Poseida Therapeutics Hosts Cell Therapy R&D Day Highlighting Its Innovative Clinical and Preclinical Pipeline

Emerging leadership in allogeneic CAR-T for hematologic malignancies demonstrated by recent P-BCMA-ALLO1 Phase 1 data and new preclinical findings for P-CD19CD20-ALLO1 and P-CD70-ALLO1

Latest preclinical data on P-BCMACD19-ALLO1 demonstrates its potential as a next-generation allogeneic T_{SCM}-rich CAR-T for both autoimmune diseases and oncology

Advancing innovative strategies to overcome the unique challenges of applying CAR-T to solid tumors

Virtual R&D Day featuring partner Astellas Pharma and Poseida's leadership and scientific teams to be held today at 10:00am ET / 7:00am PT

SAN DIEGO, Nov. 14, 2024 /PRNewswire/ -- Poseida Therapeutics, Inc. (Nasdaq: PSTX), a clinical-stage allogeneic cell therapy and genetic medicines company advancing differentiated non-viral treatments for patients with cancer, autoimmune and rare diseases, today announced plans to share progress across its clinical- and earlier-stage pipeline of differentiated T stem cell memory cells (T_{SCM})-rich allogeneic CAR-T therapies in oncology and autoimmune diseases during a virtual R&D Day to be held today at 10:00am ET / 7:00am PT.

"We believe Poseida is well positioned to be a cell therapy leader based on the unique capabilities of our proprietary non-viral technology platform and our allogeneic T_{SCM}-rich CAR-T approach," said Kristin Yarema, Ph.D., President and Chief Executive Officer of Poseida Therapeutics. "We are organizing our pipeline around three pillars – hematologic malignancies, solid tumors and autoimmune diseases – with multiple candidates in each that give us a wide range of opportunities. In the emerging field of cell therapy for autoimmune diseases, we are optimistic that our platform can build upon the early success seen with autologous CAR-T by offering an off-the-shelf option that would expand accessibility and address the potential drivers of relapse with more complete B cell depletion."

"Building on the advantages of our non-viral allogeneic T_{SCM}-rich approach, we are implementing several advanced technologies aimed at bringing the benefits of CAR-T therapy to patients with solid tumors," said Devon J. Shedlock, Ph.D., Chief Scientific Officer, Cell Therapy at Poseida Therapeutics. "This includes our collaboration with Astellas, which brings together the unique technologies from both companies to create a new class of CAR-T, *convertible*CARs®, which employs multi-antigen targeting and other enhancements to improve CAR-T potency and persistence."

The event will feature presentations by members of Poseida's management team and will include a fireside chat with Peter Sandor, M.D., EVP and Head of Corporate Strategy at Astellas Pharma, that will cover the research collaboration and license agreement between Xyphos Biosciences, Inc., (a wholly owned subsidiary of Astellas, "Xyphos") and Poseida to develop novel *convertible*CAR® programs by combining the innovative cell therapy platforms from each of the companies. Poseida management will participate in a Q&A session at the end of the program.

Cell therapy technology platform: Poseida has built a full set of non-viral capabilities to design and develop allogeneic, T_{SCM}-rich CAR-T therapies. T_{SCM} cells are considered ideal for CAR-T therapy because they are long-lived, multi-potent and self-replicating, with the potential for an improved safety and efficacy profile. This compares to other approaches, which either use a different cell type or drive T cell differentiation (and therefore less stemness) as part of the process to manufacture the CAR-T cells. The key elements of Poseida's approach include:

- **Non-viral, transposon-based gene insertion system** preferentially integrates genes into naïve and T_{SCM} cells, with a high cargo capacity that allows for adding multiple genes to enhance functionality and add safety features
- **Cas-CLOVER gene editing system** preserves the T_{SCM} cell type and operates effectively in resting T cells. It offers approximately 25-times greater fidelity than CRISPR-Cas9, supporting improved safety and quality
- **Wholly-owned, onsite GMP manufacturing facility** positioned to serve discovery through commercial needs across the Company's pipeline. The Company's Booster Molecule has enabled a scalable, lower cost manufacturing approach with the proven ability to generate cell yield up to over 100 doses per batch

Emerging leadership in allogeneic CAR-T for hematologic malignancies: Poseida will provide an overview of recently reported interim Phase 1 results for P-BCMA-ALLO1, its lead CAR-T program targeting BCMA for the treatment of multiple myeloma. New preclinical data suggest that P-BCMA-ALLO1 effectively targets mutations that are known to arise in patients with relapse after prior anti-BCMA therapies. P-BCMA-ALLO1 is part of Poseida's collaboration with Roche and is currently enrolling a Phase 1b dose expansion study, which will be outlined in the presentation. In addition, the Company will highlight its emerging pipeline programs for hematologic malignancies:

- **P-CD19CD20-ALLO1** is the Company's first dual CAR-T program targeting CD19 and CD20 for the treatment of B-cell malignancies in collaboration with Roche. New preclinical data demonstrate that P-CD19CD20-ALLO1 delivers high in vitro potency and strong in vivo antitumor activity for either CD19 or CD20 single-positive target cells, as well as double-positive targets. A Phase 1 clinical trial is enrolling patients with selected B-cell malignancies, with initial clinical data anticipated in 2025. Additional information about the trial is available at www.clinicaltrials.gov using identifier: NCT06014762.
    - Beyond hematologic malignancies, preclinical data also demonstrate robust in vitro activity against patient-derived B cells across multiple autoimmune diseases
- **P-CD70-ALLO1** is a preclinical program targeting CD70 for the treatment of diseases including acute myeloid leukemia (AML). New preclinical data demonstrate P-CD70-ALLO1's robust anti-AML effect, with no toxicity to hematopoietic stem cells. In addition, there is a growing body of clinical and preclinical evidence that targeting CD70 with cell therapy may be an effective treatment for solid tumors. Roche has an option to add this as a potential new program to the collaboration

Expanding allogeneic T_{SCM}-rich CAR-T to autoimmune disease: Poseida's cell therapy technology platform has the potential to create CAR-T therapies designed to address the challenges with existing emerging approaches to applying cell therapy to autoimmune disease, including autologous CAR-T, in vivo CAR-T and T cell engagers. The Company's lead program for autoimmune disease is P-BCMACD19-ALLO1, a dual CAR-T targeting BCMA and CD19. New preclinical data demonstrate P-BCMACD19-ALLO1's potential in both autoimmune disease and oncology:

- Demonstrated robust in vitro killing of patient-derived B cells across multiple autoimmune diseases, including rheumatoid arthritis (RA), systemic lupus erythematosus (SLE) and multiple sclerosis (MS), which collectively affect more than 5 million people in the U.S.
- Achieved dose-dependent depletion of primary human B cells in a humanized mouse model generated with human CD34+ cells
- Effectively eliminated primary human CD81+CD19+ multiple myeloma progenitor cells from patient bone marrow samples, addressing cells associated with relapse where BCMA-only targeted therapies were ineffective
- Demonstrated ability of P-BCMACD19-ALLO1 and P-BCMA-ALLO1 to kill tumor cells expressing known mutant forms of BCMA, which are linked to relapse in patients treated with autologous CAR-T and bispecific T cell engager therapies directed at BCMA

Poseida is conducting IND-enabling studies for P-BCMACD19-ALLO1 and plans to file one or more INDs for an autoimmune disease indication with the U.S. Food and Drug Administration.

Addressing historical barriers for CAR-T in solid tumors through a broad array of bold, innovative technologies enabled by the Company's platform: There are currently no CAR-T therapies approved for solid tumors, with several key factors believed to be roadblocks: 1) antigen heterogeneity; 2) differing lymphodepletion needs compared to hematologic malignancies to enable CAR-T cell engraftment, tracking, and infiltration; 3) on-target off-tumor toxicity; and 4) hostile tumor microenvironment. Poseida is approaching these challenges with a suite of technologies across multiple solid tumor programs:

- **P-MUC1C-ALLO1** is Poseida's lead solid tumor CAR-T program targeting MUC1-C, a membrane protein overexpressed in many epithelial cancers. A Phase 1 clinical trial is enrolling patients with treatment-resistant breast, ovarian, colorectal and other solid tumors, with ongoing exploration of P-MUC1C-ALLO1 dosing and lymphodepletion regimens. A clinical data update is planned for the European Society for Medical Oncology Immuno-Oncology Congress 2024 (ESMO-IO) taking place in Geneva December 11-13, 2024. A patient case study from the Phase 1 trial demonstrated a 42% decrease in paraesophageal lymph node size with prolonged stable disease for nearly a year in a heavily pretreated appendiceal carcinoma patient. New preclinical data suggest adding low-dose methotrexate to standard lymphodepletion may enhance CAR-T expansion and persistence
- **P-PSMA-ALLO1** is a preclinical program targeting PSMA for prostate cancer. In preclinical models, P-PSMA-ALLO1's dual CAR format showed superior in vivo anti-tumor activity and cytotoxicity compared to single and tandem binder CAR-Ts
- Poseida and Xyphos are developing **allogeneic *convertible*CARs® for solid tumors**, combining Poseida's allogeneic CAR-T_{SCM} platform with Xyphos' ACCEL™ technology to create controlled, long lasting, and highly active CAR-T therapies. New preclinical data shows positive results for an allogeneic *convertible*CAR-T_{SCM} targeting universal inert natural killer group 2 member D receptor (iNKG2D), paired with a solid tumor antigen-targeting MicAbody™. Poseida and Xyphos are working to optimize this *convertible*CAR® and MicAbody™ pairing, and other platform technologies designed to maximize potency and persistence
- Poseida will highlight its **allogeneic CAR-TCR-T cells** to address antigen heterogeneity in solid tumors. The Company recently presented new preclinical data demonstrating enhanced potency to better target solid tumors at the Society for Immunotherapy of Cancer (SITC) 39th Annual Meeting. Preclinical data highlight the potential of a combination of CAR-TCR-T cell treatment followed by a T cell engager (TCE). In this model, MUC1C-CAR and NY-ESO-1-TCR T cells effectively controlled a primary tumor (MUC1C+/NY-ESO-1+/CD70-), and later were reactivated and re-directed by a CD70 TCE to control challenge by a secondary tumor (MUC1C-/NY-ESO-1-/CD70+)

In-house manufacturing to support Poseida's broad cell therapy pipeline: the Company will highlight the capabilities of its GMP facility and team, including:

- New data demonstrated high-purity apheresis across different healthy donors, with consistency in CAR-T manufacturing (cellular expansion, gene editing, final phenotype) across collections from the same donor
- Future manufacturing platform enhancement opportunities including AI-assisted donor screening to improve efficiency; improving electroporation unit operations to improve gene editing efficiency and subsequent cell health; and leveraging dynamic bioreactor environments to increase yields

Video Webcast and Replay
This virtual event and access to the live webcast is available through the following registration link: https://wsw.com/webcast/cc/pstx7/1467684.

Registration for this virtual event and access to a replay of the live webcast will be available on the Investors & Media section of www.poseida.com. A replay of the webcast will be available for approximately 90 days following the presentation.

About Poseida Therapeutics, Inc.
Poseida Therapeutics is a clinical-stage biopharmaceutical company advancing differentiated allogeneic cell therapies and genetic medicines with the capacity to cure. The Company's pipeline includes investigational allogeneic CAR-T cell therapies for hematologic cancers, autoimmune diseases, and solid tumors, as well as investigational in vivo genetic medicines that address patient populations with high unmet medical need. The Company's approach is based on its proprietary genetic editing platforms, including its non-viral transposon-based DNA delivery system, Cas-CLOVER™ Site-Specific Gene Editing System, Booster Molecule and nanoparticle gene delivery technologies, as well as in-house GMP cell therapy manufacturing. The Company has formed strategic collaborations with Roche and Astellas to unlock the promise of cell therapies for cancer patients. Learn more at www.poseida.com and connect with Poseida on X and LinkedIn.

Forward-Looking Statements
Statements contained in this press release regarding matters that are not historical facts are "forward-looking statements" within the meaning of the Private Securities Litigation Reform Act of 1995. Such forward-looking statements include statements regarding, among other things, expected plans with respect to clinical trials, including timing of clinical data updates; anticipated timelines and milestones with respect to the Company's development programs and manufacturing activities and capabilities; the potential capabilities and benefits of the Company's technology platforms and product candidates, including the efficacy and safety profile of such product candidates; the quotes from Drs. Yarema and Shedlock; and the Company's plans

and strategy with respect to developing its technologies and product candidates. Because such statements are subject to risks and uncertainties, actual results may differ materially from those expressed or implied by such forward-looking statements. These forward-looking statements are based upon the Company's current expectations and involve assumptions that may never materialize or may prove to be incorrect. Actual results could differ materially from those anticipated in such forward-looking statements as a result of various risks and uncertainties, which include, without limitation, the fact that interim data from the Company's clinical trials may change as more patient data become available and remain subject to audit and verification procedures that could result in material differences from the final data; the Company's reliance on third parties for various aspects of its business; risks and uncertainties associated with development and regulatory approval of novel product candidates in the biopharmaceutical industry; the Company's ability to retain key scientific or management personnel; the Company's ongoing and planned clinical trials; risks and uncertainties associated with conducting clinical trials; competition in the Company's target markets; whether any of the Company's product candidates will be shown to be effective or safe; the Company's ability to finance continued operations; the fact that the Company will have limited control over the efforts and resources that its collaborators devote to advancing development programs under their respective collaboration agreements; the fact that the Company may not receive the potential fees, reimbursements and payments under the collaboration agreements; the ability of the Company's collaborators to early terminate the collaboration, such that the Company may not fully realize the benefits of the collaborations; and the other risks and uncertainties described in the Company's filings with the Securities and Exchange Commission. All forward-looking statements contained in this press release speak only as of the date on which they were made. The Company undertakes no obligation to update such statements to reflect events that occur or circumstances that exist after the date on which they were made, except as required by law.

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