September 10, 2022

Cabaletta Bio Presents New Interim Data from the DesCAARTes™ Phase 1 Trial at the 31st EADV Congress

PHILADELPHIA, Sept. 10, 2022 (GLOBE NEWSWIRE) -- Cabaletta Bio, Inc. (Nasdaq: CABA), a clinical-stage biotechnology company focused on the discovery and development of targeted cell therapies for patients with autoimmune diseases, today presented updated clinical and translational data through 6 months of follow-up in cohorts A1 through A4 as well as 28-day safety data and DSG3-CAART persistence data through day 29 for cohorts A1 through A5 from the DesCAARTes™ trial at the 31st European Academy of Dermatology and Venereology (EADV) Congress, which is being held in Milan, Italy from September 7-10, 2022.

“The new data continue to support the favorable safety profile of DSG3-CAART, with no dose-limiting toxicities, and one grade 1 cytokine release syndrome through cohort A5, at a dose of up to 7.5 billion DSG3-CAART cells. No clear trends in antibody levels or disease activity reduction were observed, though one subject in cohort A4 had no disease activity by three months post-infusion while reducing steroid usage during that period, an antibody titer that dropped more than 20% by three months post-infusion, and was the only patient in the first four cohorts that had detectable DSG3-CAART persistence at the 3 month time point following initial DSG3-CAART infusion,” said David J. Chang, M.D., Chief Medical Officer of Cabaletta. “The 2 to 3 fold increase in infusion dose in cohort A5 relative to cohort A4 did not result in a dose-dependent increase in one month DSG3-CAART persistence, suggesting strategies beyond single dose escalation may be required to potentially further increase DSG3-CAART in vivo exposure and generate durable clinical responses. We believe these data support a multiple infusion approach, and provide a rationale to prioritize the combination sub-study, which will employ pre-treatment with intravenous immunoglobulin and cyclophosphamide to potentially increase the in vivo expansion, persistence and activity of DSG3-CAART.”

The updated interim data included 16 treated subjects, four cohorts with three patients per cohort and one cohort with four patients, with twelve having completed six months of follow-up after DSG3-CAART infusion, and four having completed 28-day follow-up after DSG3-CAART infusion. The presentation is available on the Company’s website at https://www.cabalettabio.com/technology/posters-publications. The data demonstrate:

- Doses up to 7.5 billion DSG3-CAART cells (cohort A5) were generally well tolerated, with no DLTs, and one grade 1 CRS.
- There was a dose-dependent increase in DSG3-CAART persistence through day 29 in cohorts A1 to A4. DSG3-CAART persistence through day 29 in cohort A5 was similar to that observed in cohort A4.
- In cohorts A1 to A4:

- Through six months post DSG3-CAART infusion, no clear pattern was observed in changes in anti-DSG3 Ab levels (ELISA) or disease activity (PDAI) through cohort A4.

- One subject in cohort A4 demonstrated a transient improvement in several assessments of efficacy, including DSG3-CAART persistence at 3 months, decrease of anti-DSG3 Ab levels >20% at 2- and 3-months post-infusion, improvement in PDAI score and decreased steroid usage.

The rationale for prioritization of the next planned dosing cohorts is as follows:

- Combination sub-study: A4 dose ($2.5x10^9$ cells) combined with cyclophosphamide (CY) and intravenous immunoglobulin (IVIg) pre-treatment has been prioritized based on leveling off of DSG3-CAART persistence through day 29 from cohorts A4 to A5.

    - CY may reduce cells that compete for cytokines necessary for DSG3-CAART activation & proliferation.

    - This combination is designed to reduce anti-DSG3 autoantibodies, which may block DSG3-CAART.
        - CY may reduce pathogenic autoantibody-secreting B cells.
        - IVIg may facilitate this reduction through several mechanisms, including binding and blocking the autoantibodies.

- Cohort A6m: 2-fold higher than A5 dose (1-$1.5x10^{10}$ cells): Two A5 infusions will be administered 3 weeks apart to potentially increase the duration of *in vivo* exposure and persistence of DSG3-CAART.

The trial is currently being conducted across multiple clinical sites throughout the United States and is enrolling patients in the combination sub-study. If no DLTs are observed, 28-day safety and persistence data through day 29 for the combination sub-study cohort are anticipated to be shared at a scientific or medical meeting during the first quarter of 2023.

About the DesCAARTes™ Phase 1 Trial
Cabaletta's DesCAARTes™ Phase 1 trial is an open-label, dose escalation, multi-center study of DSG3-CAART in adults with mucosal-dominant pemphigus vulgaris (mPV). The trial is designed to determine the maximum tolerated dose of DSG3-CAART in adult subjects with active, anti-DSG3 Ab positive, biopsy confirmed mPV that is inadequately managed by one or more standard therapies. The primary endpoint is incidence of adverse events (AEs), including dose-limiting toxicities (DLTs), such as certain events of cytokine release syndrome (CRS) and neurotoxicity, related to DSG3-CAART within three months of infusion. Secondary endpoints include CAART persistence (qPCR), anti-DSG3 Ab levels (ELISA) and disease activity (PDAI).

About Cabaletta Bio
Cabaletta Bio (Nasdaq: CABA) is a clinical-stage biotechnology company focused on the discovery and development of engineered T cell therapies that have the potential to provide a deep and durable, perhaps curative, treatment for patients with autoimmune diseases. The

CABA™ platform, in combination with Cabaletta Bio's proprietary technology, has advanced a growing pipeline that currently includes potential treatments for patients with mucosal pemphigus vulgaris, MuSK-associated myasthenia gravis, PLA2R-associated membranous nephropathy, mucocutaneous pemphigus vulgaris and hemophilia A with FVIII alloantibodies. Cabaletta Bio's headquarters are located in Philadelphia, PA. For more information, visit www.cabalettabio.com and follow us on LinkedIn and Twitter.

Forward-Looking Statements

This press release contains "forward-looking statements" of Cabaletta Bio within the meaning of the Private Securities Litigation Reform Act of 1995, as amended, including without limitation, express or implied statements regarding expectations regarding: the company's business plans and objectives; the progress and results of its DesCAARTes™ Phase 1 trial, including Cabaletta's ability to enroll the requisite number of patients, dose each dosing cohort in the intended manner, and progress the trial; the expected significance and impact around the clinical and translational data updates provided at the scientific meeting described herein and the expected timing and significance around additional clinical data updates from the DesCAARTes™ trial at additional scientific meetings throughout 2022 and 2023; the expectation that Cabaletta may improve outcomes for patients suffering from mPV; Cabaletta's ability to escalate dosing as high as 10 to 15 billion cells in a planned future cohort, initiate dosing in a combination cohort or otherwise; Cabaletta's plans to implement a pre-treatment regimen and the potential ability to enhance *in vivo* DSG3-CAART exposure; Cabaletta's ability to advance dose escalation in the DesCAARTes™ Phase 1 trial at the current dose ranges for the current cohorts and any projected potential dose ranges for future cohorts, and to optimize its targeted cell therapy; Cabaletta's ability to evaluate, and the potential significance of, the relationship between DSG3-CAART persistence and potential clinical responses in patients with mPV; expectations regarding the design, implementation, timing and success of its current and planned clinical trials and the successful completion of nonclinical studies; planned potential timing and advancement of its preclinical studies and clinical trials and related regulatory submissions; ability to optimize the impact of its collaborations on its development programs; the impact of COVID-19 on the timing, progress, interpretability of data, and results of ongoing or planned preclinical and clinical trials; statements regarding the timing of regulatory filings regarding its development programs; the ability to accelerate Cabaletta's pipeline and develop meaningful therapies for patients, including in collaboration with academic and industry partners; and the anticipated contribution of the members of Cabaletta's executives to the company's operations and progress.

Any forward-looking statements in this press release are based on management's current expectations and beliefs of future events, and are subject to a number of risks and uncertainties that could cause actual results to differ materially and adversely from those set forth in or implied by such forward-looking statements. These risks and uncertainties include, but are not limited to: the risk that signs of biologic activity or persistence may not inform long-term results; Cabaletta's ability to demonstrate sufficient evidence of safety, efficacy and tolerability in its preclinical studies and clinical trials of DSG3-CAART; Cabaletta's plans to evaluate additional cohorts in the DesCAARTes™ trial, including a cohort implementing a pre-treatment regimen; the risk that persistence observed with effective CART-19 oncology studies in combination with lymphodepletion is not indicative of, or applicable to, clinical responses in patients with mPV; risks related to clinical trial site activation or enrollment rates that are lower than expected; risks related to unexpected safety or efficacy data

observed during clinical studies; risks related to the impact of public health epidemics affecting countries or regions in which Cabaletta has operations or does business, such as COVID-19; Cabaletta's ability to retain and recognize the intended incentives conferred by Orphan Drug Designation and Fast Track Designation for DSG3-CAART for the treatment of pemphigus vulgaris; risks related to Cabaletta's ability to protect and maintain its intellectual property position; uncertainties related to the initiation and conduct of studies and other development requirements for its product candidates; the risk that any one or more of Cabaletta's product candidates will not be successfully developed and commercialized; and the risk that the results of preclinical studies or clinical studies will not be predictive of future results in connection with future studies. For a discussion of these and other risks and uncertainties, and other important factors, any of which could cause Cabaletta's actual results to differ from those contained in the forward-looking statements, see the section entitled "Risk Factors" in Cabaletta's most recent annual report on Form 10-K as well as discussions of potential risks, uncertainties, and other important factors in Cabaletta's other filings with the Securities and Exchange Commission. All information in this press release is as of the date of the release, and Cabaletta undertakes no duty to update this information unless required by law.

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