Sana Biotechnology Highlights Preclinical Data from Hypoimmune and Fusogen Platforms at the International Society for Stem Cell Research (ISSCR) 2023 Annual Meeting

June 16, 2023

Hypoimmune (HIP)-modified CD19-directed CAR T cells have the potential to serve as a universal off-the-shelf therapy that provides long-term durability of response without immunosuppression

HIP-modified primary pancreatic islet cells alleviate diabetes in humanized mice and avoid immune rejection without immunosuppression

Intramuscular administration of islet cells in humanized mice does not impact cell function and viability and may serve as a preferred administration route for patients

Demonstration of in vivo delivery of genetic payloads to human hematopoietic stem/progenitor cells

SEATTLE, June 16, 2023 (GLOBE NEWSWIRE) -- Sana Biotechnology, Inc. (NASDAQ: SANA), a company focused on changing the possible for patients through engineered cells, today announced preclinical data from six presentations, including two oral presentations, at the International Society for Stem Cell Research (ISSCR) 2023 Annual Meeting.

"Our leading presence at ISSCR showcased key preclinical data generated from our programs using our hypoimmune and fusogen platforms," said Doug Williams, Ph.D., Sana's President of Research and Development. "The ability to transplant allogeneic cells engineered to evade immune detection without immunosuppression with durable cell persistence and functionality has the potential to transform the field of cell therapy, as well as medicine as a whole. At this conference, much of our data focused on the hypoimmune platform's ability to avoid immune detection in various preclinical models as well as the potential of incorporating this platform into pancreatic islet cells for the treatment of type 1 diabetes. We also shared data demonstrating *in vivo* delivery of various genetic payloads to human hematopoietic stem/progenitor cells, highlighting an important capability with the fusogen platform. Later this year, we look forward to sharing initial clinical data from our hypoimmune platform which should help us understand the translatability of these and other preclinical data to humans, including data for our allogeneic CD19-directed CAR T cells for the treatment of B-cell cancers and data for primary human pancreatic islet cells for the treatment of type 1 diabetes."

Oral Presentations

On Thursday, June 15, an oral presentation titled "Human Hypoimmune Primary Pancreatic Islets Evade Allogeneic and Autoimmune Rejection Without Immunosuppression and Alleviate Diabetes in Humanized Mice" featured data from *in vitro* and *in vivo* studies of human hypoimmune (HIP) islet cells. The data demonstrated that HIP islet cells were similar in size, cell type composition, and *in vitro* insulin secretion as wild-type (wt) islet cells, showing that HIP engineering itself does not impact islet cell morphology or endocrine function. *In vivo* studies assessed the survival of HIP islet cells in immunocompetent, diabetic allogeneic humanized mice as well as in Sana's proprietary humanized autoimmune diabetes mouse model. In the diabetic allogeneic humanized mouse study, the results demonstrated that HIP islet cells survived and functioned to control glucose levels while wt islet cells were rejected with no glucose control observed. The study in the humanized autoimmune diabetes mouse model showed that HIP islet cells also survived autoimmunity and alleviated diabetes while wt islet cells were rejected with no glucose control observed.

On Thursday, June 15, a second oral presentation titled "*In Vivo* Delivery of Genetic Payloads to Human Hematopoietic Stem/Progenitor Cells" featured data demonstrating the ability of Sana's fusogen platform to deliver genetic payloads to resting human hematopoietic stem/progenitor cells (HSPCs) and access human HSPCs in both the peripheral blood and bone marrow of humanized mice. The presentation included data demonstrating the ability of HSPC-targeted fusosomes to achieve high transduction efficiency and specificity for HSPCs *in vivo*, avoiding off-target cellular "sinks." Highlights included a demonstration of *in vivo* nuclease delivery for efficient editing of HSPCs, as well as specific gene delivery to cells harboring a target HSPC receptor with >100x selectivity.

Poster Presentations

On Wednesday, June 14, poster #2082 titled "Hypoimmune Rhesus Macaque Induced Pluripotent Stem Cells Achieve Long-Term Survival in Fully Immunocompetent Allogeneic Recipients" detailed data on the ability of Sana's HIP-modified allogeneic cells to escape immune detection in non-human primates (NHPs) in the absence of immune suppression. HIP-modified induced pluripotent stem cells (iPSCs) and wt iPSCs were transplanted into fully immunocompetent NHPs without immunosuppression in a crossover design, whereby after 6 weeks, NHPs initially administered one type of iPSCs were injected with the other type of iPSCs. In all instances, HIP iPSC grafts survived the entire study period. The administration of HIP iPSCs did not generate *de novo* antibodies, and no antibody-related killing of HIP iPSCs was observed, regardless of the order of administration. In contrast, all wt iPSC grafts were rejected within 2-3 weeks after transplantation, and administration of wt iPSCs provoked a vigorous antibody and killing response against these wt cells.

On Wednesday, June 14, poster #2034 titled "Engineered Hypoimmune CAR T Cells Survive, Function, and Persist in Immunocompetent Allogeneic Humanized Mice" outlined data evaluating HIP CD19-directed CAR T cells versus unmodified CD19-directed CAR T cells in three-month persistence studies with allogeneic humanized mice. In all mice treated, tumor control was initially rapidly achieved with both the unmodified CAR T cells and HIP CAR T cells. However, in mice treated with unmodified CAR T cells, tumor control did not last throughout the study or respond to rechallenge with tumor cells. In contrast, in HIP CAR T cell-treated mice, tumor control was maintained, including following a rechallenge with tumor cells over 80 days after administration of the HIP CAR T cells, demonstrating that the cells persist and remain functional over multiple months in an allogeneic immune system.

On Thursday, June 15, poster #1122 titled "Standing Out From the Crowd: Stem Cell-Derived Islet Cells Function Independent of Clustering When Transplanted Intramuscularly" outlined data from mice that received stem cell-derived islet cells (SC-islets) that were intramuscularly implanted using

standard clusters, standard clusters disaggregated prior to implantation, or cells differentiated without aggregation into clusters. SC-islets implanted intramuscularly secreted C-peptide (a proxy for insulin) and secretion, which increased over time, was independent of the SC-islets' initial clustering status. In addition, SC-islets implanted intramuscularly as single cells effectively controlled blood glucose levels, including after glucose challenge, and looked histologically similar to SC-islets implanted as clusters.

On Friday, June 16, poster #166 titled "Stem Cell Derived Islet Cells Show Robust Survival and Function When Transplanted in the Muscle Without Need for Additional Bioscaffolding" presented data on the effectiveness of stem cell-derived islet cells (SC-islets) using intramuscular implant sites in immunodeficient diabetic mice. The studies showed that these fully differentiated SC-islets can be delivered intramuscularly with robust function and without the need for bioscaffolding. Reversal of hyperglycemia was cell dose dependent, and efficacy was observed with all tested doses.

About Sana's Hypoimmune Platform
Sana's proprietary hypoimmune platform is designed to create cells *ex vivo* that can "hide" from the patient's immune system to enable the transplant of allogeneic cells without the need for immunosuppression. We are applying 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 from a variety of cell types demonstrate that these transplanted allogeneic cells can evade both the innate and adaptive arms of the immune system while retaining their function. Our most advanced programs using hypoimmune technology include our allogeneic CAR T program targeting CD19+ cancers (SC291), our allogeneic CAR T program targeting CD22+ cancers (SC262), our allogeneic CAR T program targeting BCMA+ cancers (SC255), and our stem-cell derived pancreatic islet cell program for patients with type 1 diabetes (SC451).

About Sana's Fusogen Platform
Sana's proprietary fusogen platform is designed to optimize *in vivo* cell specific delivery of genetic material. Our goal is to be able to repair and control genes in cells. Engineering cells *in vivo* requires the development of both an appropriate delivery vehicle, as well as an active component to effectively modify the target cell. Fusogens are naturally occurring cell-targeting proteins. Sana reengineers these proteins to target specific cell surface receptors, enabling cell-specific delivery to many different types of cells. The platform was developed to deliver an active component to any cell in a specific, predictable, and repeatable way. This technology is the backbone of Sana's *in vivo* delivery platform and is incorporated into various product candidates, including SG299, a CD8-targeted fusosome that delivers a CD19 CAR to target CD19+ cancer cells.

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 pre-clinical, clinical, and regulatory development plans and timing expectations, including regarding clinical data and the potential impact thereof; the potential ability of HIP-modified cells to serve as a universal off-the-shelf therapy that provides long-term durability of response without immunosuppression; the potential ability of intramuscular administration to serve as a preferred administration route for patients; and the potential capabilities, benefits, and impact of the hypoimmune platform, including the potential ability to create cells *ex vivo* that can "hide" from the patient's immune system to enable the transplant of allogeneic cells without the need for immunosuppression, and the fusogen platform, including the potential ability to repair and control genes in cells and deliver an active component to any cell in a specific, predictable, and repeatable way. 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, as well as economic, market, and social disruptions, including due to the COVID-19 public health crisis. 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 Securities and Exchange Commission (SEC) reports, including but not limited to its Quarterly Report on Form 10-Q dated May 8, 2023. Except as required by law, the Company undertakes no obligation to update publicly any forward-looking statements for any reason.

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