Assembly Biosciences Provides Update on the Ongoing Phase 2 Extension Study of Vebicorvir in Patients with Chronic Hepatitis B Virus Infection

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- HBV field's first core inhibitor combination study to assess off-treatment response has not achieved a meaningful rate of sustained virologic response -
- Vebicorvir Phase 3 registrational program remains on track to initiate in H1 2021 for chronic suppressive therapy -
- Assembly Bio to host conference call today at 5:00 p.m. ET -

SOUTH SAN FRANCISCO, Calif., Nov. 05, 2020 (GLOBE NEWSWIRE) -- Assembly Biosciences, Inc. (Nasdaq: ASMB), a clinical-stage biotechnology company developing innovative therapeutics targeting hepatitis B virus (HBV) and diseases associated with the microbiome, provided an update on the ongoing open-label Phase 2 extension study (Study 211) of vebicorvir (VBR, or ABI-H0731) in patients with chronic HBV infection. A first of its kind, Study 211 is exploring whether sustained virologic response (SVR) could be achieved after discontinuing therapy in virologically-suppressed patients who had received at least 12-18 months of combination treatment with core inhibitor VBR and a nucleos(t)ide analogue reverse transcriptase inhibitor (NrtI). Study patients who met the treatment stopping criteria discontinued therapy and have been assessed monthly for safety and relapse. The study has not achieved meaningful SVR rates as 39 of 41 patients have now relapsed.

Among the patients who have discontinued treatment, 22 of the 23 with HBeAg negative HBV have relapsed (SVR = 4% at last visit), defined as off-treatment quantifiable HBV DNA by the COBAS TaqMan (2.0) assay (lower limit of quantification = 20 IU/mL). Sixteen of these patients relapsed at post-treatment Week 4, three at post-treatment Week 12, and three patients at post-treatment Week 16. Among the HBeAg positive patients, 17 of 18 relapsed at post-treatment Week 4 (SVR = 6% at last visit). Assembly Bio continues to collect and analyze study data and intends to submit more detailed findings to a future medical meeting.

Study 211 Interim Off-Treatment Virologic Results

Number of patients	Discontinued treatment with VBR+NrtI	Relapsed at post-treatment Week 4	Relapsed at post-treatment Week 8	Relapsed at post-treatment Week 12	Relapsed at post-treatment Week 16	Have not relapsed*
HBeAg negative	23	16	0	3	3	1
HBeAg positive	18	17	0	0	0	1

*These 2 patients have completed the post-treatment Week 8 visit

John McHutchison, AO, MD, Chief Executive Officer and President of Assembly Biosciences, stated, “With the addition of our first-generation core inhibitor, vebicorvir, to NrtI, we were able to drive viral suppression deeper in patients with chronic HBV infection to levels below the limits of our highly sensitive assays for six months or more. Patients like these normally face a lifetime of therapy, so we took the pioneering step to test whether their virologic response could be sustained off treatment. As we had previously indicated, we believe an SVR24 rate of at least 15% would have marked a meaningful first advance in HBV finite therapy, but preliminary results have shown that we will fall short of that mark. While we are just beginning to analyze the data and this is not the outcome we were hoping for, we firmly believe it was the right experiment to conduct, and the learnings will inform the field and our ongoing development programs.”

Dr. McHutchison continued, “We remain committed to driving the field of HBV therapeutics forward, and have made additional progress toward initiating a Phase 3 registrational program of vebicorvir with BeiGene focused on chronic suppressive therapy in China, home to one-third of the world’s individuals living with chronic HBV infection. This Phase 3 program will include a population representing the 10-30% of HBV patients who only achieve partial viral suppression after a year or more on NrtI therapy, a group that has limited treatment options today. In parallel, we continue to advance our second and third core inhibitor candidates, which are substantially more potent than vebicorvir against the generation of cccDNA and have shown a more favorable resistance profile. Enrollment and dosing are underway in the Phase 2 trial of ABI-H2158 in patients with chronic HBV infection and the Phase 1 study of ABI-H3733 in healthy volunteers. Additionally, in the first half of 2021 we plan to begin triple combination Phase 2 trials combining VBR’s core inhibitor mechanism with NrtI and an RNAi therapeutic from Arbutus and, separately, with interferon.”

Assembly Bio’s Phase 2 trials, Study 201 and 202, demonstrated that the addition of VBR to NrtI therapy achieved a more rapid

and deeper level of viral suppression than seen with NrtI alone and with a similar safety and tolerability profile. Based on these data, Assembly Bio has reached agreement with the Chinese regulatory body, National Medical Products Administration, Center for Drug Evaluation, and continues discussions with the U.S. Food and Drug Administration, on a Phase 3 registrational program for VBR plus NrtI as a chronic suppressive therapy (CST) for certain patient populations with chronic HBV infection. The Company expects to initiate Phase 3 CST trials in the first half of 2021 in collaboration with BeiGene for the partnered China territory as part of the global registration program.

Assembly Bio also continues to advance ABI-H2158 (2158) and ABI-H3733 (3733), which have demonstrated in preclinical studies 10-fold and 40- to 50-fold higher potency, respectively, than VBR in inhibiting the formation of new cccDNA. A multi-center, randomized, placebo-controlled Phase 2 trial is evaluating 2158 with entecavir versus placebo with entecavir in treatment naïve HBeAg positive patients with chronic HBV infection. Additionally, a Phase 1 trial of 3733 is evaluating safety, tolerability, and pharmacokinetics following single ascending dose and multiple ascending dose administrations in healthy subjects.

During the first half of 2021, Assembly Bio also intends to initiate a Phase 2 trial to evaluate the triple combination of VBR, Arbutus Biopharma's RNAi therapeutic AB-729 and NrtI in patients with chronic HBV infection. Combining multi-drug regimens with non-overlapping mechanisms has the potential to generate higher response rates in certain HBV patient populations and potentially shorten their duration of treatment. The Company also anticipates initiating a triple combination study in the first half of 2021 to evaluate the addition of interferon to VBR and NrtI.

Assembly Bio's Webcast and Conference Call
Assembly Bio will host a webcast and conference call today at 2:00 p.m. PT / 5:00 p.m. ET. The live audio webcast may be accessed through the "Events & Presentations" page in the "Investors" section of Assembly Bio's website at https://investor.assemblybio.com/events-presentations. Alternatively, participants may dial (866) 438-0453 (domestic) or (409) 220-9366 (international) and refer to conference ID 5739584. Call participants are encouraged to connect at 1:45 p.m. PT / 4:45 p.m. ET to ensure a timely connection to the call or to utilize the webcast link for listen-only access.

The archived webcast will be available on Assembly Bio's website beginning approximately two hours after the event and will be archived and available for replay for at least 30 days after the event.

About Assembly Biosciences' HBV Core Inhibitor Portfolio
Assembly Bio's HBV portfolio includes three clinical-stage small molecule candidates, all of which are HBV core inhibitors that target multiple steps of the HBV replication cycle. In Phase 2 clinical trials, first-generation core inhibitor vebicorvir (VBR, or ABI-H0731) administered with nucleos(t)ide analogue reverse transcriptase inhibitor (NrtI) therapy has been well-tolerated, has shown statistically superior antiviral activity in HBV DNA suppression compared to NrtI therapy alone, and has demonstrated significant declines in HBV pgRNA that may indicate decreased cccDNA levels.

Assembly Bio's HBV portfolio also includes two, more potent core inhibitor candidates, ABI-H2158 (2158) and ABI-H3733 (3733), which have demonstrated in preclinical studies 10-fold and 40- to 50-fold higher potency, respectively, than VBR in inhibiting the formation of new cccDNA. 2158 is in Phase 2 development, and 3733 is in Phase 1 development.

Vebicorvir and 2158 both have been granted Fast Track designation by the U.S. Food and Drug Administration for the treatment of chronic HBV infection.

About HBV
Chronic hepatitis B virus (HBV) infection is a debilitating disease of the liver that afflicts over 250 million people worldwide with up to 90 million people in China, as estimated by the World Health Organization. HBV is a global epidemic that affects more people than hepatitis C virus (HCV) and HIV infection combined—with a higher morbidity and mortality rate. HBV is a leading cause of chronic liver disease and need for liver transplantation, and up to one million people worldwide die every year from HBV-related causes.

The current standard of care for patients with chronic HBV infection is life-long suppressive treatment with medications that reduce, but do not eliminate viral replication, resulting in very low cure rates. There is a significant unmet need for new therapies to treat HBV.

About Assembly Biosciences
Assembly Biosciences, Inc. is a clinical-stage biotechnology company developing innovative therapeutics targeting hepatitis B virus (HBV) and diseases associated with the microbiome. The HBV program is focused on advancing a new class of potent, oral core inhibitors that have the potential to increase cure rates for chronically infected patients. The microbiome program is developing novel oral live microbial biotherapeutic candidates with Assembly Bio's fully integrated platform, including a robust process for strain identification and selection, GMP manufacturing expertise and targeted delivery to the lower gastrointestinal tract with the GEMICEL® technology. 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 trials involving its HBV therapeutic product candidates 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; Assembly Bio may not observe sustained virologic response in patients who stop therapy in Study 211; Assembly Bio's ability to maintain financial resources necessary to continue its clinical trials and fund business operations; any impact that the spread of the coronavirus and resulting COVID-19 pandemic may have on Assembly Bio's business and operations, including initiation and continuation of its clinical trials 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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