Agios Provides Update on PKR Program

December 15, 2016

- Development of Second PKR Activator AG-519 Discontinued Following FDA Feedback -

- Lead PKR Activator AG-348 Advancing into Pivotal Development in Pyruvate Kinase Deficiency -

- Company to Host Conference Call and Webcast Today at 5:00 p.m. ET -

CAMBRIDGE, Mass., Dec. 15, 2016 (GLOBE NEWSWIRE) -- Agios Pharmaceuticals, Inc. (Nasdaq:AGIO), a leader in the fields of cancer metabolism and rare genetic metabolic disorders, today announced that it is no longer developing its second pyruvate kinase-R (PKR) activator, AG-519, and withdrew its investigational new drug (IND) application yesterday following a verbal notification of a clinical hold from the U.S. Food and Drug Administration (FDA). These decisions do not affect the Company's ongoing global Phase 2 study (DRIVE PK) for AG-348, a novel, first-in-class activator of both wild-type (normal) and mutated PKR enzymes. Agios is advancing AG-348 into pivotal development as the first potential disease-modifying treatment for pyruvate kinase (PK) deficiency.

"We share the FDA's commitment to patient safety and believe this is the right decision to ultimately help people with PK deficiency," said David Schenkein, M.D., chief executive officer at Agios. "As the lead compound in our PKR program, AG-348 has demonstrated clear proof of concept with robust, rapid and sustained increases in hemoglobin in patients with PK deficiency. Based on our clinical experience with DRIVE PK, we are developing a registration path for AG-348 in adult PK deficiency patients and plan to discuss this strategy with regulators."

DRIVE PK is an ongoing global Phase 2, open-label safety and efficacy trial and the first study evaluating AG-348 in adult, transfusion-independent patients with PK deficiency. The study target enrollment has been reached with a total of 52 patients. In total, 124 patients and healthy volunteers have been treated with AG-348 since studies were initiated in 2014. As of the September 23, 2016 data cut-off, AG-348 was well-tolerated with the majority of treatment-related adverse events (AEs) Grade 1-2; the most frequent being headache, nausea and insomnia. AG-348 also demonstrated clinically relevant, rapid and sustained hemoglobin increases in 15 of 26 patients with at least one missense mutation, and in 15 out of 32 patients overall.

AG-519 was evaluated in a Phase 1 healthy volunteer study in the United Kingdom to assess safety, tolerability, pharmacokinetics, pharmacodynamics and bioavailability. A previously disclosed case of drug-induced cholestatic hepatitis occurred in the bioavailability portion of the study and this volunteer continues to be monitored. No additional adverse events have been reported. In addition, AG-519 was undergoing a palatability (taste test) study in volunteers in the United States to develop a formulation for potential future development. In total, 98 volunteers have received AG-519 and no volunteers or patients are currently receiving the drug.

Conference Call and Webcast Information

Agios will host a conference call and live webcast today at 5:00 p.m. ET to discuss updates to the PKR program. To participate in the conference call, please dial 1-877-377-7098 (domestic) or 1-631-291-4547 (international) and refer to conference ID 40750237. The live webcast can be accessed under "Events & Presentations" in the Investors & Media section of the company's website at www.agios.com. The archived webcast will be available on the company's website beginning approximately two hours after the event.

About Pyruvate Kinase Deficiency and Genetic Background

PK deficiency is a rare inherited disease that presents as hemolytic anemia, which is the accelerated destruction of red blood cells. The inherited mutations in PKR enzymes cause a deficit in cellular energy within the red blood cell, as evidenced by lower pyruvate kinase enzyme activity and a decline in ATP levels and a build-up of upstream metabolites, including 2,3-DPG.

The current standard of care for PK deficiency is supportive, including blood transfusions, splenectomy, chelation therapy to address iron overload and/or interventions for other treatment- and disease-related morbidities. There is no approved therapy to treat the underlying cause of PK deficiency.

PK deficiency is an autosomal recessive disease whereby all patients inherit two mutations, one from each parent. More than 250 different mutations have been identified to date. The mutations observed in PK deficiency patients are classified in two main categories. A missense mutation causes a single amino acid change in the protein, generally resulting in some functional protein. A non-missense mutation is any mutation other than a missense mutation, generally resulting in little functional protein. It is estimated that 53 percent of patients with PK deficiency have two missense mutations, 25 percent have one missense and one non-missense mutation, and 22 percent have two non-missense mutations[1].

Boston Children's Hospital, in collaboration with Agios, is conducting a Natural History Study to better understand the symptoms and complications of PK deficiency, identify patients and treatment centers, and capture other clinical data, including quality of life measures and genetic information.

About AG-348

Agios discovered AG-348, a novel, first-in-class, oral activator of both wild-type (normal) and mutated pyruvate kinase-R (PKR) enzymes. AG-348 has achieved proof-of-concept in an ongoing Phase 2 study (DRIVE-PK) of patients with pyruvate kinase (PK) deficiency, a rare, potentially debilitating, congenital anemia. Agios retains worldwide development and commercialization rights to AG-348.

About Agios

Agios is focused on discovering and developing novel investigational medicines to treat cancer and rare genetic metabolic disorders through scientific leadership in the field of cellular metabolism. In addition to an active research and discovery pipeline across both therapeutic areas, Agios has multiple first-in-class investigational medicines in clinical and/or preclinical development. All Agios programs focus on genetically identified patient populations,

leveraging our knowledge of metabolism, biology and genomics. For more information, please visit the company's website at www.agios.com.

Cautionary Note Regarding Forward-Looking Statements

This press release contains forward-looking statements within the meaning of The Private Securities Litigation Reform Act of 1995. Such forward-looking statements include those regarding: the potential benefits of AG-348; Agios' plans for the further clinical development of AG-348; and Agios' strategic plans and prospects. The words "anticipate," "believe," "estimate," "expect," "intend," "may," "plan," "predict," "project," "would," "could," "potential," "possible," "hope" and similar expressions are intended to identify forward-looking statements, although not all forward-looking statements contain these identifying words. Such statements are subject to numerous important factors, risks and uncertainties that may cause actual events or results to differ materially from Agios' current expectations and beliefs. For example, there can be no guarantee that AG-348 or any other product candidate Agios is developing will successfully commence or complete necessary preclinical and clinical development phases; that positive safety and efficacy findings observed in early stage clinical trials will be replicated in later stage trials; or that development of any of Agios' product candidates will successfully continue. There can be no guarantee that any positive developments in Agios' business will result in stock price appreciation. Management's expectations and, therefore, any forward-looking statements in this press release could also be affected by risks and uncertainties relating to a number of other important factors, including: Agios' results of clinical trials and preclinical studies, including subsequent analysis of existing data and new data received from ongoing and future studies; the content and timing of decisions made by the U.S. FDA and other regulatory authorities, investigational review boards at clinical trial sites and publication review bodies; Agios' ability to obtain and maintain requisite regulatory approvals and to enroll patients in its planned clinical trials; unplanned cash requirements and expenditures; competitive factors; Agios' ability to obtain, maintain and enforce patent and other intellectual property protection for any product candidates it is developing; Agios' ability to maintain key collaborations, such as its agreements with Celgene; and general economic and market conditions. These and other risks are described in greater detail under the caption "Risk Factors" included in Agios' Quarterly Report on Form 10-Q for the quarter ended September 30, 2016, and other filings that Agios may make with the Securities and Exchange Commission in the future. Any forward-looking statements contained in this press release speak only as of the date hereof, and Agios expressly disclaims any obligation to update any forward-looking statements, whether as a result of new information, future events or otherwise.

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[1] Bianchi P et al. poster, 2015 ASH Annual Meeting

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