Assembly Biosciences Reports Positive Topline Results from Phase 1b Clinical Trial of Next-Generation Investigational Capsid Assembly Modulator ABI-4334 in Chronic Hepatitis B

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– Favorable safety and tolerability profile, as well as pharmacokinetics supporting once-daily oral dosing, continued to be observed in final 400 mg cohort –

– Mean plasma HBV DNA reductions of 3.2 logs IU/mL over 28 days of treatment for 400 mg cohort consistent with findings in 150 mg cohort, supporting ability of 150 mg dose to achieve saturated inhibition of viral replication, as anticipated –

– Trial completion triggers opt-in point under collaboration with Gilead Sciences, Inc. following delivery and review of option data package –

SOUTH SAN FRANCISCO, Calif., June 25, 2025 (GLOBE NEWSWIRE) -- Assembly Biosciences, Inc. (Nasdaq: ASMB), a biotechnology company developing innovative therapeutics targeting serious viral diseases, today announced positive topline efficacy, safety and pharmacokinetic (PK) results from a Phase 1b study evaluating ABI-4334, an investigational next-generation capsid assembly modulator (CAM), in participants with chronic hepatitis B virus (HBV) infection.

In the cohort evaluating a 400 mg oral daily dose, potent antiviral activity was observed over the 28-day treatment period similar to that previously reported for the 150 mg dose cohort. The relationship between ABI-4334's observed antiviral activity and its exposure profile was consistent with having reached full engagement of the first mechanism of action for CAMs, inhibition of viral replication, at the lower 150 mg dose. Safety and PK data from the 400 mg cohort continue to support a once-daily oral dosing profile, while reaching exposure levels at greater multiples of the target exposure anticipated to fully engage a second mechanism of action of CAMs, inhibition of formation of the viral reservoir, cccDNA.

“We are pleased to see that our most potent CAM, ABI-4334, achieved our target clinical profile with strong antiviral activity in both cohorts,” said Anuj Gaggar, MD, PhD, chief medical officer of Assembly Bio. “These data support the ability of ABI-4334 to effectively inhibit viral replication at the lower 150 mg dose, while offering the potential to dose higher for purposes of maximizing inhibition of cccDNA formation. We believe that maximizing direct antiviral activity and inhibition of cccDNA formation will be important components of regimens targeting cure of chronic HBV infection, and that achieving cure will likely require combination approaches with additional mechanisms still being explored by the field. These results will support discussions on potential next steps for ABI-4334 with our partner Gilead as they evaluate their option to the program.”

Mean HBV DNA declines of 2.9 and 3.2 $\log_{10}$ IU/mL were observed in the 150 mg and 400 mg cohorts, respectively, in a population of predominantly hepatitis B e antigen (HBeAg) negative participants. In the subset of participants with detectable HBV RNA at baseline, mean declines of 2.5 and 2.3 $\log_{10}$ U/mL were observed in the 150 mg and 400 mg cohorts, respectively. Limited changes in viral antigens were observed as was anticipated given the 28-day treatment period of the study.

Across the 150 mg and 400 mg cohorts, ABI-4334 continued to show a half-life supportive of once-daily oral dosing and maintained exposure levels multiple folds above those anticipated to be required for potent antiviral activity and inhibition of cccDNA formation. Safety data for both cohorts demonstrated that ABI-4334 was well-tolerated with a favorable safety profile in participants with chronic HBV.

Under the collaboration agreement between Assembly Bio and Gilead Sciences, Inc. (Gilead), Gilead has the right to opt in to an exclusive license for further development and commercialization of ABI-4334 after reviewing the Phase 1b option data package to be delivered by Assembly Bio following completion of this study.

ABI-4334 is an investigational product candidate that has not been approved anywhere globally, and its safety and efficacy have not been established.

Study ABI-4334-102 – Phase 1b Topline Results

Study Overview
ABI-4334-102 (Study 102) was a randomized, blinded, placebo-controlled, dose-ranging Phase 1b clinical study that evaluated the safety, PK and antiviral activity of ABI-4334. The study was conducted in treatment-naive or off-treatment participants with HBeAg positive or negative chronic HBV infection. Two cohorts of 10 subjects each were randomized 8:2 to receive ABI-4334 at 150 mg (cohort B1), 400 mg (cohort B2) or placebo daily for a 28-day treatment period.

Topline Results
In Study 102, ABI-4334 was well-tolerated with a favorable safety profile observed in participants with chronic HBV infection. No pattern of safety signals has been identified and there were no serious adverse events or adverse events that led to study drug discontinuation.

Two grade three treatment-emergent lab abnormalities were observed, one alanine aminotransferase (ALT) elevation in a participant receiving 150 mg ABI-4334, and one total bilirubin elevation in a placebo recipient. These elevations both resolved with continued dosing of ABI-4334 and placebo, respectively. No other grade three or four treatment-emergent lab abnormalities were observed.

In the predominately HBeAg negative participants, a mean decline in HBV DNA of 2.9 and 3.2 $\log_{10}$ IU/mL were observed over 28 days in the participants receiving 150 mg and 400 mg, respectively. In the subset of participants with detectable HBV RNA at baseline, mean declines in HBV RNA of 2.5 and 2.3 $\log_{10}$ U/mL were observed over 28 days in the participants receiving 150 mg and 400 mg, respectively. As expected, given the patient population and 28-day treatment period, limited changes in viral antigens were observed in both cohorts.

In both the 150 mg and 400 mg cohorts, ABI-4334 continued to show a half-life supportive of once-daily oral dosing. Slightly higher than dose-proportional increases in clinical PK exposures were observed from 150 mg to 400 mg, as measured by maximum concentration (C_{max}) and area under the curve (AUC). Based on PK data from these cohorts and preclinical studies, daily minimum plasma trough concentrations (C_{min}) at both dose levels achieved double-digit multiples over protein-adjusted EC_{50} for both antiviral activity and cccDNA formation.

Additional information about the Phase 1b trial is available at clinicaltrials.gov using the identifier NCT06384131. Assembly Bio expects to submit data from the trial for presentation at future scientific meetings.

About Assembly Biosciences
Assembly Biosciences is a biotechnology company dedicated to the development of innovative small-molecule therapeutics designed to change the path of serious viral diseases and improve the lives of patients worldwide. Led by an accomplished team of leaders in virologic drug development, Assembly Bio is committed to improving outcomes for patients struggling with the serious, chronic impacts of herpesvirus, hepatitis B virus (HBV) and hepatitis delta virus (HDV) infections. For more information, visit assemblybio.com.

Forward-Looking Statements
The information in this press release contains forward-looking statements that are subject to certain risks and uncertainties that could cause actual results to materially differ. These risks and uncertainties include: Assembly Bio's ability to maintain financial resources necessary to continue its research activities, clinical studies and other business operations; Assembly Bio's ability to realize the potential benefits of its collaboration with Gilead Sciences, Inc. (Gilead), including all financial aspects of the collaboration and equity investments; Assembly Bio's ability to initiate and complete clinical studies involving its therapeutic product candidates, including studies contemplated by Assembly Bio's collaboration with Gilead, in the currently anticipated timeframes or at all; safety and efficacy data from clinical or nonclinical studies may not warrant further development of Assembly Bio's product candidates; clinical and nonclinical data may not differentiate Assembly Bio's product candidates from other companies' candidates; potential effects of changes in government regulation, including as a result of the change in U.S. administration in 2025; results of nonclinical studies may not be representative of disease behavior in a clinical setting and may not be predictive of the outcomes of clinical studies; and other risks identified from time to time in Assembly Bio's reports filed with the U.S. Securities and Exchange Commission (the SEC). You are urged to consider statements that include the words may, will, would, could, should, might, believes, hopes, estimates, projects, potential, expects, plans, anticipates, intends, continues, forecast, designed, goal or the negative of those words or other comparable words to be uncertain and forward-looking. Assembly Bio intends such forward-looking statements to be covered by the safe harbor provisions contained in Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended. More information about Assembly Bio's risks and uncertainties are more fully detailed under the heading "Risk Factors" in Assembly Bio's filings with the SEC, including its most recent Annual Report on Form 10-K, Quarterly Reports on Form 10-Q and Current Reports on Form 8-K. Except as required by law, Assembly Bio assumes no obligation to update publicly any forward-looking statements, whether as a result of new information, future events or otherwise.

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