



## **Codiak's Engineered Exosomes Promote T Cell and Antibody Responses to SARS-CoV-2 in vivo, Supporting the Potential for a Broadly Protective Pan-Beta Coronavirus and Variant Vaccine**

December 2, 2021

### **Preclinical data at World Vaccine & Immunotherapy Congress 2021 show broad immunogenicity and neutralization against multiple SARS-CoV-2 variants**

CAMBRIDGE, Mass., Dec. 02, 2021 (GLOBE NEWSWIRE) -- Codiak BioSciences, Inc. (Nasdaq: CDAK), a clinical-stage biopharmaceutical company focused on pioneering the development of exosome-based therapeutics as a new class of medicines, today announced new preclinical data from its exoVACC™ exosome-based vaccine platform. The data describe for the first time the potential of Codiak's novel vaccine candidate for SARS-CoV-2, the virus that causes COVID-19, to generate a comprehensive immune response conferring both antibody and T cell-mediated immunity. The study reported the generation of a neutralizing antibody response that showed evidence of activity against multiple SARS-CoV-2 variants. In addition, the ability of exoVACC to generate antigen-specific T cell responses against structurally conserved regions of multiple coronavirus variants provides evidence of a broad immune response to the candidate. The results are being presented today at the World Vaccine & Immunotherapy Congress (WVIC) 2021 in San Diego.

"Our goal is to advance a pancoronavirus vaccine candidate that has the potential to be broadly protective against infection with SARS-CoV-2, CoV-2 variants and other novel beta coronavirus family members. We believe Codiak's exosome engineering platform will allow us to engineer antigens to elicit T cell and antibody responses against this virus family to generate immunity," said Douglas E. Williams, Ph.D., President and Chief Executive Officer of Codiak.

Codiak's proprietary and modular vaccine system platform leverages engineered exosomes – naturally occurring, extracellular nanoparticle vesicles – to precisely control antigen display on the surface or in the lumen, in order to deliver antigens, adjuvants and immunomodulators simultaneously and selectively to antigen presenting cells to maximize immune response. The pancoronavirus vaccine construct carries the receptor-binding domain (RBD) protein of both SARS-CoV-1 and SARS-CoV-2 at high density on the surface of the exosome, combined with structurally constrained, highly conserved T cell antigens expressed in the lumen, and stable loading of a STING agonist. This design closely resembles the natural viral structures, and these engineered exosomes stimulated a broad immune response comprising both antibody and T cell-mediated immunity.

The data presented at WVIC show that an exosome carrying the SARS-CoV-2 RBD induced an antibody response in mice that was 100-fold greater than recombinant, or "free" RBD, highlighting the advantage of the exosome surface display. When a STING agonist was added to the exosome to function as an adjuvant, the antibody response observed in preclinical studies was further enhanced and comparable to that of human subjects vaccinated twice with an mRNA vaccine against SARS-CoV-2. This vaccine construct with the STING agonist adjuvant also provided neutralizing antibody responses that were effective in a pseudotype virus neutralizing *in vitro* assay in blocking multiple SARS-CoV-2 variants, including the Wuhan strain, Beta and Delta variants.

Additionally, Codiak, in collaboration with Gaurav Gahia, M.D., principal investigator at the Ragon Institute, identified multiple T cell epitopes that are highly conserved and invariant across all Beta coronaviruses including the known SARS-CoV-2 variants and the recently identified Omicron variant. Together, the collaboration has engineered an exosome that expresses these T cell epitopes in the lumen. The luminal expression of these highly conserved T cell epitopes promoted development of antigen-specific T cell responses, further augmenting the immune response against SARS-CoV-2 in a preclinical model.

#### **About the exoVACC™ Platform**

exoVACC is Codiak's proprietary and modular vaccine system that utilizes the unique properties of exosomes to deliver antigens and adjuvants simultaneously and selectively to the same antigen presenting cells (APCs), driving an integrated innate, cellular and/or antibody-mediated immune response. Utilizing its engEx™ engineering platform, Codiak can incorporate within a single exosome multiple complex antigens and adjuvants, as well as cell-targeting ligands and immune co-stimulatory molecules to potentially enhance and shape an immune response. Codiak is developing this platform for potential applications in infectious disease and oncology.

#### **About Codiak BioSciences**

Codiak is a clinical-stage biopharmaceutical company focused on pioneering the development of exosome-based therapeutics, a new class of medicines with the potential to transform the treatment of a wide spectrum of diseases with high unmet medical need. By leveraging the biology of exosomes as natural intercellular transfer mechanisms, Codiak has developed its proprietary engEx Platform to expand upon the innate properties of exosomes to design, engineer and manufacture novel exosome therapeutic candidates. Codiak has utilized its engEx Platform to generate a deep pipeline of engineered exosomes aimed at treating a broad range of disease areas, spanning oncology, neuro-oncology, infectious disease, and rare disease.

#### **Forward-Looking Statements**

This press release contains "forward-looking statements" within the meaning of the Private Securities Litigation Reform Act of 1995, including, among other things, statements concerning the Company's development of an exosome-based vaccine for SARS-CoV-2, as well as statements concerning the development and therapeutic potential of the Company's engEx Platform, engEx product candidates and engineered exosomes generally, including future development plans, regulatory filings, releases of data and timing with respect thereto. Any forward-looking statements in this press release are based on management's current expectations of future events and are subject to a number of risks and uncertainties that could cause actual results to differ materially and adversely from those set forth in or implied by such forward-looking statements. For a discussion of these risks and uncertainties, and other important factors, any of which could cause our actual results to differ from those contained in the forward-looking

statements, see the section entitled "Risk Factors" in Codiak's Annual Report on Form 10-K for the year ended December 31, 2020, and in Codiak's subsequent filings with the Securities and Exchange Commission, as well as discussions of potential risks, uncertainties and other important factors in Codiak's subsequent filings with the Securities and Exchange Commission. All information in this press release is current as of the date of this report, and Codiak undertakes no duty to update this information unless required by law.

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**Attachment**

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