

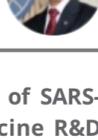


HUMAN VACCINES PROJECT COVID REPORT

Moving Beyond the “New Normal”

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South Korea’s coordinated response quickly limited the spread of SARS-CoV-2. Now the country’s scientists are actively engaged in vaccine R&D and access initiatives.

SARS-CoV-2 first appeared in Korea on January 20th. By January 30th, the World Health Organization (WHO) declared the virus a Public Health Emergency of International Concern. That day, a case of secondary spread was noted in Korea, and by February 20th, a large outbreak associated with the Shincheonji sect was detected in Daegu. On February 23rd the Korean Alert Level was raised to red, the highest level, and the number of infections started to rise dramatically, reaching more than 900 by February 29th, the peak of the outbreak.

Luckily, the Korean government was prepared. Several changes were made in the Infectious Disease Prevention and Control Act (IDCPA) following criticism of the government’s handling of the Middle East Respiratory Syndrome (MERS) coronavirus outbreak in 2015. These changes included allowing access to mobile phone numbers and credit card receipts during infectious diseases emergencies (to facilitate contact tracing), greater transparency, and improved infection control measures. Preparedness exercises were conducted routinely by government officials and academics, and in December 2019, just a month before the novel coronavirus hit the country, the exercise centered on a Korean couple who had returned from China with unknown pneumonia.

The Korea Centers for Disease Control and Prevention acted quickly to develop testing, contacting three manufacturers to inform them of the need for a nCoV (as the novel coronavirus was then known) diagnostic kits. These testing kits were available at public clinics in the country by January 31st, just 11 days after the first domestic SARS-CoV-2 infection was detected. As a result, the system to test, trace, and treat COVID-19 patients was ready when the outbreak began in Daegu, and without a lockdown, the government began a systematic program of messaging around social distancing, use of face masks, and hand and cough hygiene. Korean citizens cooperated fully with these requirements.

Elements of the IDPCA also put the responsibility for worker safety on employers so that work from home and flexible hours became more commonplace. The opening of school after winter recess was delayed. From the peak in February, the number of new domestically acquired cases of SARS-CoV-2 infection fell consistently through March and April, reaching zero for three consecutive days before a long holiday at the beginning of May.

Unfortunately, a young man with SARS-CoV-2 infection visited several nightclubs in the entertainment district of Itaewon in Seoul on May 2nd, setting off a second outbreak. In response, the Korean government performed over 100,000 diagnostic tests and identified over 300 people with SARS-CoV-2, as successive new waves of infections were seeded. But because of intensive efforts to control further spread, the government’s target of fewer than 50 new cases per day and less than five percent of cases without clear attribution were, by and large, achieved.

Throughout the pandemic, the government has responded flexibly and so far, the “new normal”—rules around going to restaurants, sending children to school, going to work, shops, or church—is inconvenient, but not intolerable. Despite the Korean government’s success in controlling the spread of the virus, it has, like many other nations, recognized that a safe and effective vaccine against COVID-19 is the best way to return to something approximating the “old normal.”

Vaccine Development and Access

To that end, Korea has taken several steps to accelerate the development of and access to future vaccines. The country committed to funding the Coalition for Epidemic Preparedness Innovations (CEPI) and renewed a commitment to fund Gavi (the Vaccine Alliance). It formed a Blue House (the Korean equivalent of the White House) Committee on Vaccines. President Moon Jae-in has pledged funding for domestic COVID-19 vaccine development (as well as funding for drug development) totaling US \$83 million. The Ministry of Food and Drug Safety has also put an expedited review process into place.

Meanwhile, the country’s scientists are also engaged in COVID-19 vaccine development. The Bill & Melinda Gates Foundation is funding a Korean company, SK Bioscience, to develop a SARS-CoV-2 vaccine, and several Korean biotechnology companies have initiated other COVID-19 efforts.

For our part, the International Vaccine Institute (IVI) will not pursue its own vaccine but instead will work with companies, research institutes, and universities to expedite vaccine development across platforms. We are working with Sumagen and the University of Western Ontario on a vesicular stomatitis-virus vector-based COVID-19 vaccine. Genexine and a team of academic and government partners, including IVI, developed a SARS-CoV-2 DNA vaccine candidate that entered human clinical trials in June. With funding from CEPI, IVI, Inovio, Seoul National University Hospital, and the Korea National Institutes of Health are planning a trial of Inovio’s DNA vaccine candidate, INO-4800, which should start by early July.

Other biotechnology companies such as GenoFocus (working on a bacterial spore concept) and GI Innovation (with a unique CD80-IL2R adjuvant) are entering preclinical testing. Celltrion, one of the world’s leading monoclonal antibody and biosimilar manufacturers, has identified neutralizing antibodies against SARS-CoV-2 and is selecting the best candidate to develop.

With its low rate of new infections, Korea may not be able to conduct Phase III efficacy trials of COVID-19 vaccines. Rather, the government is considering supporting companies to test COVID-19 vaccines overseas. Genexine has initiated a collaboration with Kalbe, an Indonesian company, and the National Vaccine Institute of Thailand to conduct trials in Southeast Asia.

The International Vaccine Institute and its signatories are committed to COVID-19 vaccine equity and access. Through Gavi, the WHO, CEPI, and support for a Framework for Access, IVI will advocate for a vaccine solution without borders and work cooperatively with companies, governments, and international bodies to accelerate SARS-CoV-2 vaccine research and development and ensure that these vaccines are available globally for a reasonable price.

Global COVID Lab Meeting



Join us for the next Global COVID Lab Meeting tomorrow on July 2nd at 10:00 am EDT when [Prof. Shane Crotty](#), of the La Jolla Institute for Immunology will discuss T cell-responses to SARS-CoV-2 and the implications for vaccine development. His team was involved in a [recent study](#) that shows SARS-CoV-2-infected people harbor T cells that target the virus—and may help them recover. [Register for the webinar here.](#)

Must Read

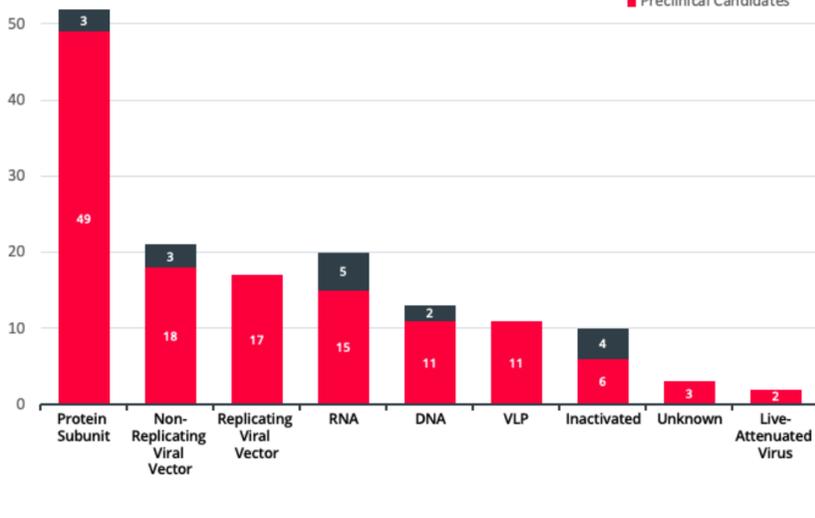
Among this week’s highlights were a flurry of articles on some of the SARS-CoV-2 monoclonal antibodies that are in development for COVID-19 treatment and prophylaxis.

- In two *Science* papers, researchers from Regeneron and their collaborators report data [on a combination of SARS-CoV-2 monoclonal antibodies](#) in [humanized mice](#).
- In [another Science paper](#), researchers report on the identification of antibodies that have broad neutralization activity against SARS-CoV-2 as well as other SARS viruses.
- Researchers from South Africa’s Western Cape analyzed how infection with HIV and tuberculosis increases a patient’s risk of dying from COVID-19 and [reported their findings in a recent webinar](#).
- An [article published](#) in the US Centers for Disease Control and Prevention’s Morbidity and Mortality Weekly Report documents the case of a SARS-CoV-2 super-spreader, underscoring the need for social distancing.

COVID-19 in Numbers

COVID-19 Vaccine Candidates in Development

As of June 24, 2020



Source: [WHO COVID-19 Vaccines Candidate Tracker](#)

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