Biogen Completes Submission of Biologics License Application to FDA for Aducanumab as a Treatment for Alzheimer's Disease

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- *If approved, aducanumab would be the first treatment with the potential to meaningfully change the course of Alzheimer's disease*

CAMBRIDGE, Mass. and TOKYO, July 08, 2020 (GLOBE NEWSWIRE) -- Biogen (Nasdaq: BIIB) and Eisai Co., Ltd. (Tokyo, Japan) today announced that Biogen has completed the submission of a Biologics License Application (BLA) to the U.S. Food and Drug Administration (FDA) for the approval of aducanumab, an investigational treatment for Alzheimer's disease. The completed submission followed ongoing collaboration with the FDA and includes clinical data from the Phase 3 EMERGE and ENGAGE studies, as well as the Phase 1b PRIME study. As part of the completed submission, Biogen has requested Priority Review. If approved, aducanumab would become the first therapy to reduce the clinical decline of Alzheimer's disease and would also be the first therapy to demonstrate that removing amyloid beta resulted in better clinical outcomes.

"Alzheimer's disease remains one of the greatest public health challenges of our time. It robs memories, independence and eventually the ability to perform basic tasks from the people we love," said Michel Vounatsos, Chief Executive Officer at Biogen. "The aducanumab BLA is the first filing for FDA approval of a treatment that addresses the clinical decline associated with this devastating condition, as well as the pathology of the disease. We are committed to driving progress for the Alzheimer's disease community and look forward to the FDA's review of our filing."

"People living with Alzheimer's, their families, caregivers and so many others in the community are fighting this disease every day, and the global social burden of the disease is expected to grow as the population ages," said Dr. Haruo Naito, Chief Executive Officer at Eisai Co., Ltd. "The BLA submission is an important step in the fight against this disease, for which pathophysiological progression currently cannot be stopped, delayed or prevented."

The aducanumab clinical development program included two Phase 3 trials, EMERGE and ENGAGE, in patients with early stage Alzheimer's disease (enrolled patients had mild cognitive impairment (MCI) due to Alzheimer's disease and mild Alzheimer's disease dementia with Mini-Mental State Examination (MMSE) scores of 24-30). In EMERGE, patients who received aducanumab experienced significant slowing of decline on measures of cognition and function such as memory, orientation and language. Patients also experienced slowing of decline on activities of daily living including conducting personal finances, performing household chores, such as cleaning, shopping and doing laundry, and independently traveling out of the home.

EMERGE (n=1,638) met its pre-specified primary endpoint, with patients treated with high dose aducanumab showing a statistically significant reduction of clinical decline from baseline in Clinical Dementia Rating-Sum of Boxes (CDR-SB) scores at 78 weeks (22% versus placebo, P=0.01). In EMERGE, patients treated with high dose aducanumab also showed a consistent reduction of clinical decline as measured by the pre-specified secondary endpoints: the Mini-Mental State Examination (MMSE; 18% versus placebo, P=0.05), the Alzheimer's Disease Assessment Scale-Cognitive Subscale 13 Items (ADAS-Cog 13; 27% versus placebo, P=0.01) and the Alzheimer's Disease Cooperative Study-Activities of Daily Living Inventory Mild Cognitive Impairment Version (ADCS-ADL-MCI; 40% versus placebo, P=0.001). Imaging of amyloid plaque deposition in EMERGE demonstrated that amyloid plaque burden was reduced with low and high dose aducanumab compared to placebo at 26 and 78 weeks (P<0.001). While ENGAGE (n=1,647) did not meet its primary endpoint, Biogen believes a subset of data from ENGAGE are supportive of the outcome in EMERGE.

The aducanumab clinical program also included the Phase 1b PRIME study and its long-term extension (LTE) in patients with early Alzheimer's disease (enrolled patients had prodromal Alzheimer's disease or mild Alzheimer's disease dementia with MMSE scores of 20-30). The results of this study indicated that aducanumab reduced amyloid beta plaque in a dose- and time-dependent fashion, and analyses of exploratory clinical endpoints showed a reduction of clinical decline (CDR-SB and MMSE, nominally statistically significant for the 10 mg/kg dose at 12 months), which continued out to 48 months in the LTE.

"For many people living with the early stages of Alzheimer's disease, maintaining independence for as long as possible is the ultimate goal," said Stephen Salloway, M.D., M.S., Director of the Butler Hospital Memory and Aging Program at Brown University. "If we can help slow the progression from one stage to the next, this could preserve independence, which, in turn, could have truly meaningful benefits for people living with the disease and their loved ones. Aducanumab represents a potential breakthrough that we hope will provide a treatment foothold in the fight against Alzheimer's disease."

The completion of the BLA submission followed a planned pre-BLA meeting with the FDA. The FDA now has up to 60 days to decide whether to accept the application for review, at which point, if accepted, Biogen expects the FDA will also inform the Company whether the BLA has been granted Priority Review designation. The BLA will then be subject to review by the FDA to make a determination on the potential approval of aducanumab.

In addition to submitting the BLA to the FDA, Biogen has continued to engage in dialogue with regulatory authorities in other markets, including Europe and Japan, working diligently toward the goal of submitting applications in these markets.

About Aducanumab

Aducanumab (BIIB037) is an investigational human monoclonal antibody studied for the treatment of Alzheimer's disease. Based on clinical data, aducanumab has the potential to impact underlying disease pathophysiology, slow cognitive and functional decline and provide benefits on patients' ability to perform activities of daily living, including conducting personal finances, performing household chores, such as cleaning, shopping and doing laundry, and independently traveling out of the home. If approved, aducanumab would be the first treatment to meaningfully change the course of the disease for individuals living with Alzheimer's.

Biogen licensed aducanumab from Neurimmune under a collaborative development and license agreement. Since October 2017 Biogen and Eisai have collaborated on the development and commercialization of aducanumab globally.

EMERGE and ENGAGE were Phase 3 multicenter, randomized, double-blind, placebo-controlled, parallel-group studies designed to evaluate the efficacy and safety of aducanumab. The primary objective of the studies was to evaluate the efficacy of monthly doses of aducanumab as compared with placebo in reducing cognitive and functional impairment as measured by changes in the Clinical Dementia Rating-Sum of Boxes (CDR-SB) score. Secondary objectives were to assess the effect of monthly doses of aducanumab as compared to placebo on clinical decline as measured by the Mini-Mental State Examination (MMSE), Alzheimer's Disease Assessment Scale-Cognitive Subscale 13 Items (ADAS-Cog 13) and Alzheimer's Disease Cooperative Study-Activities of Daily Living Inventory Mild Cognitive Impairment Version (ADCS-ADL-MCI).

About Alzheimer's Disease

Alzheimer's disease is a progressive neurological condition that impairs thinking, memory and independence, leading to premature death. The disease currently cannot be stopped, delayed or prevented and is a growing global health crisis, affecting those living with the disease and their families. According to the World Health Organization (WHO), tens of millions of people worldwide live with Alzheimer's disease, and the number will grow in the years ahead, outpacing the healthcare resources needed to manage it and costing billions of dollars.

Alzheimer's disease is characterized by changes in the brain, including the abnormal accumulation of toxic amyloid beta plaque, which begins approximately 20 years before patients exhibit symptoms of the disease. Mild cognitive impairment due to Alzheimer's disease is one of the earliest stages of the disease when symptoms start to be more visible and can be detected and diagnosed. Current research efforts are focused on catching and treating patients as early as possible for the best chance of slowing or stopping the progression of Alzheimer's disease.

About Biogen

At Biogen, our mission is clear: we are pioneers in neuroscience. Biogen discovers, develops and delivers worldwide innovative therapies for people living with serious neurological and neurodegenerative diseases as well as related therapeutic adjacencies. One of the world's first global biotechnology companies, Biogen was founded in 1978 by Charles Weissmann, Heinz Schaller, Kenneth Murray and Nobel Prize winners Walter Gilbert and Phillip Sharp. Today Biogen has the leading portfolio of medicines to treat multiple sclerosis, has introduced the first approved treatment for spinal muscular atrophy, commercializes biosimilars of advanced biologics and is focused on advancing research programs in multiple sclerosis and neuroimmunology, Alzheimer's disease and dementia, neuromuscular disorders, movement disorders, ophthalmology, immunology, neurocognitive disorders, acute neurology and pain.

We routinely post information that may be important to investors on our website at www.biogen.com. Follow us on social media – Twitter, LinkedIn, Facebook, YouTube.

About Eisai Co., Ltd.
Eisai Co., Ltd. is a leading global pharmaceutical company headquartered in Japan. Eisai's corporate philosophy is based on the *human health care (hhc)* concept, which is to give first thought to patients and their families, and to increase the benefits that health care provides to them. With a global network of R&D facilities, manufacturing sites and marketing subsidiaries, we strive to realize our hhc philosophy by delivering innovative products to target diseases with high unmet medical needs, with a particular focus in our strategic areas of Neurology and Oncology.

Leveraging the experience gained from the development and marketing of Aricept®, a treatment for Alzheimer's disease and dementia with Lewy bodies, Eisai aims to establish the "Eisai Dementia Platform." Through this platform, Eisai plans to deliver novel benefits to those living with dementia and their families through constructing a "Dementia Ecosystem," by collaborating with partners such as medical organizations, diagnostic development companies, research organizations, and bio-ventures in addition to private insurance agencies, finance, fitness clubs, automobile makers, retailers, and care facilities. For more information about Eisai Co., Ltd., please visit http://www.eisai.com.

Biogen Safe Harbor
This news release contains forward-looking statements, including statements made pursuant to the safe harbor provisions of the Private Securities Litigation Reform Act of 1995, about potential regulatory discussions, submissions and approvals and the timing thereof; the potential clinical effects of aducanumab; the potential benefits, safety and efficacy of aducanumab; the results of the Phase 3 studies and Phase 1b study of aducanumab; the identification and treatment of Alzheimer's disease; the anticipated benefits and potential of Biogen's collaboration arrangements with Eisai; the potential of Biogen's commercial business and pipeline programs, including aducanumab; and risks and uncertainties associated with drug development and commercialization. These statements may be identified by words such as "aim," "anticipate," "believe," "could," "estimate," "expect," "forecast," "intend," "may," "plan," "possible," "potential," "will," "would" and other words and terms of similar meaning. Drug development and commercialization involve a high degree of risk, and only a small number of research and development programs result in commercialization of a product. Results in early stage clinical trials may not be indicative of full results or results from later stage or larger scale clinical trials and do not ensure regulatory approval. You should not place undue reliance on these statements or the scientific data presented.

These statements involve risks and uncertainties that could cause actual results to differ materially from those reflected in such statements, including without limitation actual timing and content of submissions to and decisions made by the regulatory authorities regarding aducanumab; regulatory submissions may take longer or be more difficult to complete than expected; regulatory authorities may require additional information or further studies, or may fail or refuse to approve or may delay approval of Biogen's drug candidates, including aducanumab; unexpected concerns that may arise from additional data, analysis or results obtained during clinical trials; the occurrence of adverse safety events; risks of unexpected costs or delays; the risk of other unexpected hurdles; uncertainty of success in the development and potential commercialization of aducanumab; risks relating to the potential launch of aducanumab, including preparedness of healthcare providers to treat patients, the ability to obtain and maintain adequate reimbursement for aducanumab and other unexpected difficulties or hurdles; failure to protect and enforce Biogen's data, intellectual property and other proprietary rights and uncertainties relating to intellectual property claims and challenges; product liability claims; third party collaboration risks; and the direct and indirect impacts of the ongoing COVID-19 pandemic on Biogen's business, results of operations and financial condition. The foregoing sets forth many, but not all, of the factors that could cause actual results to differ from Biogen's expectations in any forward-looking statement. Investors should consider this cautionary statement, as well as the risk factors identified in Biogen's most recent annual or quarterly report and in other reports Biogen has filed with the U.S. Securities and Exchange Commission. These statements are based on Biogen's current beliefs and expectations and speak only as of the date of this news release. Biogen does not undertake any obligation to publicly update any forward-looking statements, whether as a result of new information, future developments or otherwise.

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