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NEWS RELEASE

AbCellera Announces Partnership with NIAID Vaccine Research Center and Ichor Medical Systems to Tackle Pandemic Viral Outbreaks

5/9/2019

The AbCellera-led team will collaborate in an ambitious capability demonstration for the rapid generation of antibody-based countermeasures against a pandemic strain of influenza

AbCellera today announced the addition of leading researchers from the **Vaccine Research Center** at the National Institute of Allergy and Infectious Diseases (NIAID), part of the National Institutes of Health, and **Ichor Medical Systems** (Ichor) to its **Pandemic Prevention Platform (P3)** team. AbCellera assembled the consortium in response to a high-priority initiative from the U.S. Defense Advanced Research Projects Agency (DARPA) to enable rapid response to pandemic viral outbreaks. As part of the four-year, USD \$30 million project, NIAID Vaccine Research Center and Ichor will contribute world-leading expertise in virology, vaccinology, nucleic acid antibody vectorization and delivery to complement AbCellera's capabilities. Together, the team will build an end-to-end platform capable of developing field-ready medical countermeasures within 60 days of a viral outbreak.

Central to AbCellera's platform is a microfluidic technology that allows for deep mining of natural immune responses, yielding large and diverse panels of antibodies. AbCellera's technology has unprecedented throughput and supports a variety of miniaturized assays to directly select antibodies produced by single cells from any species, including humans. In the P3 project, these capabilities will be used to screen millions of immune cells from human patients previously exposed to infectious pathogens and isolate panels of potent neutralizing antibodies as candidate therapeutics for pandemic response.

Late last year, as part of a first simulated pandemic exercise, AbCellera performed rapid antibody discovery from camelids infected with Middle Eastern Respiratory Syndrome Coronavirus (MERS-CoV) which has high pandemic potential. This effort, in collaboration with Colorado State University, identified thousands of MERS-CoV binding antibodies in a single afternoon. The first 355 unique sequences, including many antibodies that are potent virus neutralizers, were obtained in a mere three days and 19 hours.

Camels act as a natural reservoir of MERS-CoV and exhibit mild symptoms when infected. However, when the virus spreads to humans, it causes severe respiratory illness that is fatal in about 35% of infections (60% in hospital settings) and can be spread through the air when infected individuals cough. It was first reported in Saudi Arabia in 2012.

“We are proud of the people on our phenomenal AbCellera team, who approached this simulation with the urgency of a real pandemic outbreak, working in shifts around the clock to meet the goals set out by this challenge,” said Ester Falconer, P3 Project Lead and Group Leader at AbCellera. “By using AbCellera’s rapid antibody discovery technology, we were able to complete the screening portion in just six hours and execute every step seamlessly to achieve the end goal ahead of schedule. To the best of our knowledge, this is unprecedented speed for an antibody campaign, and we’re optimistic that this approach could clear a major bottleneck in halting real pandemic outbreaks.”

Now, one year into this four-year project, AbCellera, the NIAID Vaccine Research Center, and Ichor will be testing how quickly they can move from discovering broadly-neutralizing antibodies against influenza virus to delivering a nucleic acid-based countermeasure that can protect against infection. For this, the expertise of the NIAID Vaccine Research Center and Ichor is critical. In this expanded challenge, the team will discover potent antibody neutralizers of pandemic influenza, incorporate these sequences into nucleic acid-based therapeutics, use Ichor’s TriGrid electroporation technology to deliver the nucleic acids into animals, and perform in vivo tests to demonstrate the therapeutics’ ability to act as a prophylactic against infection. This represents a paradigm shift in antibody treatments, since delivering nucleic acids that code for a neutralizing antibody directly to the patient can bypass the difficult and time-consuming manufacturing process conventionally required for therapeutic antibodies. Nucleic acid-based treatments have the potential to be deployed more rapidly than conventional countermeasures in response to an emerging pandemic.

“AbCellera’s team has made tremendous strides towards building the first technology platform capable of rapid pandemic response. DARPA’s vision of deploying anti-viral countermeasures in 60 days, which was widely perceived as science fiction, is fast becoming a reality,” said Carl Hansen, CEO of AbCellera. “We are excited to pressure-test our platform in a simulated flu pandemic and are confident the combined expertise and technology of the NIAID Vaccine Research Center, Ichor, and AbCellera is up to the task. In addition to setting new speed and performance records for human antibody discovery, this exercise has the potential to yield highly-potent human antibodies for development as therapeutics and prophylactics.”

About AbCellera Biologics Inc.

AbCellera is a privately held company that engages in partnerships to discover and develop next-generation

therapeutic antibodies. AbCellera's single-cell platform integrates end-to-end capabilities for therapeutic antibody discovery through a combination of technologies including proprietary immunizations, microfluidics, high-throughput imaging, genomics, computation, and laboratory automation. Ultra-deep screening of single B cells allows unprecedented access to natural immune responses, enabling rapid isolation of large and diverse panels of high-quality lead antibodies from any species, including humans. www.abcellera.com

Find a complete list of news announcements on AbCellera's online [news feed](#), on [LinkedIn](#) and on Twitter [@AbCelleraBio](#).

About National Institute of Allergy and Infectious Diseases (NIAID)

NIAID conducts and supports research—at NIH, throughout the United States, and worldwide—to study the causes of infectious and immune-mediated diseases, and to develop better means of preventing, diagnosing and treating these illnesses. News releases, fact sheets and other NIAID-related materials are available on the [NIAID website](#).

About Ichor Medical Systems, Inc.

Ichor® Medical Systems' investigational TriGrid® Delivery System is the first integrated and fully automated device for electroporation-mediated nucleic acid administration in humans. Ichor, a privately-held biotech company based in San Diego, CA, is collaborating with partners to provide its enabling TriGrid platform as a means for delivery of nucleic acid-based drugs and vaccines in disease indications such as cancer, hepatitis B virus (HBV) infection, human papillomavirus (HPV) infection, and human immunodeficiency virus (HIV) infection, as well as for multiple biodefense agents. The TriGrid platform is also being developed for nucleic acid-based antibody delivery as a rapid countermeasure in the event of an infectious disease outbreak or biological weapons attack. For more information or a full listing of Ichor's partnered programs please visit <http://www.ichorms.com>

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