December 9, 2021

Atara Biotherapeutics Announces Preliminary Results for ATA2271, a Next-Generation Autologous Mesothelin-targeted CAR T-cell Therapy for Solid Tumors, at ESMO Immuno-Oncology Congress 2021

ATA2271 targets difficult-to-treat solid tumors using proprietary 1XX CAR signaling and intrinsic PD-1 checkpoint inhibition technology

Ongoing Phase 1 dose-escalation trial in advanced mesothelioma shows promising early safety and persistence of armored CAR T cells in patients

SOUTH SAN FRANCISCO, 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 new preclinical and preliminary clinical results for ATA2271, a next-generation autologous chimeric antigen receptor (CAR) T-cell therapy targeting mesothelin (MSLN). These promising early safety and functional persistence data were presented by collaborators at Memorial Sloan Kettering Cancer Center as a mini-oral session at the European Society for Medical Oncology Immuno-Oncology (ESMO I-O) Congress 2021, in Geneva, Switzerland.

ATA2271 is an investigational, autologous, second-generation CAR-T immunotherapy that is designed to treat certain aggressive solid tumors, including malignant pleural mesothelioma (MPM). Even with successful completion of a combination of chemotherapy, aggressive surgical resection and radiation therapy, the median survival of treated patients in this report is only 9-17 months. ATA2271 incorporates Atara's novel inclusion of armoring, in the form of a PD-1 DNR construct, to overcome checkpoint inhibition and a 1XX costimulatory domain on the CAR to enhance expansion and functional persistence of the CAR T-cells.

"CAR T-cell therapies have made incredible in-roads in the treatment of hematological malignancies, but new technology and targeting approaches are needed to apply these gains to aggressive solid tumors," said Cokey Nguyen, Senior Vice President and Chief Scientific Officer at Atara. "We are extremely encouraged by these early data assessing ATA2271 in advanced mesothelioma from a first-in-human (FIH) Phase 1 study. Early findings represent the first report of CAR T cells persisting over four weeks in a solid tumor microenvironment without need for additional agents, such as checkpoint inhibitors."

As reported in the full abstract available on the ESMO website, results from the evaluation of ATA2271 demonstrate the safety, functional persistence and activation of the CAR T cells.

These studies, led by Prasad S. Adusumilli, MD, and collaborators at MSK provide both *in vitro* and *in vivo* evidence of the preclinical safety, improved functional characteristics and enhanced anti-tumor efficacy of ATA2271 and promising preliminary safety and persistence data in patients with MPM.

Specifically*, in vitro* functional studies show potent antitumor activity of ATA2271 following repeat antigen stimulation, with enhanced expansion observed in cells equipped with a PD-1 dominant negative receptor (PD1DNR) that provides T-cell intrinsic checkpoint blockade compared to CAR T-cells with a modified CD3z (1XX) alone. These data support the design of ATA2271, which expresses a dominant negative version of PD-1 receptor, to maintain function in the presence of suppressive checkpoint ligands commonly associated with solid tumor microenvironments. In addition, results further support the combination of next-gen CAR design (1XX) plus PD1 DNR armoring technology in differential enrichment of cytokine production involving cytokine signaling, effector immune responses, leukocyte activation and differentiation. Furthermore, *in vivo*, intrapleural administration of ATA2271 CAR T-cells in mice (n=8) eradicated mesothelioma and prolonged survival. Functional persistence of ATA2271 *in vivo* was evident by resistance to tumor reestablishment following 10 rechallenges.

In the ongoing Phase 1 dose finding study (NCT04577326), intrapleural administration of ATA2271 was found to be well-tolerated at lowest dose levels with no CAR T-cell related adverse events (AEs) of Grade >2 observed and no AEs of Grade >3 to date in the study. All four patients had received at least four prior lines of therapy. Importantly, ATA2271 CAR T-cells persisted in patients' peripheral blood for greater than four weeks and was associated with upregulated effector cytokines.

Mini-Oral Presentation Details:

Title: Promoting Functional Persistence in Solid Tumor CAR T-cell Therapy: Mesothelin-targeted CAR (M28z1XXPD1DNR) with T-cell Intrinsic PD1 Dominant Negative Receptor

- **Presenting Author:** Prasad S. Adusumilli, MD, FACS, Memorial Sloan Kettering Cancer Center, New York, NY
- **Date & Time:** Thursday, December 9, 2021, at 11:05 a.m. CET / 5:05 a.m. EST / 2:05 a.m. PST
- **Abstract Number:** 46MO
- **Session**: Mini Oral Session
- **Location**: Palexpo Congress Centre, Room C

About Atara's Mesothelin CAR T Franchise

Atara's preclinical pipeline is rapidly expanding with novel technologies and next-generation, multi-targeted CAR T immunotherapies through collaborations with Moffitt Cancer Center and Memorial Sloan Kettering Cancer Center.

In December 2020, Bayer and Atara announced an exclusive worldwide license agreement for next-generation, mesothelin-directed CAR T-cell therapies for the treatment of solid tumors. The agreement includes the development candidate ATA3271, an armored next generation allogeneic T-cell immunotherapy, and an autologous version, ATA2271, for the treatment of high mesothelin-expressing tumors such as malignant pleural mesothelioma

and non-small cell lung cancer.

Both ATA2271 and ATA3271 incorporate Atara's novel inclusion of armoring in the form of a PD-1 DNR construct to overcome checkpoint inhibition and a 1XX costimulatory domain on the CAR to enhance expansion and functional persistence of the CAR T-cells. ATA3271 leverages Atara's EBV T-cell platform and is currently in IND-enabling studies.

MSK Disclosures: Dr. Prasad S. Adusumilli has intellectual property interests and other financial interests related to Atara. MSK has intellectual property rights and associated interests by virtue of licensing agreements between MSK and Atara.

About Atara Biotherapeutics, Inc.

Atara Biotherapeutics, Inc. (@Atarabio) is a pioneer in T-cell immunotherapy leveraging its novel allogeneic EBV T-cell platform to develop transformative therapies for patients with serious diseases including solid tumors, hematologic cancers and autoimmune disease. With our lead program in Phase 3 clinical development, Atara is the most advanced allogeneic T-cell immunotherapy company and intends to rapidly deliver off-the-shelf treatments to patients with high unmet medical need. Our platform leverages the unique biology of EBV T cells and has the capability to treat a wide range of EBV-associated diseases, or other serious diseases through incorporation of engineered CARs (chimeric antigen receptors) or TCRs (T-cell receptors). Atara is applying this one platform, which does not require TCR or HLA gene editing, to create a robust pipeline including: tab-cel® in Phase 3 development for Epstein-Barr virus-driven post-transplant lymphoproliferative disease (EBV^+ PTLD) and other EBV-driven diseases; ATA188, a T-cell immunotherapy targeting EBV antigens as a potential treatment for multiple sclerosis; and multiple next-generation chimeric antigen receptor T-cell (CAR T) immunotherapies for both solid tumors and hematologic malignancies. Improving patients' lives is our mission and we will never stop working to bring transformative therapies to those in need. Atara is headquartered in South San Francisco and our leading-edge research, development and manufacturing facility is based in Thousand Oaks, California.

For additional information about the company, please visit atarabio.com and follow us on 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 timing and progress of its CAR T programs, including (i) the ATA2271 clinical trial, and preliminary clinical data (ii) ATA2271 preclinical development and preclinical data, (iii) the timing and progress of ATA3271; (iv) the strategic collaboration with Bayer for ATA2271 and ATA3271, and (v) Atara's ability to successfully advance the development of its CAR T programs; and (vi) Atara's ability to advance development of its programs. 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 ongoing COVID-19 pandemic, which may significantly impact (i) our business, research, clinical development plans and operations, including our operations in South San Francisco and Southern California 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 (SEC), 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.

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