



Codex DNA Demonstrates Momentum Toward Mission of Building World's First Vaccine Printer and Global Vaccine

The Digital-to-Biological Converter will enable printing life-saving vaccines on a global scale using synthetic DNA to stop future pandemics

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Codex DNA, Inc., creators of the world's first fully automated system for high-throughput writing of DNA, today announced critical advancements in its development of the Digital-to-Biological Converter™ (DBC) platform. The platform will enable the direct printing and packaging of vaccines, supporting immediate distribution through a global network of vaccine printers. At the core of the DBC is the BioXp™ 3250 system, the world's only fully automated synthetic biology workstation, which already performs most of the steps required to print vaccines and is paving the way for a global solution to prevent future pandemics.

The innovative DBC platform will take digitized DNA code sent over the internet and automatically convert it into the active ingredients in vaccines — including DNA, RNA, and proteins. Then, by activating a global network of DBC platforms, it will be possible to dramatically accelerate the development and delivery of “on-demand” vaccines anywhere in the world. The entire process will take less than 24 hours, compared to current methods that require six to nine months.

“With the DBC, we will have the ability to beam new vaccines to where they're needed most, saving hundreds of thousands of lives from emerging infectious diseases,” stated Todd R. Nelson PhD, Founder and CEO of Codex DNA. “We have already made significant strides toward making this a reality. Based on recent advancements that focused on fully integrating vaccine development steps into a simple to use, walkaway instrument, we now believe we will have a commercially available platform within 18 to 24 months.”

The DBC concept was introduced to the public in a TED talk — “How to Build Synthetic DNA and Send It across the Internet” — by Daniel G. Gibson, PhD, Chief Technology Officer and Co-founder of Codex DNA, and creator of the Gibson Assembly® method. “The DBC came out of work we did to combat the H7N9 bird flu in 2013,” said Gibson.

“The success we had printing DNA led us to contemplate emailing DNA sequences for rapid vaccine development. Suppose we could send instructions to a system anywhere in the world, stocked with all the chemical compounds, software, and capability needed to build biology. We could read the genome of a virus that is actively circulating in a region and

quickly create a vaccine locally, where it's needed most and prevent it from spreading. With the advances we've made with the BioXp™ 3250 system combined with new-age DNA and RNA vaccine types – like those in development for COVID-19 – we are on the verge of a global solution to prevent future pandemics.”

The instantaneous electronic exchange of sequence data followed by local gene synthesis and vaccine production will replace the cumbersome isolation and shipment of viruses and nucleic acids between geographically dispersed sites where vaccines are manufactured. Also, by stocking platforms with all the materials needed for vaccine synthesis, the DBC network will overcome many of the supply chain challenges that have emerged in the COVID-19 pandemic.

Nelson added, “When you consider a global network of these vaccine printers, it is easy to imagine a world capable of responding to future pandemics with unprecedented speed. This technology has the capability to contain outbreaks to within a zip code. Once the desired viral sequence is known, we can initiate the printing of vaccines anywhere in the world, in minutes, with the push of a button.”

In addition to actively developing the DBC platform, Codex DNA is seeking partners interested in advancing this technology and embedding it into their vaccine and drug development workflows to enable on-demand DNA and RNA synthesis. Interested parties should contact partnership@codexdna.com.



About Codex DNA, Inc.

Codex DNA empowers researchers with the tools they need to rapidly and securely design, code, and create synthetic DNA. Creators of the BioXp™ system, the world's only synthetic biology workstation, and the industry-standard Gibson Assembly® method, Codex DNA accelerates advances in the fields of personalized medicine, antibody engineering, vaccine development, biologics drug discovery, and more.

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