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Assembly Biosciences to Present Data at The International Liver Congress(TM) 2016 that Supports Advancing Its CpAM Candidates into HBV Clinical Trials

—In Preclinical Studies, Novel Class of Core Protein Allosteric Modifiers (CpAMs) Showed Potent Antiviral Activity, No Cytotoxicity and Good Pharmacokinetic Properties—

—Planning to Start Phase 1 Trials in 2H16 While Also Advancing Additional CpAM Compounds—

BARCELONA, Spain and NEW YORK, April 13, 2016 (GLOBE NEWSWIRE) -- Assembly Biosciences, Inc. (NASDAQ:ASMB), a public biotechnology company advancing a novel class of oral biologic therapeutics designed to treat diseases of the gut microbiome and an innovative discovery platform of best-in-class oral small molecule therapeutics for the treatment of hepatitis B virus (HBV) infection, today announced that it will present preclinical data on its unique series of HBV Core Protein Allosteric Modifiers (CpAMs) at The International Liver Congress™ 2016 in Barcelona, Spain on April 15, 2016.

The presentation describes a new series of CpAMs that prevents the formation of new cccDNA and inhibits core protein functions. Within the series, different CpAM molecules demonstrated distinct and potent antiviral and binding profiles. This is consistent with the known properties of CpAMs, which can allosterically modify the activity of core protein. In cell-based studies, CpAMs were selective and specific to HBV and were not cytotoxic. In animal studies, a prototype compound in the series demonstrated attractive pharmacokinetic properties consistent with once-daily oral administration in humans, including a long half-life and good oral bioavailability.

CpAMs interrupt viral replication by a different mechanism than current HBV treatments and can be used in combination with existing therapies. In a combination study with entecavir, a nucleoside polymerase inhibitor which is a current standard of care therapy for HBV, CpAMs exhibited the potential to achieve additive, and possibly synergistic effects, with no evidence of drug antagonism. The researchers concluded that the overall study data support the ongoing advancement of candidate compounds from this series of CpAMs into the IND-enabling animal toxicology studies that are a prerequisite for human clinical trials.

"These preclinical profiling studies confirm that our CpAMs have unique properties compared to current therapies," said Richard Colonno, PhD, Chief Scientific Officer of Assembly Biosciences. "The studies with our first generation CpAMs demonstrate their ability to effectively inhibit the formation of new cccDNA, a key distinction from the activity of nucleoside and nucleotide analogs used to treat HBV today. We are on track to move one of our compounds from this series into human clinical trials later this year, as we also continue to pursue additional candidates from this and other chemical series. Assembly expects some of these newer compounds could be candidates to enter clinical studies in 2017 and 2018."

Chronic HBV infects an estimated 240 million people worldwide, yet fewer than 10% of patients are cured by current therapies. Assembly scientists are aiming to achieve higher cure rates by targeting the HBV core protein, an essential viral protein involved in multiple critical functions throughout the HBV lifecycle. CpAMs allosterically inhibit core protein, meaning they can bind to it in a variety of ways that can result in different effects. The findings in this presentation indicate that core protein is essential to establishment of cccDNA, a type of viral DNA that is associated with viral persistence in chronic HBV. Current HBV therapies do not target core protein, nor can they reduce nor silence cccDNA.

Presentation Poster 104, *Preclinical Characterization of Potent Core Protein Allosteric Modifiers for the Treatment of Chronic Hepatitis B*, will be presented on April 15, 2016 in the poster session on *Viral Hepatitis: Hepatitis B & D* in Exhibit Hall 8.1 from 8:00 am until 6:00 pm. The presentation will be posted under Events at the Investor section of Assembly's website starting on April 15, 2016.

About Assembly Biosciences
Assembly Biosciences, Inc. is a public biotechnology company advancing a novel class of oral biologic therapeutics designed to treat diseases of the gut microbiome and an innovative discovery platform of best-in-class oral small molecule therapeutics for the treatment of hepatitis B virus (HBV) infection. The company's Microbiome program consists of a fully integrated platform that includes a robust strain identification and selection process, methods for strain isolation and growth under cGMP conditions, and a patent pending delivery system, GEMICEL™, which allows for targeted oral delivery of live biologic and conventional therapies to the lower GI tract. The lead program from this platform, ABI-M101, is in development for the treatment of *C. difficile* infection. Assembly's HBV team has significant experience in infectious disease drug

discovery and development and has collectively helped bring more than 10 anti-infective products to the market. The company's HBV-Cure Program is aimed at increasing the current low cure rate for patients with chronic HBV. It is pursuing a number of drug candidates that inhibit multiple viral targets throughout the HBV lifecycle for possible use alone or in combination therapy. For more information, visit assemblybio.com.

Cautionary Statement Regarding Forward-Looking Statements
The information provided herein contains estimates and other forward-looking statements regarding future events, including statements about the therapeutic potential of our HBV-Cure and Microbiome programs and the potential initiation of Phase 1 clinical studies of a CpAM. Such statements, which we intend 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, are just predictions and are subject to risks and uncertainties that could cause the actual events or results to differ materially. These risks and uncertainties include, among others: preclinical models may not be representative of disease behavior in clinical studies; our ability to retain necessary employees and to staff our operations appropriately; the components, timing, cost and results of clinical trials and other development activities involving our product candidates; the unpredictability of the preclinical and clinical development of our product candidates and of the duration and results of regulatory review of those candidates by the FDA and foreign regulatory authorities and the possible impairment of, or inability to obtain, intellectual property rights and the costs of obtaining such rights from third parties. These and other potential risks and uncertainties that could cause actual results to differ from the results predicted are more fully detailed under the heading "Risk Factors" in our Annual Report on Form 10-K for the year ended December 31, 2015, and other reports filed with the Securities and Exchange Commission. It is not possible for Assembly management to predict all risks nor can Assembly assess the impact of all factors on its business or the extent to which any factor, or combination of factors, may cause actual results to differ materially from those contained in any forward-looking statements Assembly may make. In light of these risks, uncertainties and assumptions, the forward-looking events and circumstances discussed in this press release may not occur and actual results could differ materially and adversely from those anticipated. Except as required by law, we assume no obligation to update publicly any forward-looking statements, whether as a result of new information, future events or otherwise.

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