December 11, 2023

Atara Biotherapeutics Presents Positive Preclinical Data on ATA3431, A Next-Generation Allogeneic CD20/CD19-Targeted CAR, at the 65th ASH Annual Meeting

ATA3431 Preclinical Data Demonstrates Superior In Vivo Anti-tumor Activity, Survival, and Functional Persistence Compared to Autologous CAR-T Benchmark

No Observed Treatment-Related Toxicities or Alloreactivity

Data Supports Advancement Into IND-Enabling Studies

THOUSAND OAKS, Calif.--(BUSINESS WIRE)-- Atara Biotherapeutics, Inc. (Nasdaq: ATRA), a leader in T-cell immunotherapy, leveraging its novel allogeneic Epstein-Barr virus (EBV) T-cell platform to develop transformative therapies for patients with cancer and autoimmune diseases, today announced preclinical data on ATA3431, a next-generation allogeneic CD20/CD19-dual targeted chimeric antigen receptor (CAR) EBV T-cell therapy candidate. Findings support ATA3431 advancement into clinical testing, initially focused on the treatment of B-cell malignancies. The data will be presented in a poster presentation at the 65th American Society of Hematology (ASH) Annual Meeting taking place December 9-12, 2023, in San Diego.

“We’re very excited that ATA3431 is progressing towards an IND submission in 2025 with such a compelling and competitive profile,” said Cokey Nguyen, Ph.D., Executive Vice President, Chief Scientific & Technical Officer at Atara. “Our EBV T-cell technology is well validated with over 500 patients treated across our portfolio, and allogeneic EBV T-cell based CD19 targeting is further supported by long-term academic outcomes data with an earlier-generation allogeneic EBV CD19 T-cell construct.[1] Building on this robust experience, these preclinical findings provide strong proof-of-concept reinforcing the potential of ATA3431 as a best-in-class approach which we look forward to further evaluating in the clinic.”

ATA3431 is an allogeneic, bispecific CAR directed against CD20 and CD19, built on Atara’s EBV T-cell platform that does not require T-cell receptor (TCR) or human leukocyte antigen (HLA) gene editing. The design consists of a tandem CD20-CD19 design, with binders oriented to optimize potency. ATA3431 also incorporates the clinically validated 1XX costimulatory domain that enhances stemness and modulates exhaustion to extend functional persistence.

Compared to an autologous CD20/CD19 CAR-T benchmark, the ATA3431 preclinical data demonstrate potent antitumor activity, long-term persistence, and superior tumor growth

inhibition. Data highlights include:

- In functional evaluation, ATA3431 showed stable CAR expression with a predominantly CD8+ T-cell distribution. The 1XX signaling domain and optimized manufacturing process that enriches for a less differentiated phenotype yielded a high central memory population compared with autologous CD20/CD19 bispecific CAR-T cells, achieving consistent killing of CD20+ and/or CD19+ tumor cells following repeated *in vitro* challenges.

- ATA3431 demonstrated minimal alloreactivity against HLA mismatched targets due to the inherent ability of EBV T cells to recognize defined viral antigens. The cells also showed HLA-independent activity against CD20+/CD19+ targets *in vitro.*

- ATA3431 mediated highly potent tumor growth inhibition in a lymphoma animal model that correlates with long-term persistence without additional exogenous cytokine support.

- ATA3431 showed superior *in vivo* anti-tumor efficacy, survival, and functional persistence, in both CD19 high- and low-expressing lymphoma models, compared to autologous benchmark CAR-T cells with no observed treatment-related toxicities. This demonstrates ATA3431's potential to overcome antigen escape, which is hypothesized to be a major cause of treatment resistance or disease relapse with current CD19-targeted CAR-T treatment.

Separately, an academic study presented long-term follow-up data on heavily pre-treated patients infused with an earlier generation off-the-shelf CD19 targeted EBV CAR T-cell construct in B-cell lymphoma and acute lymphoblastic leukemia. Encouraging overall survival of up to three years was observed in 12 patients with relapsed/refractory B-cell malignancies after hematopoietic cell transplant (HCT) treated with 3rd party donor derived allogeneic EBV CD19 CAR T.[1]

ATA3431 Poster Presentation Details:

Title: ATA3431: Allogeneic CD19/CD20 Bispecific CAR EBV T-cells for the Treatment of B-Cell Malignancies

- **Presenting Author:** Seung Sarah Cha, PhD, Atara Biotherapeutics, Thousand Oaks, CA
- **Date & Time:** Monday, December 11, 2023, 6-8 p.m. PST
- **Abstract Number:** 4800
- **Poster Session:** 703. Cellular Immunotherapies: Basic and Translational: Poster III
- **Location**: San Diego Convention Center, Halls G-H

Next-Generation Allogeneic CAR-T Approach

Atara is focused on applying Epstein-Barr virus (EBV) T-cell biology, featuring experience in over 500 patients treated, and novel chimeric antigen receptor (CAR) technologies to meet the current limitations of autologous and allogeneic CAR therapies head-on by advancing a potential best-in-class CAR-T pipeline in oncology and autoimmune disease. Unlike gene-edited approaches aimed at inactivating T-cell receptor (TCR) function to reduce the risk for

graft-vs-host disease, EBV T cells maintain expression of native TCRs that promote in vivo functional persistence while also demonstrating inherently low alloreactivity due to their recognition of defined viral antigens and partial human leukocyte antigen (HLA) matching. A molecular toolkit of clinically-validated technologies—including the 1XX costimulatory domain designed for better cell fitness and less exhaustion while maintaining stemness—offers a differentiated approach to addressing significant unmet need with the next generation CAR T.

About Atara Biotherapeutics, Inc.

Atara is harnessing the natural power of the immune system to develop off-the-shelf cell therapies for difficult-to-treat cancers and autoimmune conditions, including multiple sclerosis, that can be rapidly delivered to patients within days. With cutting-edge science and differentiated approach, Atara is the first company in the world to receive regulatory approval of an allogeneic T-cell immunotherapy. Our advanced and versatile Epstein-Barr virus (EBV) T-cell platform does not require T-cell receptor or HLA gene editing and forms the basis of a diverse portfolio of investigational therapies that target EBV, the root cause of certain diseases, in addition to next-generation AlloCAR-Ts designed for best-in-class opportunities across a broad range of non-EBV-associated liquid and solid tumors. Atara is headquartered in Southern California. For more information, visit atarabio.com and follow @Atarabio on X (formerly known as Twitter) and LinkedIn.

Forward-Looking Statements

This press release contains or may imply "forward-looking statements" within the meaning of Section 27A of the Securities Act of 1933 and Section 21E of the Securities Exchange Act of 1934. For example, forward-looking statements include statements regarding the development, timing and progress of Atara's AlloCAR-T programs, including preclinical data for ATA3431, the potential characteristics and benefits of ATA3431, and a potential IND submission for ATA3431. Because such statements deal with future events and are based on Atara's current expectations, they are subject to various risks and uncertainties and actual results, performance or achievements of Atara could differ materially from those described in or implied by the statements in this press release. These forward-looking statements are subject to risks and uncertainties, including, without limitation, risks and uncertainties associated with the costly and time-consuming pharmaceutical product development process and the uncertainty of clinical success; the COVID-19 pandemic and the wars in Ukraine and the Middle East, which may significantly impact (i) our business, research, clinical development plans and operations, including our operations in Southern California and Denver and at our clinical trial sites, as well as the business or operations of our third-party manufacturer, contract research organizations or other third parties with whom we conduct business, (ii) our ability to access capital, and (iii) the value of our common stock; the sufficiency of Atara's cash resources and need for additional capital; and other risks and uncertainties affecting Atara's and its development programs, including those discussed in Atara's filings with the Securities and Exchange Commission , including in the "Risk Factors" and "Management's Discussion and Analysis of Financial Condition and Results of Operations" sections of the Company's most recently filed periodic reports on Form 10-K and Form 10-Q and subsequent filings and in the documents incorporated by reference therein. Except as otherwise required by law, Atara disclaims any intention or obligation to update or revise any forward-looking statements, which speak only as of the

date hereof, whether as a result of new information, future events or circumstances or otherwise.

[1]Shahid, S, et al. Long Term Follow-up after Treatment with Allogeneic Off-the-Shelf CAR T Cell Therapy for Relapsed or Refractory B-Cell Malignancies. Poster presented at American Society of Hematology; December, 11 2023; San Diego, CA.

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