Poseida Therapeutics Presents Preclinical Solid Tumor Data for P-PSMA-101 at the American Association for Cancer Research Prostate Cancer Meeting

SAN DIEGO, Dec. 05, 2017 (GLOBE NEWSWIRE) -- Poseida Therapeutics Inc. (“Poseida”), a San Diego-based company translating best-in-class gene engineering technologies into lifesaving cell therapies, today presented preclinical data on P-PSMA-101, the company’s PSMA-specific chimeric antigen receptor T cell (CAR-T) stem cell memory drug candidate for the treatment of prostate cancer. P-PSMA-101 demonstrated potent anti-tumor efficacy, a persistently high percentage of the highly desirable stem cell memory T-cell subtype (Tscm) and no detectable tonic signaling or T-cell exhaustion. Additionally, researchers found that P-PSMA-101-modified T-cells persisted even after tumor elimination beyond detectable levels. The study was selected for oral presentation today at the American Association for Cancer Research Prostate Cancer: Advances in Basic, Translational, and Clinical Research meeting in Orlando, Florida.

P-PSMA-101 was evaluated in two distinctive models of prostate cancer in immune deficient mice. The first utilized an androgen-sensitive human prostate adenocarcinoma cell line, called LNCaP, administered subcutaneously as a solid tumor. The second evaluated anti-tumor efficacy in a bone metastasis model using an androgen insensitive human prostate cell line called PC3.hPSMA. Both studies also compared P-PSMA-101 with a version of a traditional single-chain variable fragment (scFv)-based anti-PSMA CAR-T (J591) that has been tested clinically.

“In addition to decreasing the tumor burden below detectable levels, P-PSMA-101 persisted in the peripheral blood with greater than 70% of T-cells exhibiting a Tscm phenotype,” said Eric Ostertag, M.D., Ph.D., founder and CEO at Poseida. “We are encouraged that P-PSMA-101 anti-tumor potency against PC3, a cell line engineered to express human PSMA, was seen at a dose three times lower than a comparable anti-PSMA CAR-T binder in clinical development. Furthermore, P-PSMA-101 reduced LNCaP tumor, a naturally PSMA-expressing cell line, to below the limit of detection whereas J591 did not significantly control tumor burden. These findings in a solid tumor model are consistent with the finding we’ve seen with our anti-BCMA program in hematologic cancers.”

Poseida’s CAR-T modifications are engineered using its proprietary piggyBac™ non-viral gene delivery system and fully-human Centyrin™ binding domain, which enables a streamlined and scalable manufacturing process that does not employ viruses, cytokines or magnetic beads and consistently produces high concentrations of modified T-cells necessary to treat patients. This process yields an exceptionally high percentage (>70%) of the highly desirable Tscm phenotype, an early memory population that correlates with complete responses in CD19 CAR-T cell clinical trials. In contrast, competitor products typically report 0-20% Tscm cells.

Key findings include:

- **Potent anti-tumor activity:** Low dose P-PSMA-101 treatment reduced LNCaP and PC3.hPSMA tumor burden to the limit of detection for 30 or 42 days, the duration of the respective studies. Conversely, J591 did not significantly control tumor burden at the same dose in either study.
- **Persistent and durable response:** P-PSMA-101 gives rise to differentiated effector T-cells and persists in treated mice. Once the tumor was completely eliminated, P-PSMA-101 then contracted, yet persisted with the majority of T-cells exhibiting a Tscm subtype.
- **No T-cell exhaustion observed:** P-PSMA-101 did not exhibit effects of CAR-mediated tonic signaling, a common cause of T-cell exhaustion that may lead to poor durability. Tonic signaling is caused by oligomerization of unstable binding domains commonly seen with traditional scFv CARs.

Similar unprecedented efficacy was seen in preclinical models with Poseida’s lead therapeutic, P-BCMA-101, an autologous CAR-T therapy for multiple myeloma, which is also comprised of predominantly stem cell memory T-cells and is currently being tested in a Phase I clinical trial.

The presentation titled “PSMA-specific CARTyrin T-Stem Cell Memory Therapy Eliminates Solid Tumor in Subcutaneous Prostate Cancer Model” by Jenessa B. Smith, Ph.D., Research Scientist at Poseida, takes place today December 5, 2017, from 10:30 a.m. -12:30 p.m. ET at the American Association for Cancer Research Prostate Cancer: Advances in Basic, Translational, and Clinical Research meeting in Orlando, Florida.

About P-PSMA-101
P-PSMA-101 is a CAR-T immunotherapy designed to supercharge a patient’s own T-cells to safely and effectively eliminate tumor cells carrying prostate-specific membrane antigen (PSMA), which is expressed on the majority of prostate cancer cells. P-PSMA-101 employs a PSMA-specific Centyrin™ binding domain and is engineered using a non-viral gene delivery system called the piggyBac™ DNA Modification System, which leverages the technology’s capability to deliver 30 times more cargo than traditional virus-based CAR-T cell modification systems. P-PSMA-101 has demonstrated potent anti-tumor activity, persistent and durable response, significant T stem cell memory, a high concentration of P-PSMA-101 modified T-cells and no T-cell exhaustion. A unique feature of P-PSMA-101 and other Poseida CAR-T products is their exceptionally high percentage of stem cell memory T-cells, which has been shown in preclinical studies to lead to unprecedented durability of response without re-administration of treatment.

About Poseida Therapeutics Inc.
Poseida Therapeutics is translating best-in-class gene engineering technologies into lifesaving cell therapies. The company is developing CAR-T cell immunotherapies for multiple myeloma, prostate and other cancer types, as well as gene therapies for orphan diseases. P-BCMA-101 is Poseida’s lead CAR-T therapy currently in Phase 1 clinical development for the treatment of multiple myeloma. Poseida has assembled a suite of industry-leading gene engineering technologies, including the piggyBac™ DNA Modification System, XTN™ TALEN and NextGEN™ CRISP site-specific nucleases, and Footprint-Free™ Gene Editing (FFGE). For more information, visit www.poseida.com.

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