Sana Biotechnology Announces Publication of Preclinical Diabetes Data in Cell Stem Cell Demonstrating Insulin Independence Following Transplantation of Hypoimmune Allogeneic Primary Islet Cells Without Immunosuppression in a Diabetic NHP

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Transplant of HIP-modified pancreatic islet cells provided lasting glucose control in a fully immunocompetent non-human primate (NHP), enabling the achievement of exogenous insulin independence without immunosuppression for six month study duration

Administration of anti-CD47 antibody after six months demonstrated the principle of graft ablation and a potential safety strategy

SEATTLE, Feb. 13, 2024 (GLOBE NEWSWIRE) -- Sana Biotechnology, Inc. (NASDAQ: SANA), a company focused on changing the possible for patients through engineered cells, today announced that *Cell Stem Cell* has published a paper titled “Hypoimmune islets achieve insulin independence after allogeneic transplantation in a fully immunocompetent non-human primate.” The paper evaluated a transplant of Sana’s engineered allogeneic, hypoimmune (HIP)-modified pancreatic islet cells into a fully immunocompetent, diabetic non-human primate (NHP). These modified islet cells, which cluster into effective endocrine organoids, are termed “pseudo islet grafts” (p-islets). The results demonstrated that the HIP-modified p-islets engrafted following intramuscular injection and provided stable endocrine function, enabling insulin independence in the absence of immunosuppression.

“The results of this preclinical study are remarkable, and if they translate into the clinic, we have the potential to profoundly change the way that type 1 diabetes is addressed, potentially eliminating the need for insulin injections or immunosuppression,” said Sonja Schrepfer, MD, PhD, Sana’s Head of Hypoimmune Platform. “We look forward to insights from an investigator-sponsored trial (IST), a first-in-human study of HIP-modified, allogeneic primary islet cells later this year, which would serve as clinical proof-of-concept to assess the safety, cell survival, immune evasion, and C-peptide production of transplanted HIP-modified primary islet cells without immunosuppression into a patient with type 1 diabetes. This publication, along with the ongoing IST, will provide invaluable insights toward our stem cell derived product candidate, SC451. With more than 8 million patients with type 1 diabetes worldwide, there is an enormous need to cure – rather than simply manage – this disease.”

“JDRF is dedicated to harnessing the power of research, advocacy, and community engagement to advance life-changing breakthroughs for type 1 diabetes,” said Sanjoy Dutta, PhD, JDRF Chief Scientific Officer. “The development of cell therapies that replace the loss of insulin-producing cells could one day offer cures for type 1 diabetes. A key area of focus for JDRF is to develop strategies to protect these cells after transplantation that remove the use of broad immunosuppression. As a supporter and investor in Sana through the JDRF T1D Fund, we look forward to seeing if the results described in this paper translate into people, as they would represent a meaningful advance in the treatment of type 1 diabetes.”

The transplant setting was purposely designed to be a high immunological bar by maximizing the donor-to-recipient mismatch. Diabetes mellitus was chemically induced in the recipient as shown by the development of major blood glucose instability and the need for daily insulin injections to control blood sugar. Following stabilization of glucose with insulin treatment, the diabetic NHP underwent transplantation of the HIP p-islets without any induction or maintenance immunosuppression and the administration of insulin was tapered to zero over the course of nine days. Rapidly following HIP p-islet transplantation, the diabetic NHP recipient showed tightly controlled blood glucose levels, was completely insulin-independent, continuously healthy, and exhibited no physical or behavioral abnormalities for the six-month study duration. C-peptide levels, which are a marker for endogenous insulin production and release, reached the normal levels observed prior to induction of diabetes. Furthermore, there was no indication that the allogeneic HIP p-islet graft induced any immune recognition or any type of immune response at any time.

To demonstrate that there was no regeneration or recovery of an endogenous islet cell population in the diabetic NHP, HIP p-islets were eliminated using an anti-CD47 antibody. The antibody blocked the protective CD47 signal and triggered a “missing self” innate immune cell response that led to the rapid destruction of the HIP p-islet graft. Following the anti-CD47 treatment, blood glucose levels in the diabetic NHP began to fluctuate and increase markedly, and insulin injections needed to be resumed. It was thus demonstrated that the tightly controlled blood glucose levels and insulin independence was entirely due to well-functioning HIP p-islets.

The publication is available for online viewing at https://doi.org/10.1016/j.stem.2024.02.001.

About Hypoimmune Platform
Sana’s hypoimmune platform is designed to create cells *ex vivo* that can evade the patient’s immune system to enable the transplant of allogeneic cells without the need for immunosuppression. We are applying the hypoimmune technology to both donor-derived allogeneic T cells, with the goal of making potent and persistent CAR T cells at scale, and pluripotent stem cells, which can then be differentiated into multiple cell types at scale. Preclinical data published in peer-reviewed journals demonstrate across a variety of cell types that these transplanted allogeneic cells are able to evade both the innate and adaptive arms of the immune system while retaining their activity. Our most advanced programs utilizing this platform include an allogeneic CAR T program targeting CD19+ cancers, an allogeneic CAR T program for B-cell mediated autoimmune diseases, an allogeneic CAR T program targeting CD22+ cancers, and stem-cell derived pancreatic islet cells for patients with type 1 diabetes.

About Sana Biotechnology
Sana Biotechnology, Inc. is focused on creating and delivering engineered cells as medicines for patients. We share a vision of repairing and controlling genes, replacing missing or damaged cells, and making our therapies broadly available to patients. We are a passionate group of people working together to create an enduring company that changes how the world treats disease. Sana has operations in Seattle, Cambridge, South San Francisco, and Rochester. For more information about Sana Biotechnology, please visit https://sana.com/.

Cautionary Note Regarding Forward-Looking Statements

This press release contains forward-looking statements about Sana Biotechnology, Inc. (the "Company," "we," "us," or "our") within the meaning of the federal securities laws, including those related to the Company's vision, progress, and business plans; expectations for its development programs, product candidates and technology platforms, including its pre-clinical, clinical and regulatory development plans and timing expectations; the potential of an anti-CD47 antibody to serve as a safety strategy for Sana's engineered allogeneic, hypoimmune (HIP)-modified pancreatic islet cells; the potential impact if the preclinical data translate into the clinic; the potential of the publication and the IST to provide insights toward Sana's SC451 program; the potential of Sana's hypoimmune technology as a treatment for diabetes; the ability to use the HIP platform to create cells *ex vivo* that can evade a patient's immune system and enable the transplant of allogeneic cells without the need for immunosuppression and the potential benefits associated therewith; and the ability to apply the HIP technology to allogeneic T cells to make potent and persistent CAR T cells at scale and to pluripotent stem cells, which can then be differentiated into multiple cell types at scale. All statements other than statements of historical facts contained in this press release, including, among others, statements regarding the Company's strategy, expectations, cash runway and future financial condition, future operations, and prospects, are forward-looking statements. In some cases, you can identify forward-looking statements by terminology such as "aim," "anticipate," "assume," "believe," "contemplate," "continue," "could," "design," "due," "estimate," "expect," "goal," "intend," "may," "objective," "plan," "positioned," "potential," "predict," "seek," "should," "target," "will," "would" and other similar expressions that are predictions of or indicate future events and future trends, or the negative of these terms or other comparable terminology. The Company has based these forward-looking statements largely on its current expectations, estimates, forecasts and projections about future events and financial trends that it believes may affect its financial condition, results of operations, business strategy and financial needs. In light of the significant uncertainties in these forward-looking statements, you should not rely upon forward-looking statements as predictions of future events. These statements are subject to risks and uncertainties that could cause the actual results to vary materially, including, among others, the risks inherent in drug development such as those associated with the initiation, cost, timing, progress and results of the Company's current and future research and development programs, preclinical and clinical trials. For a detailed discussion of the risk factors that could affect the Company's actual results, please refer to the risk factors identified in the Company's SEC reports, including but not limited to its Quarterly Report on Form 10-Q dated November 8, 2023. Except as required by law, the Company undertakes no obligation to update publicly any forward-looking statements for any reason.

Investor Relations & Media:

Nicole Keith
investor.relations@sana.com
media@sana.com