



Adaptive Biotechnologies Launches immunoSEQ T-MAP COVID, First Molecular T Cell Monitoring Tool for SARS-CoV-2

August 4, 2020

Tailored for vaccine developers to accurately and reproducibly measure and track COVID-19 specific T-cell response in clinical trials

Powered by T-cell immune response data from over 1,000 COVID-19 patients from ImmuneCODE, the largest public database mapping T-cell receptors (TCRs) to SARS-CoV-2

New data demonstrates T-cell response persists beyond 90 days

SEATTLE, Aug. 04, 2020 (GLOBE NEWSWIRE) -- Adaptive Biotechnologies (Nasdaq: ADPT) announced today the launch of immunoSEQ® T-MAP™ COVID, a proprietary research product and data analysis service to accurately and reproducibly measure the T-cell immune response to vaccines in development and track the persistence of that response over time. This product leverages data by Snyder et al., made available [today](#) that map T cells from over 1,000 patients to specific SARS-CoV-2 antigens that elicit an immune response. These data also demonstrate that SARS-CoV-2-specific T cells are persisting in recovered patients for over 90 days, adding important information to the ongoing effort to define immunity to COVID-19. These results are powered by [ImmuneCODE](#), a groundbreaking open database developed with partner Microsoft, to share the population-wide T-cell immune response to the COVID-19 virus with the research community. An [abstract](#) detailing the methodology behind ImmuneCODE, including the most recent database release, is available and the manuscript is currently undergoing peer review for future publication.

“The critical role of the T-cell response is increasingly becoming a focus of attention. While antibodies have been a mainstay of measuring the immune response to vaccines, for COVID-19, it is becoming clear that the T-cell response is necessary for a complete picture of immunity,” said Harlan Robins, Chief Scientific Officer and co-founder. “Adaptive’s proven immune medicine platform is designed for the quantitative sequencing and mapping of T cells at scale from a simple blood draw and can be incorporated seamlessly into clinical trials.”

immunoSEQ T-MAP COVID provides researchers with a quantitative map of T-cell receptors (TCRs) and SARS-CoV-2 antigens that are driving the immune response to vaccines and other therapies in development for COVID-19. This reproducible, high-throughput, high resolution, molecular data will be made available through Adaptive’s existing cloud-based immunoSEQ Analyzer to assist with analysis and visualization of the immune response.

“The ImmuneCODE data and analyses to date have several real-world applications to address the COVID-19 pandemic, including the support of vaccine trials and therapeutic development,” said Peter Lee, Corporate Vice President, Research & Incubations, Microsoft. “As we continue to grow this groundbreaking database and measure the persistence of the adaptive immune response over time, these critical findings will advance ongoing and new efforts to help solve this global public health crisis.”

Data from the Snyder et al. manuscript elucidate the magnitude and dynamics of the T-cell response to SARS-CoV-2 infection from over 1,000 patients and several thousand controls. First, Adaptive’s immune medicine platform was used to identify the parts of the virus that induce a T-cell response. These data confirm findings from other studies showing that T-cell response to SARS-CoV-2 is directed against a small number of viral antigens in addition to the spike protein, the current target of most vaccines in development. These targets may inform design or enhancement of next-generation vaccines.

Then, the shared “public” T-cell receptors that are specific to those immunogenic parts of the virus were identified. These TCRs enable T-cell response to the virus to be measured and tracked over time at the individual and population levels. Most notably, >90% of patients still have these shared SARS-CoV-2 specific T cells for several months post confirmed diagnosis, the maximum time period currently available to assess response. Previously published research on other coronavirus infections have demonstrated persistent T cells for years following initial infection, even when antibodies are undetectable in convalescent patients, highlighting the importance of the T-cell response in understanding immunity to the virus.

Based on these results and ongoing research on real-world samples, Adaptive is also completing validation of a clinical T-cell based diagnostic to broadly identify past exposure reliably and reproducibly. The Company is pursuing an Emergency Use Authorization (EUA) from the FDA for use of this diagnostic test, immunoSEQ Dx® SARS-CoV-2.

Snyder et al. can be found at: <https://www.medrxiv.org/content/10.1101/2020.07.31.20165647v1>

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” past infections and kill pathogens if they reappear. Since the decline of antibody signals for SARS-CoV-2 over time has been reported by many researchers, T cells 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 ImmuneCODE

ImmuneCODE is an open database that provides a detailed population-level view into the adaptive immune response to the COVID-19 virus. Adaptive

Biotechnologies and Microsoft are making these data freely available to any researcher, public health official or organization around the world to accelerate solutions to the global pandemic. The database contains detailed information on the virus-specific T cells as well as the virus-related antigens they recognize. The T-cell responses to these antigens will be tracked across the population to create an immune response signature using thousands of de-identified samples combined from organizations around the globe and [ImmuneRACE](#), the virtual clinical study launched in May to help in the race to find a solution to COVID-19.

De-identified blood samples from ImmuneRACE, including patients who were actively infected, recovered or were recently exposed to the virus, are being collected by LabCorp, through its Covance drug development business, using a mobile phlebotomy service. Immune cell receptors from these samples are being sequenced using Illumina platform technology and mapped to virus-specific antigens that are confirmed by Adaptive's proprietary immune medicine platform to induce an immune response. These study data are being pooled with data from thousands of additional unique de-identified patient samples from many institutions around the world. Using Microsoft Azure's hyperscale cloud and machine learning capabilities, the accuracy of the immune response will be continuously improved and updated online in real time as more samples are sequenced.

* Providence, a large health system with 51 hospitals, including the one near Seattle that treated the first U.S. COVID-19 patient, is an initial clinical collaborator. A sampling of some of our other participating institutions include Institute for Systems Biology (ISB), BloodWorks Northwest, Hospital 12 de Octubre, i+12/CNIO (Madrid, Spain), Istituto Scientifico Romagnolo per lo Studio e la Cura dei Tumori (IRST) IRCCS (Meldola, FC – Italy) / AUSL-Romagna and Department of Experimental, Diagnostic and Specialty Medicine (DIMES), and Università di Bologna (Italy) and the NIH in partnership with ASST Spedali Civil di Brescia, Italy and the University of Milano Bicocca-Fondazione MBBM Ospedale San Gerardo, Monza, Italy. This list is growing as we continue to work with other investigators globally to collect and sequence valuable patient cohorts. Institutions or collaborators interested in contributing blood samples can direct inquiries to COVID19ImmuneResponse@adaptivebiotech.com.

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 two 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 beliefs and assumptions and on information currently available to Adaptive. All statements contained in the press release other than statements of historical fact are forward-looking statements, including statements regarding the ability to map adaptive immune responses to COVID-19, the ability to successfully collect a sufficient number and quality of samples through ImmuneRACE, the ability to efficiently and effectively process data with ImmuneCODE, to leverage any findings or data to advance solutions to diagnose, treat and prevent COVID-19, the ability to develop, commercialize and achieve market acceptance of the Adaptive's TCR-Antigen Map and other current and planned products and services, research and development efforts. 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, which are described under "Risk Factors," "Management's Discussion and Analysis of Financial Condition and Results of Operations" and elsewhere in the documents Adaptive files with the Securities and Exchange Commission from time to time.

For more information:

Beth Keshishian, Adaptive Media
(917) 912-7195
media@adaptivebiotech.com

Karina Calzadilla, Adaptive Investor Relations
Carrie Mendivil, Gilmartin Group
investors@adaptivebiotech.com



Source: Adaptive Biotechnologies