

Adarza Shifts Focus to SARS-CoV-2 in Anticipation of Protein Biosensor Launch

Jun 24, 2020 | [Adam Bonislowski](#)

NEW YORK – Biosensing firm Adarza BioSystems is getting ready to launch its Ziva protein detection platform, though a little later than originally expected and including a new application.

In February, the firm raised \$25 million in Series D funding and planned a summer release of its platform. But like many other companies, Adarza found itself having to shift its strategy as the SARS-CoV-2 pandemic shut down non-essential businesses across the economy. Instead of launching the system with its planned focus on immuno-oncology and neurology, the firm has moved to use its technology for immune profiling research supporting work like SARS-CoV-2 vaccine development.

Adarza didn't come into the pandemic completely unprepared to shift toward infectious disease work, though, said Benjamin Miller, chair of the company's scientific advisory board and co-inventor of the arrayed imaging reflectometry technology that underlies the Ziva platform.

Last year, Miller, who is a professor of biomedical engineering at the University of Rochester, participated in a study led by the National Institute of Allergy and Infectious Diseases (NIAID) Centers for Excellence in Influenza Research and Surveillance (CEIRS) looking at the potential for canine H3 influenza viruses to infect humans and at the ability of the CEIRS network to produce and share basic research characterizing an emerging influenza virus.

Miller said his lab has been part of the CEIRS network "for a number of years and has published quite a few papers on making antigen arrays for studying human responses to vaccines as well as using them in the context of [infectious disease] surveillance."

In the case of the [canine flu study](#), which was published in *PLOS Pathogens* in April, Miller and his colleagues were working on what he said was essentially an exercise in responding to a mock pandemic.

"Basically we were given the task of [studying], 'if dog flu suddenly became a pandemic, how would you respond?'" he said. "So we, along with many others within the [CEIRS] network, developed technologies and protocols that we could use to respond to a pandemic event. That exercise had just finished and we had just submitted a paper from the entire network describing how we had addressed that mock exercise, when all of a sudden SARS-CoV-2 appeared on the horizon."

Seeing that, Miller began moving to develop a serology test for SARS-CoV-2, along with a number of other viruses, including influenza, on his lab's arrayed imaging reflectometry system. He and Adarza then adapted that assay to the commercial Ziva system, with the company now planning to offer it as a research tool.

The assay measures antibodies to a number of SARS-CoV-2 proteins believed to be highly immunogenic, as well as to mutated forms of those proteins and proteins from other coronaviruses, influenza type A, type B, respiratory syncytial virus, and metapneumovirus. In all, the assay multiplexes around 30 viral proteins, said Bryan Witherbee, Adarza's president and CEO.

"There has been a tremendous amount of work in developing [serology] tests for SARS-CoV-2," Miller said. "Most of those have relied on a single antigen to detect antibodies, and in the diagnostic world, that has been somewhat of a problem for some assays in terms of having the right specificity and sensitivity."

"In the research context, which is where we are really focused, it is an even bigger issue, because ... you really want to have that broader understanding of a person's immune system and whether they have antibodies to SARS-CoV-2, whether they have antibodies to other upper respiratory viruses, and how all those different antibody profiles interact in the context of a disease state that we want to study or a vaccine that we want to develop," he added, noting that he believed this made the Ziva's multiplexing capabilities particularly useful.

"We're going into vaccine season, and there are several things that are going to happen in terms of clinical trials for some of these vaccines. And being able to understand the [immune] profile of your candidates who are coming in to get the vaccine may be important," Witherbee said. "We are really targeting this now for research use only, with the idea that in the future, we could go into *in vitro* diagnostics."

According to the company, the platform is capable of measuring several hundred analytes simultaneously. The arrayed imaging reflectometry approach underlying the platform uses silicon chips coated in an antireflective film. When the surface is illuminated with a laser, target analytes bound to probes interrupt this antireflective surface, producing reflected light that can be detected by a camera and used to quantify the amount of target present.

Adarza has been planning to launch the Ziva platform for some time. The company initially aimed for a release [in 2012](#) and later announced that it hoped to launch the system [in 2015](#).

Adarza has now pushed its planned summer launch of the system to September due to the SARS-CoV-2 pandemic. At the same time, it has begun placing instruments with early-access users interested in using the platform for research into the virus.

In addition to a formal launch of the instrument, Adarza is also planning in coming months to launch the multi-virus serology test that Miller and his lab developed.

The company "was gearing up for the full launch of Ziva as a biomarker discovery system, and then along came the pandemic, which put the kibosh on just about everything everyone was doing," Witherbee said. "But because of the work [Miller's lab] had done on this pandemic exercise last year ... we were able to shift the focus to find a way to provide immediate help to researchers now."

"It's an early adopter program in that labs have come forth and asked for the device," he said. "But this is ahead of the full commercial launch."

Filed Under

[Infectious Disease](#)

[Proteomics & Protein Research](#)

[North America](#)

[coronavirus](#)

[Privacy Policy](#). [Terms & Conditions](#). [AdChoices](#). Copyright © 2020 GenomeWeb, a business unit of Crain Communications. All Rights Reserved.