Achilles Therapeutics' New Immunogenicity Prediction Application of its AI-Powered PELEUS™ Platform Uniquely Identifies the Most Potent T Cell Antigens

May 10, 2023

- New AI module delivers a "Target-to-T cell" approach for revolutionizing the identification and prioritization of targets for personalized antigen approaches -

LONDON, May 10, 2023 (GLOBE NEWSWIRE) -- Achilles Therapeutics plc (NASDAQ: ACHL), a clinical-stage biopharmaceutical company developing AI-powered precision T cell therapies targeting clonal neoantigens to treat solid tumors, today announced that the Company's new AI application, trained with proprietary real-world data, outperformed current AI and non-AI state-of-the-art methods for neoantigen immunogenicity prediction in a recent analysis, enabling the identification of the most potent clonal neoantigens for personalized cancer therapies. Further details of this new capability of the Company's AI-powered PELEUS™ bioinformatics platform are expected to be presented at an upcoming scientific meeting.

Of the large numbers of neoantigens that are initially identified in a patient's tumor, only a fraction will yield T cell responses that can deliver clinical benefit. Achilles has developed an AI tool to enable the prospective identification of the most potent neoantigens. The new PELEUS™ neoantigen immunogenicity ranking module was trained and validated with data from over 10,000 neoantigens from *in-silico* identification through expansion and characterization of actual T cell clones. With this new tool, the PELEUS™ platform can accurately predict which neoantigens are most likely to generate a potent T cell response, supporting the potential implementation of the platform into the Company's ongoing TIL-based clinical programs in advanced non-small cell lung cancer (NSCLC) and melanoma, and into other modalities including clonal neoantigen cancer vaccines.

"We believe our 'Target-to-T Cell' approach will be fundamental to unlocking the potential of precision therapies from our own T cell approach with TIL-based clonal neoantigen-reactive T cells (cNeT) to personalized neoantigen approaches. We believe the key to accurate predictions, and thus the best neoantigens and related products, is training your AI system on the highest quality data sets," said **Dr Sergio Quezada, Chief Scientific Officer of Achilles Therapeutics.** "The superiority of our patent-protected PELEUS™ platform in predicting clinically relevant clonal neoantigens with this new AI module has transformational potential, as a focus on the most potent antigens should drive long term durable responses with a wide range of precision treatment modalities."

The analysis conducted by the Bioinformatics & Data Science Team at Achilles demonstrated that the PELEUS™ platform delivered significantly improved ranking performance when compared to currently used state-of-the-art methods as measured by "Receiver Operating Characteristic Area Under the Curve" (ROC AUC). ROC AUC evaluates the performance of a machine learning model to predict neoantigens that are confirmed *in vivo*. The PELEUS™ AI immunogenicity ranking tool was developed and trained using proprietary real-world data from patient material from Achilles' Material Acquisition Program (MAP), the ongoing CHIRON trial in patients with advanced NSCLC, and the THETIS trial in patients with recurrent or metastatic melanoma. Current AI methods are trained on publicly available data from sources such as the Immune Epitope Database (IEDB), a freely available resource funded by the National Institute of Allergy and Infection Disease (NIAID).

About Achilles Therapeutics

Achilles is a clinical-stage biopharmaceutical company developing AI-Powered precision T cell therapies targeting clonal neoantigens: protein markers unique to the individual that are expressed on the surface of every cancer cell. The Company has two ongoing Phase I/IIa trials, the CHIRON trial in patients with advanced non-small cell lung cancer (NSCLC) and the THETIS trial in patients with recurrent or metastatic melanoma. Achilles uses DNA sequencing data from each patient, together with its proprietary PELEUS™ bioinformatics platform, to identify clonal neoantigens specific to that patient, and then develop precision T cell-based product candidates specifically targeting those clonal neoantigens.

About PELEUS

PELEUS is a proprietary, AI-powered bioinformatics platform built and validated through exclusive access to TRACERx knowhow and genomics data. PELEUS uses sophisticated Bayesian statistical algorithms to distinguish which mutations, or neoantigens, in a patient's tumor are clonal or subclonal by analyzing DNA sequencing information from multiple tumor regions. Clonal neoantigens are protein markers that are present on all of an individual's cancer cells but are absent from healthy tissue, making them ideal cancer targets. The information from PELEUS provides the foundation for Achilles' VELOS manufacturing process to produce clonal neoantigen-reactive T cells, or cNeT.

About TRACERx

TRACERx (TRAcking Cancer Evolution through therapy (Rx)), led by Professor Charles Swanton at UCL, is one of the largest tumor evolution studies to generate deep sequencing multi-region and multi-time point genetic data from over 3,200 tumor samples from nearly 800 lung cancer patients. TRACERx has transformed the understanding of tumor evolution and has convincingly shown that tumors originate from a single cell that evolves in a Darwinian manner and the early (clonal) mutations are preserved in all subsequent primary and metastatic tumor cells. The study, which has generated numerous publications, uncovered important mechanisms of cancer evolution and immune evasion by analyzing genetic signatures in lung tumors and tracking how they evolve over time from diagnosis through to relapse. These findings provide the ability to identify a novel class of tumor markers called clonal neoantigens that are present on all tumor cells yet absent from healthy tissue, making them ideal cancer targets. TRACERx represents the largest investment in lung cancer research by Cancer Research UK and Achilles has exclusive commercial rights to the TRACERx

study data for development of neoantigen-targeting cell therapies and vaccines.

Forward Looking Statements

This press release contains express or implied forward-looking statements that are based on our management's belief and assumptions and on information currently available to our management. Although we believe that the expectations reflected in these forward-looking statements are reasonable, these statements relate to future events or our future operational or financial performance, and involve known and unknown risks, uncertainties and other factors that may cause our actual results, performance, or achievements to be materially different from any future results, performance or achievements expressed or implied by these forward-looking statements. The forward-looking statements in this press release represent our views as of the date of this press release. We anticipate that subsequent events and developments will cause our views to change. However, while we may elect to update these forward-looking statements at some point in the future, we have no current intention of doing so except to the extent required by applicable law. You should therefore not rely on these forward-looking statements as representing our views as of any date subsequent to the date of this press release.

Investors:
Meru Advisors
Lee M. Stern
ir@achillestx.com

Media:
Consilium Strategic Communications
Mary-Jane Elliott, Sukaina Virji, Melissa Gardiner
+44 (0) 203 709 5000
achillestx@consilium-comms.com