News Release

Aileron Therapeutics Presents New Data on ALRN-6924 in Oral Presentations at 2017 American Society of Hematology Meeting

Preclinical data show dual inhibition of MDM2 and MDMX restores p53 function

Data demonstrate strong anti-cancer effects in models of T-cell lymphomas and acute myeloid leukemia

ATLANTA, Dec. 11, 2017 (GLOBE NEWSWIRE) -- Aileron Therapeutics, the clinical-stage leader in the field of stapled peptides developing therapeutics for cancers and other diseases, today announced two oral presentations of preclinical data from collaborators on ALRN-6924 in T-cell lymphomas (TCL) and acute myeloid leukemia (AML). ALRN-6924, a stapled peptide therapeutic, is believed to be the first product candidate undergoing clinical evaluations that has been shown to disrupt both MDMX- and MDM2-mediated inhibition of the wild type p53 tumor suppressor gene. The data were reviewed in separate oral presentations by researchers from the Dana-Farber Cancer Institute and the Albert Einstein College of Medicine during the 2017 American Society of Hematology Annual Meeting.

“We are encouraged by these positive preclinical data from our collaborators, which demonstrate that dual inhibition by ALRN-6924 induces strong p53 activity that leads to anti-cancer effects,” said Dr. Manuel C. Aivado, Chief Medical Officer. “These data support the clinical results we saw in our Phase 1 all-comers trial, and we look forward to continuing to evaluate ALRN-6924 in our ongoing PTCL and AML clinical trials.”

TCL Study Highlights (Abstract #571)

In an *in vitro* and *in vivo* preclinical study, MDMX and MDM2 were evaluated as potential targets for treating wild type p53 T-cell lymphomas by using ALRN-6924 to inhibit their expression. The data showed that ALRN-6924 induced apoptotic cell

death in TCL lines, and significantly reduced tumor burden compared to the vehicle in animal models. Furthermore, ALRN-6924 had a favorable safety profile and demonstrated superior efficacy across multiple TCL subtypes compared to the current standard-of-care.

Commented David Weinstock, M.D. of Dana-Farber Cancer Institute, "Given the need for new treatment approaches for T-cell lymphomas, we evaluated ALRN-6924 in animal models and found that the compound's dual inhibition mechanism for restoring the function of p53 showed promising activity across multiple TCL subtypes, including PTCL. Animal models in our studies displayed key markers that demonstrated consistency with on-target p53 activation and apoptosis, supporting further clinical development of ALRN-6924 for PTCL." [i]

AML Study Highlights (Abstract #795)

The preclinical data presented showed that dual inhibition of MDMX and MDM2 by ALRN-6924 led to activation of p53-dependent pathways in AML cells. The disruption of MDMX/p53 and MDM2/p53 interactions resulted in strong anti-leukemic effects, and induced cell cycle arrest and apoptosis in cell lines and wild type p53 AML patients' cells. The compound exhibited strong on-target activity in AML cell lines and primary cells *in vitro*, as well as in a patient who received ALRN-6924. The data further demonstrated that ALRN-6924 showed superiority over MDM2-only inhibition, and led to improved survival in *in vivo* AML models.

"These results support our understanding that in most patients with acute myeloid leukemia, a devastating disease with limited therapeutic options, p53 is circumvented by activation of its natural suppressor proteins, MDMX and MDM2," said Ulrich Steidl, Ph.D., M.D. of the Albert Einstein College of Medicine. "The ability to reactivate the p53 pathway by inhibiting both MDMX and MDM2 using a novel therapeutic modality such as stapled peptides is an exciting new chapter in p53 research. The studies presented today strengthen the rationale for the use of ALRN-6924 in acute myeloid leukemia and other wild type p53 cancers." [ii]

About ALRN-6924

ALRN-6924 is a first-in-class product candidate designed to reactivate wild type p53 tumor suppression by disrupting the interactions between the two primary p53 suppressor proteins, MDMX and MDM2. Aileron believes ALRN-6924 is the first and only product candidate in clinical development that can equipotently bind to and disrupt the interaction of MDMX and MDM2 with p53. Based on preclinical data and preliminary evidence of safety and anti-tumor activity in its ongoing clinical trials, there may be a significant opportunity to develop ALRN-6924 as a

monotherapy or combination therapy for a wide variety of solid and liquid tumors. ALRN-6924 is currently being evaluated in multiple clinical trials for the treatment of acute myeloid leukemia (AML), advanced myelodysplastic syndrome (MDS) and peripheral T-cell lymphoma (PTCL). For information about its clinical trials, please visit www.clinicaltrials.gov.

About Aileron

Aileron is a clinical-stage biopharmaceutical company advancing stapled peptides, a novel class of therapeutics for cancers and other diseases. Stapled peptides are chemically stabilized alpha-helical peptides that are modified to improve their stability and cell penetrability while maintaining high affinity for large protein surfaces. Our goal is to use our proprietary stapled peptide drug platform to create first-in-class therapeutics, like ALRN-6924, that may be able to address historically undruggable targets and complex mechanisms that underlie many diseases with high unmet medical need. Our platform enables us to chemically stabilize and improve the performance and activity of a broad range of alpha-helical peptides that we believe can potentially activate and inhibit key cellular functions that are otherwise difficult to target with existing drug technologies, including small molecules and monoclonal antibodies. For more information, visit www.aileronrx.com.

Forward-looking Statements

Statements in this press release about Aileron's future expectations, plans and prospects, as well as any other statements regarding matters that are not historical facts, may constitute forward-looking statements within the meaning of The Private Securities Litigation Reform Act of 1995. These statements include, but are not limited to, statements about the company's cash forecast, the sufficiency of the Company's cash resources and the timing of clinical trial enrollments and data. The words "anticipate," "believe," "continue," "could," "estimate," "expect," "intend," "may," "plan," "potential," "predict," "project," "should," "target," "would" and similar expressions are intended to identify forward-looking statements, although not all forward-looking statements contain these identifying words.

Actual results may differ materially from those indicated by such forward-looking statements as a result of various important factors, including whether Aileron's cash resources will be sufficient to fund its continuing operations for the periods and/or trials anticipated; whether results obtained in preclinical studies and clinical trials will be indicative of results obtained in future clinical trials; whether Aileron's product candidates will advance through the clinical trial process on a timely basis, or at all; whether the results of such trials will warrant submission for approval

from the United States Food and Drug Administration or equivalent foreign regulatory agencies; whether Aileron's product candidates will receive approval from regulatory agencies on a timely basis or at all; whether, if product candidates obtain approval, they will be successfully distributed and marketed; and other factors discussed in the "Risk Factors" section of Aileron's quarterly report on Form 10-Q for the period ended September 30, 2017, filed on November 9, 2017, and risks described in other filings that Aileron may make with the Securities and Exchange Commission. Any forward-looking statements contained in this press release speak only as of the date hereof, and Aileron specifically disclaims any obligation to update any forward-looking statement, whether because of new information, future events or otherwise.

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