Agenus Brain Cancer Vaccine Shows Extended Survival in Phase 2 Final Data Analysis

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Median Overall Survival Nearly Double than Expected with Standard of Care Alone

LEXINGTON, Mass.--(BUSINESS WIRE)--Agenus Inc. (NASDAQ: AGEN), announced final results from a single-arm, multi-institutional, open-label, Phase 2 study showing that patients with newly diagnosed glioblastoma multiforme (GBM) who received Agenus' Prophage autologous cancer vaccine added to the standard of care treatment, lived nearly twice as long as expected. In this Phase 2 study, 50% of the patients lived for two years, an encouraging result for a cancer that often kills patients within one year [1-7]. Prophage patients demonstrated a median overall survival of approximately 24 months and 33% of patients remain alive at 2 years and continue to be followed for survival.

"These data suggest that Prophage is generating an effective immune response which is translating into an extension in survival far beyond what is historically seen in patients with GBM. These data provide the impetus for a definitive, randomized clinical trial," said Andrew Parsa, MD, PhD,Principal Investigator of the study and the Michael J. Marchese Professor and Chair of the Department of Neurological Surgery at the Feinberg School of Medicine at Northwestern University. "Glioblastoma tumors are often resistant to standard therapies and the extended progression-free survival and proportion of long-term survivors is very encouraging."

In addition to the long-term survival data, vaccine treated patients had a median progression-free survival (PFS) of nearly 18 months, approximately two to three-times longer than patients treated with radiation and temozolomide alone[1]. Importantly, 22% of patients were alive and without progression at 24 months and continue to be followed for survival.

Interestingly, the response to Prophage seems to be more pronounced in those patients with less expression of the checkpoint ligand PDL-1 on the white blood cells, suggesting that combinations of Prophage with checkpoint modulators like PD-1 antagonists might make Prophage even more effective in a greater percentage of patients with GBM.

"We believe that Prophage may play an important role in changing the treatment paradigm for patients with GBM," said Garo Armen, PhD, CEO and chairman of Agenus Inc. "We are exploring partnerships for Phase 3 studies of Prophage in GBM. Additionally, we are excited about the potential combinations of Prophage with PD-1 antagonists and other checkpoint modulators in GBM."

Prophage is an autologous cancer vaccine, and each patient receives vaccine prepared from their own surgically resected tumor. As a result, the vaccine appears to help stimulate the patient's immune system to attack the tumor based on the spectrum of mutant proteins expressed by their own tumor. Since most cancers result from an accumulation of random mutations, which produce different mutant proteins in each patient, this approach is intended to individually tailor each patient's vaccine to optimally target the immune attack to that patient's actual tumor.

Phase 2 Prophage Study in Newly Diagnosed GBM

The Phase 2 single-arm trial of Prophage in patients with newly diagnosed GBM undergoing gross total resection includes 46 patients treated at eight centers (UCSF, Columbia, UPENN, Miami, Valley Hospital, Northern Westchester Hospital, Oklahoma, Johns Hopkins, and Northwestern) across the US. Patients were treated with surgical resection, radiation and temozolomide as the standard of care in addition to Prophage vaccination. The cohort was comparable to patients with surgically resectable newly diagnosed GBM on prognostic factors such as age, Karnofsky Performance Score, and MGMT methylation status. Analyses of data collected to date show more than 50% of the patients were alive at two years and patients continued to be followed. These results indicate considerable improvement when compared to expectations for patients treated with the standard of care (gross total resection plus radiation and temozolomide), which is 26% of patients alive at 24 months.[1]

Median overall survival (OS), the primary endpoint of the trial, is 23.8 months and remains durable in patients treated with Prophage. For the standard of care alone, median OS survival rate is 14.6 months.[1] PFS data remains durable with previous reports with a median PFS of 17.8 months and nearly 22% of patients alive without progression at 24 months.

The Phase 2 recurrent and newly diagnosed trials are being sponsored by Dr. Parsa and primarily have been supported through funding from the American Brain Tumor Association, Accelerated Brain Cancer Cure, National Brain Tumor Society, and National Cancer Institute Special Programs of Research Excellence. Dr. Parsa has not received any financial support or expense reimbursement for this work or for consulting activities on behalf of Agenus. He does not have an equity interest in Agenus or a financial relationship with the company.

About Glioblastoma Multiforme (GBM)

The incidence rates of primary malignant brain and central nervous system cancers have increased over the last three decades.[8] The American Cancer Society estimates that more than 23,000 malignant tumors of the brain or spinal cord will be diagnosed during 2013 in the US, and that more than 14,000 people will die from these tumors. [9] GBM is the most common primary malignant brain tumor and accounts for the majority of diagnoses. It has been associated with a particularly poor prognosis, with survival rates at one and five years equaling 33.7% and 4.5%, respectively.[10] The current standard of care for patients with newly diagnosed GBM is surgical resection followed by fractionated external beam radiotherapy and systemic temozolomide[11] resulting in a median OS of 14.6 months[12] based on data from a randomized Phase 3 trial. Although this treatment can prolong survival, it is not curative and the vast majority of patients with GBM experience recurrent disease, with a median time to recurrence of seven months.[13] From the time of recurrence, the median survival is three to nine months.[1-7] Current treatment options for patients with recurrent GBM, include surgery, chemotherapy (*i.e.*, CCNU, temozolomide), bevacizumab, and radiotherapy.

About Prophage Series Vaccines

Prophage Series vaccines are individualized cancer vaccines derived from each patient's own tumor. As a result of its individualized nature, each Prophage Series vaccine contains the precise signals (antigenic fingerprint) of the patient's particular cancer and allows the body's immune system to

target only cells bearing this specific fingerprint. Such high precision in immunological targeting represents a distinctly different method for treating cancer compared to conventional anti-cancer treatments such as chemotherapy or radiation therapy. These conventional therapies cause side effects, which are sometimes debilitating.

Prophage Series vaccines are based on Agenus' heat shock protein platform technology. For more information about Prophage Series vaccines and Agenus' heat shock protein platform, please visit http://agenusbio.com/science/prophage.php.

About Agenus

Agenus is an immuno-oncology company developing a portfolio of checkpoint modulators (CPMs), heat shock protein vaccines and adjuvants. Agenus' checkpoint modulator programs target GITR, OX40, CTLA-4, LAG-3, TIM-3 and PD-1. The company's proprietary discovery engine Retrocyte Display® is used to generate fully human therapeutic antibody drug candidates. The Retrocyte Display platform uses a high-throughput approach incorporating IgG format human antibody libraries expressed in mammalian B-lineage cells. Agenus' heat shock protein vaccines for cancer and infectious disease are in Phase 2 studies. The company's QS-21 Stimulon ® adjuvant platform is extensively partnered with GlaxoSmithKline and Janssen and includes several candidates in Phase 3 trials. For more information, please visit www.agenusbio.com, or connect with the company on Facebook, LinkedIn, Twitter and Google+. For more information, please visit www.agenusbio.com.

Forward-Looking Statement

This press release contains forward-looking statements, including statements regarding clinical trial activities, the publication of data, and the potential application of the Company's technologies and product candidates in the prevention and treatment of diseases. These forward-looking statements are subject to risks and uncertainties that could cause actual results to differ materially. These risks and uncertainties include, among others, the factors described under the Risk Factors section of our Quarterly Report on Form 10-Q filed with the Securities and Exchange Commission for the period ended March 31, 2014. Agenus cautions investors not to place considerable reliance on the forward-looking statements contained in this release. These statements speak only as of the date of this document, and Agenus undertakes no obligation to update or revise the statements. All forward-looking statements are expressly qualified in their entirety by this cautionary statement. Agenus' business is subject to substantial risks and uncertainties, including those identified above. When evaluating Agenus' business and securities, investors should give careful consideration to these risks and uncertainties.

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