Poseida Therapeutics Presents Preclinical Data Demonstrating Multiple Therapeutic Advantages from BCMA-Specific CAR-T Program at American Association for Cancer Research Annual Meeting

SAN DIEGO, April 4, 2017 – Poseida Therapeutics Inc. ("Poseida"), a San Diego-based company translating best-in-class gene editing technologies into lifesaving therapeutics, today announced preclinical data from the company's B-cell maturation antigen (BCMA)-specific chimeric antigen receptor CAR T-cell (CAR-T) drug candidate, referred to as P-BCMA-101. Data demonstrated potent and persistent anti-tumor activity, elimination of tumors following relapse without re-administration of drug and prolonged survival compared to other BCMA CAR-T agents in the same preclinical model. Poseida plans to initiate a Phase 1 clinical trial of P-BCMA-101 for the treatment of patients with relapsed or refractory multiple myeloma in 2017. These data were presented today at the American Association for Cancer Research (AACR) 2017 Annual Meeting.

"CAR-T therapies have been extremely effective in treating acute lymphoblastic leukemia and have shown promise against multiple myeloma, however relatively poor potency and durability continue to limit their efficacy," said Eric Ostertag, M.D., Ph.D., chief executive officer of Poseida. "In our recent study being presented at AACR, we report significant improvements in potency and durability with our P-BCMA-101 CAR-T product compared to results typically seen with competitors' products in a preclinical multiple myeloma model, made possible by our advanced T-cell engineering capabilities that create multiple desirable attributes in CAR-expressing T cells."

P-BCMA-101 employs a BCMA-specific Centyrin™ binding domain and is engineered using a non-viral gene delivery system called piggyBac™ DNA Modification System. Centyrins™ are fully human, more stable and potentially less immunogenic than commonly used rodent antibody-derived binding domains. In addition, piggyBac™ eliminates the need to use lentivirus or gamma-retrovirus as a gene delivery mechanism, resulting in improved manufacturing and cost savings.

Key findings from the study include:

Potent anti-tumor activity: P-BCMA-101 treatment reduced tumor burden to the limit of detection within 7 days. Conversely, all untreated controls succumbed to disease within four weeks.

Persistent and durable response: P-BCMA-101 expands and persists in treated mice, eliminated tumor following relapse and prolonged survival with most treated mice surviving 110 days and no animals dying from tumor burden during the study. This compares favorably to lentivirus-based products that have shown only ~50 day survival in the same model.

Significant T-cell memory: Greater than 70% of P-BCMA-101 cells possessed a stem cell memory phenotype (SCM), a highly desirable characteristic for CAR-T therapies, creating a significant population of self-renewing multipotent progenitors capable of reconstituting the entire spectrum of memory and effector T cell subsets required to prevent cancer relapse. Similar competitor products typically report 0-20% SCM phenotype.

High concentration of P-BCMA-101 modified T-cells: P-BCMA-101 was enriched with more than 95% of T-cells successfully modified, which compares favorably to the roughly 30-50% commonly expected with clinical manufacture using lentivirus.

No T-cell exhaustion observed: P-BCMA-101 did not exhibit effects of CAR-mediated tonic signaling, a common cause of T-cell exhaustion that leads to poor durability. Tonic signaling is caused by

oligomerization of unstable binding domains commonly seen with traditional single-chain variable fragment CARs.

The AACR poster, titled “PiggyBac-manufactured anti-BCMA Centyrin-based CAR-T therapeutic exhibits improved potency and durability,” is available on the publications page of Poseida’s website at www.poseida.com/publications.

About Poseida Therapeutics, Inc.

Poseida Therapeutics is translating best-in-class gene editing technologies into lifesaving treatments. The company is developing CAR T-cell immunotherapies for multiple myeloma and other cancer types, as well as gene therapies for orphan diseases. Poseida has assembled a suite of industry-leading gene editing technologies, including the piggyBac™ DNA Modification System, XTN™ TALEN and NextGEN™ CRISPR site-specific nucleases, and Footprint-Free™ Gene Editing. For more information, visit www.poseida.com.

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