A Vulnerable Population Gets A Boost From SKYCovione Vaccine

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Since 2015, the David Veesler Lab at the University of Washington (UW) has been researching coronaviruses, exploring how pathogens gain access to host cells and how the immune system responds. In 2016, scientists at the Neil King Lab of UW began building new types of vaccines for infectious diseases and viruses. During 2020, these efforts collided with the COVID-19 pandemic, creating an unprecedented urgency for a coronavirus vaccine.

Scientists from the two labs collaborated in the earliest months of the pandemic, first designing a protein nanoparticle with a structure that mimics the repetitive nature of proteins on the surface of viruses, which elicits a strong immune response. Using advanced electron microscopes, this team was the first to identify how the novel coronavirus enters human cells, providing detailed structural information about the virus's spike protein and determining these spikes as a critical piece of its machinery.

With this information, the team created the protein-based COVID-19 vaccine SKYCovione™. Unlike the earliest approved

vaccines, which make use of mRNA, viral vectors or an inactivated virus, SKYCovione is made of proteins that form tiny particles studded with fragments of the virus, producing high levels of virus-neutralizing antibodies that target the spike protein. In addition, the vaccine does not require deep freezing like other COVID-19 vaccines.

In a multinational Phase III clinical trial consisting of more than 4,000 adults, SKYCovione outperformed the Oxford/AstraZeneca vaccine when neutralizing antibody responses against the SARS-CoV-2 parental strain. This effect was most pronounced among participants 65 and older, a vulnerable population of COVID-19.

With its promising results, SKYCovione was clinically and commercially developed by the Korean company SK Bioscience. In 2022, it was approved for adults by the Korean Ministry of Food and Drug Safety and deployed across South Korea after it received emergency use from the World Health Organization. In 2023, it was approved by the Medicines and Healthcare products Regulatory Agency in the UK. Throughout the COVID-19 pandemic, CoMotion at the University of Washington has licensed the technology royalty-free, prioritizing health over profit.

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