New Study Published in Nature Provides Further Evidence that COVID-19 Vaccine Induced T-Cell Response Targets Known SARS-CoV-2 Variants of Concern

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Adaptive's immunoSEQ T-MAP COVID provides potential explanation for preservation of Johnson & Johnson vaccine (Ad26.COV2.S) response to variants even when neutralizing antibodies are diminished

SEATTLE, June 09, 2021 (GLOBE NEWSWIRE) -- Adaptive Biotechnologies Corporation (Nasdaq: ADPT), a commercial stage biotechnology company that aims to translate the genetics of the adaptive immune system into clinical products to diagnose and treat disease, today announced that immunoSEQ® T-MAP™ COVID was used in the Nature study to measure the T-cell immune response elicited by the Johnson & Johnson COVID-19 vaccine in the context of multiple variants of SARS-CoV-2, including B 1.351 and B.1.1.7. The study provides further evidence that the T-cell response may contribute to protection from COVID-19. Adaptive's Technology was used to quantify T-cell expansion across all regions of the virus, demonstrating that the T-cell response is broad and unaltered by mutations that render vaccine-generated antibodies less effective. The study was conducted by Beth Israel Deaconess Medical Center (BIDMC) in Boston, MA.

"Our data generated in collaboration with Adaptive Biotechnologies highlight the potent and broad T-cell immune responses induced by the Ad26.COV2.S COVID-19 vaccine in humans, including against virus variants," said Dan Barouch, M.D., Ph.D., Director of the Center for Virology and Vaccine Research at BIDMC. "Using TCRbeta sequencing together with traditional functional T-cell assays, we are able to understand and quantify T-cell expansion to different parts of the spike protein with precision and scale that wouldn't have been possible even a few years ago."

In the multinational phase 3 ENSEMBLE trial, participants given Johnson & Johnson's vaccine experienced similar efficacy against the B.1.351 variant. To understand the mechanism of protection, the COV1001 phase 1/2 trial analyzed blood samples from 20 vaccinated individuals to measure antibody immune response (humoral immune response) and T-cell response (cellular immune response) against the original SARS-CoV-2 strain WA1/2020 as well as against the B.1.1.7, CAL.20C, P.1., and B.1.351 variants. Post-vaccination, results showed that the levels of neutralizing antibodies were diminished against the variants, but that the T-cell immune response was preserved, suggesting T cells may provide protection against these emerging strains. Results indicate T-cells may be an important correlate of protection and should be considered as an endpoint for vaccine clinical trials.

"These findings support a growing body of evidence that measuring T-cell response is critical to demonstrate immunity and guide development of COVID-19 vaccines, particularly in the growing presence of new variants," said Harlan Robins, Ph.D., co-founder and chief scientific officer, Adaptive Biotechnologies. "Until recently it has been challenging to incorporate measurement of T-cell response into vaccine clinical trials, but now immunoSEQ T-MAP COVID provides the ability to do this at scale and with precision using blood samples, and this technology can be applied to many different diseases."

immunoSEQ T-MAP COVID combines the sequencing and mapping capabilities of Adaptive's immune medicine platform to show how T cells respond to different parts of the virus, including the various parts of the spike protein. Mapping exactly how the variants impact different parts of the virus can indicate if the immune response is likely to be affected.

About the T cell
T cells are the adaptive immune system's first responders to detect any virus. They quickly multiply and circulate in the blood to attack the virus, often before symptoms appear. Among many other jobs, T cells also recruit B cells to produce antibodies after about a week or two to potentially provide immunity against future infection. T cells contain a treasure trove of information that could provide one consistent and trackable measure of the immune response to COVID-19 from initial exposure through viral clearance.

T cells can "remember" prior infections and kill pathogens if they reappear. Research shows that antibodies to SARS-CoV-2 decline over time. T cells hold important clues to immunity and correlates of protection and need to be studied to assess how long patients remain resistant to reinfection. Given T cells circulate freely in the blood, they are an easy and thus a desirable target for assessing SARS-CoV-2 exposure and potentially immunity.

About immunoSEQ T-MAP COVID
The immunoSEQ® T-MAP™ COVID offering provides tools for researchers to study the COVID-19 T-cell immune response, including detecting past SARS-CoV-2-specific immune response in research samples and the ability to track responses longitudinally. immunoSEQ T-MAP COVID can detect past SARS-CoV-2-specific T-cell immune response with a simple positive/negative result in research samples and track responses longitudinally. Users have access to Adaptive's SARS-CoV-2-specific T-cell receptor database (TCR) database to determine if samples show SARS-CoV-2-specific TCRs and the antigens to which these TCR responded. The tool can be used to study the T-cell immune response for vaccine research across COVID-19 variants., mapping across >160K SARS-CoV-2-specific antigen-TCR sequence-level data. immunoSEQ T-MAP COVID can dive into sequence, patient or population-level data, as well as determine TCR clones shared between cohorts and those that are public vs private clones. immunoSEQ T-MAP COVID is For Research Use Only. Not for use in diagnostic procedures.

About Adaptive Biotechnologies
Adaptive Biotechnologies is a commercial-stage biotechnology company focused on harnessing the inherent biology of the adaptive immune system to transform the diagnosis and treatment of disease. We believe the adaptive immune system is nature's most finely tuned diagnostic and therapeutic for most diseases, but the inability to decode it has prevented the medical community from fully leveraging its capabilities. Our proprietary immune medicine platform reveals and translates the massive genetics of the adaptive immune system with scale, precision and speed to develop products in life sciences research, clinical diagnostics and drug discovery. We have three commercial products and a robust clinical pipeline to diagnose, monitor and enable the treatment of diseases such as cancer, autoimmune conditions and infectious diseases. Our goal is to develop and commercialize

immune-driven clinical products tailored to each individual patient. For more information, please visit adaptivebiotech.com and follow us on www.twitter.com/adaptivebiotech.

Forward Looking Statements
This press release contains forward-looking statements that are based on management's beliefs and assumptions and on information currently available to management. All statements contained in this release other than statements of historical fact are forward-looking statements, including statements regarding our ability to develop, commercialize and achieve market acceptance of our current and planned products and services, our research and development efforts, and other matters regarding our business strategies, use of capital, results of operations and financial position, and plans and objectives for future operations, including forward-looking statements contained in this press release or elsewhere related to the immune response to COVID-19, vaccine development, and the accuracy and functionality of immunoSEQ T-MAP COVID.

In some cases, you can identify forward-looking statements by the words "may," "will," "could," "would," "should," "expect," "intend," "plan," "anticipate," "believe," "estimate," "predict," "project," "potential," "continue," "ongoing" or the negative of these terms or other comparable terminology, although not all forward-looking statements contain these words. These statements involve risks, uncertainties and other factors that may cause actual results, levels of activity, performance or achievements to be materially different from the information expressed or implied by these forward-looking statements. These risks, uncertainties and other factors are described under "Risk Factors," "Management's Discussion and Analysis of Financial Condition and Results of Operations" and elsewhere in the documents we file with the Securities and Exchange Commission from time to time. We caution you that forward-looking statements are based on a combination of facts and factors currently known by us and our projections of the future, about which we cannot be certain. As a result, the forward-looking statements may not prove to be accurate. The forward-looking statements in this press release represent our views as of the date hereof. We undertake no obligation to update any forward-looking statements for any reason, except as required by law.

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