal earlier in 2021. The medal was awarded after a rigorous assessment of Zuellig Pharma's sustainability program, covering 21 sustainability criteria across four themes, including Environment, Labor and Human Rights, Ethics and Sustainable Procurement.

- ◆ **Alfresa**, in collaboration with **Yamamoto Transport**, is building digital-driven deliveries to significantly increase distribution efficiency by eliminating uneven deployments of delivery resources. The major drug wholesaler has started trial uses of the systems in August of this year in some offices in the Tokyo metro area and the systems will be fully functioning in its branch offices by August of 2024. The initiative is part of an effort to build a joint transport scheme involving Alfresa and Yamamoto for healthcare products. By using digital technology in its delivery work, Alfresa aims to improve delivery efficiency while ensuring quality of distribution and maintaining profitability.

(Sources: *Business Wire, Company Press Releases, Drug Store News, FiercePharma, and World Pharma News*)