Poseida Therapeutics Presents New Case Study Demonstrating Reactivation of CAR-T Therapy with a T-Cell Engager in a Patient with Relapsed Multiple Myeloma

Reactivation of P-BCMA-101 CAR-T cells and a repeat stringent complete response (sCR) more than 3 years after original CAR-T therapy

Demonstrates potential of stem cell memory T cells (T_{SCM}), a key differentiator for Poseida's CAR-T programs

SAN DIEGO, Sept. 4, 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 and rare diseases, highlighted new data from a case study of a patient with relapsed multiple myeloma treated in a clinical trial of P-BCMA-101, the Company's original investigational T stem cell memory (T_{SCM})-rich BCMA targeting autologous CAR-T cell therapy. The data were presented in an oral session at the Society of Hematologic Oncology (SOHO) Twelfth Annual Meeting in Houston.

"This case study demonstrates the remarkable potential of T stem cell memory-based therapies, providing a strong anti-myeloma response with a long-term remission and notably CAR-T cell persistence," said Thomas G. Martin, M.D., Clinical Professor of Medicine, Adult Leukemia and Bone Marrow Transplantation Program and Director of Hematology, Blood and Marrow Transplantation and Cellular Therapy at UCSF, and co-leader of the Cancer Immunology & Immunotherapy Program at the UCSF Helen Diller Family Comprehensive Cancer Center. "Most notably, we believe this is the first time that a T-cell engager has been seen to reactivate a CAR-T therapy, and the evidence suggests that this reactivation drove a second wave of CAR-T cell proliferation that led to another complete response three years after the initial successful CAR-T treatment. This patient is now off all anti-myeloma treatments and living in remission for more than nine months following 1 week of TCE therapy, a truly amazing outcome."

"These patient clinical data demonstrate the power of T_{SCM} CAR-T cells, which are a core element of all our investigational next-generation, off-the-shelf allogeneic CAR-T cell therapies," said Syed Rizvi, M.D., Chief Medical Officer of Poseida Therapeutics. "P-BCMA-101 demonstrated durable persistence due to the high T_{SCM} content in the final product. This long-term persistence and engraftment led to activation by the TCE several years after initial CAR-T therapy. The high T_{SCM} content and durable persistence is a unique feature of all autologous and allogeneic Poseida CAR-T."

Background Information and Oral Presentation Highlights

Patients with relapsed/refractory multiple myeloma who receive BCMA-directed CAR-T therapy can achieve deep and durable remissions, but most patients relapse. Detection of CAR-positive cells wanes rapidly over the first six months, and significant re-expansion of CAR-T cells has not been demonstrated previously in the clinical setting.

In this case study, a 57-year-old female patient with relapsed multiple myeloma received P-BCMA-101, an investigational T_{SCM}-rich autologous CAR-T therapy. T_{SCM} cells are a subset of T cells that have unique properties: They are long-lived, multi-potent and self-replicating and can engraft and create differentiated cells.

Two months after receiving treatment, the patient achieved a partial response that deepened into a stringent complete response and remained in remission for nearly 2 years (22.5 months). More than three years after receiving P-BCMA-101, she relapsed and was treated with one cycle of talquetamab, a T-cell engaging bispecific antibody that targets CD3 and GPRC5D. Upon receiving talquetamab, the patient developed a brisk lymphocytosis. Evaluation of peripheral blood revealed high levels of P-BCMA-101 CAR-T cells. Thorough molecular analysis revealed that the lymphocytosis was benign and reactive. The patient achieved complete remission with slow resolution of lymphocytosis. The patient continues to be in sCR and off all therapy more than nine months after receiving the last and only full dose of the T-cell engaging therapy.

Poseida's lead investigational allogeneic CAR-T program, P-BCMA-ALLO1, is currently being evaluated in patients with relapsed/refractory multiple myeloma. The Company will report new clinical data at the International Myeloma Society 21st Annual Meeting, which is being held in Rio de Janeiro from September 25-28, 2024. Additional P-BCMA-ALLO1 clinical updates are planned for the second half of 2024, subject to coordination with Roche, which has a strategic collaboration with Poseida covering multiple investigational allogeneic CAR-T therapies targeting blood cancers, including P-BCMA-ALLO1.

In November 2022, Poseida made the strategic decision to transition its cell therapy focus from an autologous to an allogeneic approach. The Company believes the future of cell therapy and its ability to offer new treatment options lies in an allogeneic approach in which T cells are derived from healthy donors rather than from the patients themselves. Poseida has applied learnings from its autologous programs to support the development of its allogeneic pipeline.

About P-BCMA-ALLO1

P-BCMA-ALLO1 is an investigational allogeneic CAR-T therapy licensed to Roche that targets B-cell maturation antigen (BCMA) for the treatment of patients with relapsed/refractory multiple myeloma. This allogeneic program includes a VH-based binder that targets BCMA. Phase 1 clinical data presented at ASH 2023 supports the Company's belief that T_{SCM}-rich allogeneic CAR-Ts have the potential to offer an effective, safe and reliable treatment addressing unmet needs in multiple myeloma. The U.S. Food and Drug Administration granted Orphan Drug Designation to P-BCMA-ALLO1 for the treatment of multiple myeloma. Additional information about the Phase 1 study is available at www.clinicaltrials.gov (NCT04960579).

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 certain cancers and rare diseases. The Company's pipeline includes investigational allogeneic CAR-T cell therapies for both solid tumors and hematologic cancers 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 piggyBac® 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 regulatory submissions and approvals and 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, safety and reliability profile of such product candidates; the quotes from Drs. Martin and Rizvi; 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 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; and the other risks 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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