October 13, 2021

Atara Biotherapeutics Presents New Magnetization Transfer Ratio Imaging Data and Two-Year Clinical Data from the Open Label Extension of ATA188 for Progressive Multiple Sclerosis at ECTRIMS 2021

Patients who Achieved Sustained Expanded Disability Status Scale (EDSS) Improvement at any Time Showed Significant Increase in Magnetization Transfer Ratio (MTR) from Baseline at 12 Months, Suggestive of Remyelination

7 of 8 Patients Achieving Sustained Disability Improvement (SDI) Maintained Improvement at all Subsequent Timepoints up to 33 Months, with Most SDI Responses Driven by EDSS

Interim Analysis from Randomized Phase 2 EMBOLD Study on Track for H1 2022

Conference Call and Webcast Today, October 13, 2021, at 8:30 a.m. EDT

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 translational data based on magnetization transfer ratio (MTR) and updated Phase 1 open-label extension (OLE) clinical data in patients with progressive multiple sclerosis (MS) treated with ATA188 for up to 39 months.

ATA188 is an investigational, off-the-shelf, allogeneic T-cell immunotherapy that targets Epstein-Barr virus (EBV)-infected B cells and plasma cells. Following treatment, Phase 1 clinical data indicate that ATA188 continues to be well-tolerated with no new safety findings in this patient population. Additionally, patients may achieve sustained disability improvement (SDI), with most driven by EDSS, at a higher rate and longer duration than would be expected based on the natural history of progressive MS, with MTR analysis providing evidence that structural changes suggestive of remyelination may be driving sustained EDSS improvements.

“There is growing robust evidence that EBV-infected B cells and plasma cells play a critical role in the pathogenesis of multiple sclerosis,” said AJ Joshi, MD, Chief Medical Officer at Atara. “These data on ATA188 in progressive MS, the population with highest unmet need, underscore the potential to halt or reverse disability progression by precisely targeting what may be a root cause of MS. Importantly, an increase in MTR imaging signal suggestive of remyelination was seen in patients that achieved sustained EDSS improvement which may provide a potential biological basis for the clinical improvements observed with ATA188

treatment."

Of 24 patients who received ATA188, and in which efficacy was evaluated in the initial 12-month period, 18 patients chose to participate in the OLE and were followed for up to 39 months as of August 2021. Efficacy from the 12-month dose escalation portion of the trial was previously reported.[1]

Of the 18 total patients in the OLE, nine patients achieved SDI either in the initial 12-month period (n=7) or in the OLE (n=2) and of these, seven patients had sustained EDSS improvement. A relationship between dose-escalation and increasing clinical response was observed, with seven of nine patients that achieved SDI receiving the two highest doses either initially or in the OLE versus two of nine receiving the two lower doses. Eight patients that achieved SDI participated in the OLE, and seven of these maintained SDI at all subsequent timepoints. The median time for which SDI was maintained in these eight patients was 18 months (range 0.03–27.0 months). One patient with secondary progressive multiple sclerosis (SPMS) who had achieved SDI experienced a non-treatment related relapse at 18 months, occurring approximately six months after the last ATA188 dose, and elected to discontinue the study. As of August 2021, inclusive of the OLE, no fatal adverse events, grade >3 events, dose-limiting toxicities, cytokine release syndrome, or graft versus host disease were observed.

In multiple sclerosis, a person's own immune system erroneously attacks the fatty layer of insulation (myelin) that helps nerve fibers in the central nervous system communicate with each other. MTR, a measure of myelin density, has emerged as a promising imaging biomarker of myelin loss (demyelination) or myelin repair (remyelination).

Patients treated with ATA188 who achieved sustained EDSS improvement, versus those who did not, showed a significant increase (p value: 0.0213) from baseline in MTR for nonenhancing T2 chronic brain lesions at 12 months, which may be indicative of remyelination. Compared to baseline, MTR increased at 12 months for nonenhanced T2 lesions and normal-appearing brain tissue in patients with sustained EDSS improvement (median change of 0.134 and 0.082 MTR units, respectively), whereas MTR remained unchanged in those patients without sustained EDSS improvement (median change of –0.030 and 0.005 MTR units, respectively). In general, a trend supporting a correlation between increase in MTR signal and improvement in EDSS score was observed across patients as early as six months.

"When a patient reaches a certain level of advanced disability, it is rare for them to naturally revert, and any improvement that is sustained would not be expected from the natural history of the disease," said Mark Freedman, MD, Professor of Neurology, University of Ottawa. "With progressive MS, spontaneous remyelination without therapeutic intervention is unlikely, highlighting the impact that these MTR data provide suggesting remyelination may be driving the prolonged sustained EDSS improvement."

In a separate ePoster, Atara also presented encore data profiling and evaluating the functionality and proliferation potential of ATA188 following antigen exposure. This comprehensive analysis of ATA188 lots produced from diverse human leukocyte antigen (HLA) donors demonstrates a robust manufacturing process showing consistent functional activation and productive effector responses.

Atara continues to enroll EMBOLD, a randomized, placebo-controlled Phase 2 clinical study of ATA188 in the treatment of patients with progressive MS, across clinical sites in the U.S. and Australia with a planned interim analysis in the first half of 2022.

Poster Presentation Details:

Title: Updated open-label extension clinical data and new magnetization transfer ratio imaging data from a Phase I study of ATA188, an off-the-shelf, allogeneic Epstein-Barr virus-targeted T-cell immunotherapy for progressive multiple sclerosis
Presenting Author: Douglas L. Arnold, MD, Montreal Neurological Institute, McGill University and NeuroRx Research, Montreal, Canada
Date & Time: Wednesday, October 13, 2021, at 16:45 CEST / 10:45 a.m. EDT / 7:45 a.m. PDT
Poster Session & Number: eP31 - Immunomodulation/Immunosuppression, P638

Title: Comprehensive profiling of ATA188, an off-the-shelf, allogeneic Epstein-Barr virus-specific T-cell immunotherapy for progressive multiple sclerosis
Presenting Author: Monica Moreno, Ph.D., Atara Biotherapeutics, Thousand Oaks, United States
Date & Time: Wednesday, October 13, 2021, at 16:45 CEST / 10:45 a.m. EDT / 7:45 a.m. PDT
Poster Session & Number: eP31 - Immunomodulation/Immunosuppression, P644

Atara Conference Call and Webcast Information

Additionally, the Company will hold a conference call on Wednesday, October 13 at 8:30 a.m. EDT / 5:30 a.m. PDT for analysts and investors to review the data that will be presented. The call will include:

- Pascal Touchon, President and Chief Executive Officer, Atara Biotherapeutics
- Jakob Dupont, MD, Executive Vice President and Global Head of Research and Development, Atara Biotherapeutics
- AJ Joshi, MD, Senior Vice President and Chief Medical Officer, Atara Biotherapeutics
- Douglas L. Arnold, MD, Montreal Neurological Institute, McGill University and NeuroRx Research, Montreal, Canada
- Gavin Giovannoni, MBBCh, Ph.D., Centre for Neuroscience and Trauma, Barts and The London School of Medicine and Dentistry, London, England

Analysts and investors can participate in the conference call by dialing (877) 407-8291 for domestic callers and (201) 689-8345 for international callers, using the conference ID 13722755. A live audio webcast can be accessed by visiting the Investors & Media – News & Events section of atarabio.com. An archived replay will be available on the Company's website for 30 days.

About Progressive Multiple Sclerosis

Multiple sclerosis (MS) is a chronic, debilitating, and potentially disabling autoimmune disease of the central nervous system (CNS) that affects myelin, a protein that helps nerves in the brain and spinal cord communicate. There are an estimated 2.3-2.8 million people living with MS worldwide, with approximately 1 million living with progressive forms of the

disease, marked by continuous clinical decline and worsening disability. While the exact triggers of MS are not fully established, inflammation driven by environmental and genetic factors is suspected. There is growing evidence that EBV, carried by more than 90 percent of the population that infects a particular type of immune cell called the B cell, may have a role in MS and in fact may be the only risk factor identified necessary to cause MS. With few treatment options available for progressive MS and the ability of these treatments to fundamentally alter disease progression, there remains a critical unmet need.

About ATA188

Epstein-Barr virus (EBV) is associated with a wide range of hematologic malignancies and solid tumors, as well as certain autoimmune conditions such as multiple sclerosis (MS). T cells are a critical component of the body's immune system which normally target EBV-infected B cells. ATA188, Atara's investigational off-the-shelf T-cell candidate, has the potential to target EBV-infected B cells and plasma cells in the central nervous system that may catalyze autoimmune responses and MS pathophysiology. Atara is currently enrolling EMBOLD, a Phase 2 clinical study of ATA188 in the treatment of patients with progressive MS, across clinical sites in the U.S. and Australia.

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 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 potential benefits; safety and efficacy of ATA188; translational and biomarker data for ATA188, including magnetization transfer ratio (MTR) data and MTR's potential link with remyelination; data from ATA188 OLE study; timing and progress of clinical trials of ATA188;

and Atara's ability to successfully advance the development of ATA188. Because such statements deal with future events and are based on Atara Biotherapeutics' current expectations, they are subject to various risks and uncertainties and actual results, performance or achievements of Atara Biotherapeutics 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 Biotherapeutics' 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 Biotherapeutics 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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[1] Atara Biotherapeutics, Inc. (2020, September 11). Atara Biotherapeutics Announces All Progressive Multiple Sclerosis Patients with Sustained Disability Improvement at Six Months Confirmed Improvement at 12 Months in the Phase 1a Study of ATA188 [Press Release]. https://investors.atarabio.com/news-events/press-releases/detail/206/atara-biotherapeutics-announces-all-progressive-multiple

View source version on businesswire.com:
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