Codiak’s exoASO™-C/EBPβ Demonstrates Significant Systemic Anti-Tumor Activity via Targeting Immune-Suppressive Myeloid Cells

April 8, 2022

– New preclinical data presented at AACR Annual Meeting 2022 –

– Intravenous exosome candidate engineered for tropism precisely targets transcription factors in myeloid cell subpopulations –

– Precision medicine approach enables potent single-agent activity in models of widely disseminated tumors –

CAMBRIDGE, Mass., April 08, 2022 (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 on the Company's engineered exosome precision medicine candidate, exoASO-C/EBPβ. The data, which will be presented at the American Association for Cancer Research (AACR) Annual Meeting 2022, demonstrate that exoASO-C/EBPβ induces potent single-agent anti-tumor activity by repolarizing myeloid cells in the tumor and blood to induce an immune response.

"We continue to expand the application of our engineering platform to precisely target transcription factors, leveraging engineered exosomes to selectively target pathways known to play a critical role in tumor immunology," said Sriram Sathyanarayanan, Ph.D., Chief Scientific Officer, Codiak. "Targeting distinct myeloid cell populations in the tumor microenvironment represents a novel strategy for immune oncology. These preclinical studies demonstrate a profound regression of large, disseminated tumors throughout the body following systemic dosing with exoASO-C/EBPβ. These results build on those generated by our exoASO ™-STAT6 program, which also targets an oncogenic transcription factor in macrophages and is anticipated to begin Phase 1 dosing in the coming months."

exoASO-C/EBPβ is designed to selectively deliver antisense oligonucleotides (ASOs) to down-modulate C/EBPβ, a transcription factor that regulates the immunosuppressive phenotype in tumor-associated macrophages (TAMs) and circulating myeloid derived suppressor cells (MDSCs), two subpopulations of myeloid cells. High levels of C/EBPβ expression are associated with poor prognosis in multiple cancers, including non-small cell lung cancer (NSCLC). Precise targeting of C/EBPβ in MDSCs promotes the switch of TAMs from an M2 immunosuppressive phenotype to an M1, T cell attractive, anti-tumor phenotype and plays a key role in the survival and differentiation of MDSCs in order to induce an immune response.

In vivo, systemic administration of exoASO-C/EBPβ resulted in efficient delivery of ASOs to MDSCs resulting in > 5-fold improvement in tumors and 11 to 12-fold improvement in the circulating blood compared to delivery of a non-exosome (or "free") ASO. This precise cell targeting was coupled with effective silencing of C/EBPβ and a remodeling of the tumor microenvironment indicative of activation of an immune response. In a variety of *in vivo* tumor models, exoASO-C/EBPβ monotherapy generated up to 70% complete responses and, when combined with anti-PD1, significantly increased complete response rates to 90%. Notably, in a lung tumor model with widely dispersed tumors, systemic administration of exoASO-C/EBPβ resulted in resolution of tumor burden throughout the body. The profound monotherapy activity observed with exoASO-C/EBPβ in multiple tumor models refractory to anti-PD-1 therapy highlights the potential of this therapy to treat multiple anti-PD1 refractory patient populations.

About the engEx™ Platform
Codiak's proprietary engEx Platform is designed to enable the development of engineered exosome therapeutics for a wide spectrum of diseases and to manufacture them reproducibly and at scale to pharmaceutical standards. By leveraging the inherent biology, function and tolerability profile of exosomes, Codiak is developing engEx exosomes designed to carry and protect potent drug molecules, provide selective delivery and elicit the desired pharmacology at the desired tissue and cellular sites. Through its engEx Platform, Codiak seeks to direct tropism and distribution by engineering exosomes to carry on their surface-specific targeting drug moieties, such as proteins, antibodies/fragments, and peptides, individually or in combination. Codiak scientists have identified two exosomal proteins that serve as surface and luminal scaffolds. By engineering the exosome surface or lumen and optimizing the route of administration, Codiak aims to deliver engEx exosomes to the desired cell and tissue to more selectively engage the drug target, potentially enhancing the therapeutic index by improving potency and reducing toxicity.

About Codiak BioSciences
Codiak is a clinical-stage biopharmaceutical company 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 development and therapeutic potential of exoASO-STAT6 and exoASO-C/EBPβ, including future development plans and regulatory filings 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, 2021, and in 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.

Investor Contact: Christopher Taylor VP, Investor Relations and Corporate Communications T: 617-949-4220 E: investor@codiakbio.com Media Contact: Lindy Devereux Scient PR T: 646-515-5730 E: media@codiakbio.com