Assembly Biosciences Presents New Data Highlighting Clinical Progress of Core Inhibitor Programs at EASL's International Liver Congress™ 2022

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SOUTH SAN FRANCISCO, Calif., June 22, 2022 (GLOBE NEWSWIRE) -- Assembly Biosciences, Inc. (Nasdaq: ASMB), a clinical-stage biotechnology company developing innovative, investigational therapeutics targeting hepatitis B virus (HBV) and other viral diseases, today announced data from the company's investigational core inhibitor programs ABI-H3733 (3733), ABI-4334 (4334) and vebicorvir (VBR), featured in six poster presentations at the **International Liver Congress™**, the Annual Meeting of the European Association for the Study of the Liver (EASL) taking place virtually and in London on June 22-26, 2022.

"We are excited to present these new data that demonstrate the progress and promising profiles of our next-generation, significantly more potent core inhibitor candidates 3733 and 4334, and that further characterize the profile of VBR," said John McHutchison, AO, MD, chief executive officer and president of Assembly Bio. "Our enthusiasm for the new tablet formulation of 3733, which is being evaluated in our recently-initiated Phase 1b study, is supported by data presented today demonstrating improved PK parameters preclinically, with plasma levels comparable to the liquid formulation. Additionally, preclinical data presented for 4334, with its best-in-class potential, demonstrates the candidate's potent activity against both cccDNA formation and pre-genomic RNA (pgRNA) encapsidation, supporting our plans to initiate a Phase 1a trial later this year. Finally, the variety of data presented on VBR, currently being evaluated in triple combination studies, continues to build upon this compound's antiviral potency and clinical profile."

Next-Generation HBV Core Inhibitor Candidates 3733 and 4334

The poster entitled "*Improving the pharmacokinetic profile of the hepatitis B virus core inhibitor ABI-H3733 following oral administration: results from new formulation activities,"* presents pharmacokinetic data on the new tablet (T2) formulation for 3733. In preclinical studies, the T2 formulation at 100 mg dose (predicted human equivalent dose 300mg) showed equivalent plasma serum concentration to the liquid formulation. In HBV patients, the 300 mg dose formulated as the new T2 tablet is projected to achieve exposure that is approximately 150- and 29-fold higher than the protein adjusted EC_{50} for inhibition of HBV DNA replication and cccDNA formation, respectively. The T2 tablet formulation of 3733 is being evaluated in a recently-initiated Phase 1b study in patients with chronic HBV infection.

4334 is a novel investigational core inhibitor with single-digit nanomolar (nM) potency against covalently closed circular DNA (cccDNA) formation and pgRNA encapsidation *in vitro*. In the poster entitled "*ABI-4334, a novel inhibitor of hepatitis B virus core protein, promotes formation of empty capsids and prevents cccDNA formation by disruption of incoming capsids,"* preclinical data indicate that 4334 prematurely melts incoming HBV capsids, preventing formation of cccDNA with a single digit nM EC_{50}. These preclinical data also show the compound potently inhibits pgRNA encapsulation resulting in the formation of empty capsid particles, consistent with the activity of Class II core inhibitors. Additional data in the poster demonstrates an improved activity against core inhibitor binding pocket variants as well as full activity against nucleoside-resistant HBV.

Vebicorvir

Four posters were presented providing clinical updates on the company's core inhibitor candidate VBR, which is currently being evaluated in Phase 2 triple combination studies.

- "*Deeper virologic suppression with the addition of vebicorvir, a first-generation hepatitis B core inhibitor, to entecavir correlates with reduced inflammation and fibrosis-4 index in treatment-naïve patients with HBeAg positive chronic hepatitis B,"* provides ad hoc analyses from Assembly Bio's Study 202 in which treatment naïve, HBeAg positive patients were randomized in a blinded fashion to receive once a day entecavir either with or without vebicorvir for 24-weeks. As reported previously, addition of VBR to entecavir treatment resulted in statistically significant declines in HBV DNA and pgRNA and normalization of ALT levels compared to entecavir treatment alone. The increased antiviral potency of VBR plus entecavir resulted not only in greater reductions in viral replication and hepatic inflammation and but also in significantly greater improvement in the fibrosis-4 (FIB-4) index, a validated prognostic marker of liver fibrosis.
- "*Greater sequence diversity during early hepatitis B virus decline on vebicorvir plus entecavir is associated with a lower level of virus rebound following switch to entecavir monotherapy"* utilizes next-generation sequencing to describe viral diversity from the clinical samples of patients from Study 202 who progressed to receive open-label VBR plus entecavir and subsequently switched to entecavir treatment alone. Viral diversity as well as viral rebound were measured following the switch to monotherapy. Greater sequence diversity was observed during initial HBV DNA decline during HBV treatment

among patients with lower rebound when VBR was discontinued. These data suggest that greater immune pressure may be responsible for the increased viral diversity during early declines and lower rebound after switch to monotherapy.
- *"Evaluation of the drug-drug interaction profile of vebicorvir, a first-generation hepatitis B core inhibitor: findings from Phase 1 and Phase 2a studies"* describes the potential for VBR to be a perpetrator of drug-drug interactions using CYP index substrates in a Phase 1 study in healthy participants. VBR was determined to be a weak inhibitor of CYP2C9, but not an inhibitor of CYP2C19, 2D6, or 2C8, and is not an inhibitor/inducer of CYP3A4 or 2B6. Additionally, results from Phase 2a studies suggest no clinically significant drug-drug interactions between VBR and NrtIs in patients with chronic HBV infection.
- *"Evaluation of the disposition and mass balance recovery of vebicorvir, a first-generation hepatitis B core inhibitor, in rats and humans"* shows favorable liver loading and very limited metabolism (less than 5%) of VBR in rat studies and that the drug was primarily eliminated as unchanged parent compound in the feces of both rats and humans.

Subsequent to presentation at EASL's International Liver Congress™ 2022, Assembly Bio intends to make the posters available on the "Events & Presentations" page in the "Investors" section of its website at www.assemblybio.com.

About Assembly Biosciences
Assembly Bio is a clinical-stage biotechnology company committed to bringing finite and curative therapies to the 296 million people living with hepatitis B virus (HBV) worldwide. A pioneer in the development of a new class of potent, oral investigational core inhibitors, Assembly Bio's approach aims to break the complex viral replication cycle of HBV to free patients from a lifetime of therapy. Assembly Bio's strategy includes a leading portfolio of more potent, next-generation core inhibitor drug candidates, proof-of-concept combination studies for HBV cure and research programs focused on the discovery of additional novel antiviral mechanisms for HBV and other viral diseases. 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 initiate and complete clinical studies involving its therapeutic product candidates, including studies contemplated by Assembly Bio's clinical collaboration agreements, in the currently anticipated timeframes; safety and efficacy data from clinical studies may not warrant further development of Assembly Bio's product candidates; clinical and nonclinical data presented at conferences may not differentiate Assembly Bio's product candidates from other companies' candidates; 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; continued development and commercialization of vebicorvir and ABI-H3733, if successful, in the China territory will be dependent on, and subject to, Assembly Bio's collaboration agreement governing its activity for these programs in the China territory; Assembly Bio's ability to maintain financial resources necessary to continue its clinical studies and fund business operations; any impact that the COVID-19 pandemic may have on Assembly Bio's business and operations, including initiation, enrollment and continuation of its clinical studies or timing of discussions with regulatory authorities; 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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