# New Study Results Verify That PNH Cells Are Found in Majority of Patients with Bone Marrow Failure Syndromes

## - Interim Results from EXPLORE Trial to be Presented at ASCO Annual Meeting -

CHESHIRE, Conn., May 29, 2009 (BUSINESS WIRE) -- Paroxysmal nocturnal hemoglobinuria (PNH) cells are present in the majority of patients with myelodysplastic syndromes (MDS), aplastic anemia (AA), and other bone marrow failure syndromes (BMF), according to interim results from 5,285 patients enrolled in the EXPLORE trial. EXPLORE (**EX**amination of **P**NH, by **L**evel **O**f CD59 on **RE**d and white blood cells) is the first large multicenter study to determine the frequency of PNH cells in these patient populations using a central laboratory conducting a high sensitivity test for PNH cells. The findings from EXPLORE will be presented tomorrow at the 45th Annual Meeting of the American Society of Clinical Oncology (ASCO). The EXPLORE trial was sponsored by Alexion Pharmaceuticals, Inc. (Nasdaq:ALXN).

PNH cells are defined as blood stem cells lacking certain proteins, known as GPI-anchored proteins, which include proteins that ordinarily protect blood cells from destruction by complement, a component of the normal immune system. The lack of these complement inhibitors results in the hemolysis (red blood cell destruction) that characterizes PNH, an ultra-rare, debilitating and life-threatening disease.

"The true prevalence of PNH cells in patients with a number of bone marrow failure syndromes has been unclear due to variability in PNH testing. Interim results from the EXPLORE trial show that PNH cells are common in these patients," said Azra Raza, M.D., Director, MDS Program, St. Vincent's Comprehensive Cancer Center, New York. "These results show that high sensitivity testing may help physicians detect undiagnosed PNH in patients with bone marrow failure disorders, and identify those patients with bone marrow failure who may be more likely to respond to immunosuppressive therapy."

Dr. Raza is the senior author of a poster titled, "Prevalence of Paroxysmal Nocturnal Hemoglobinuria (PNH) Cells in Patients with Myelodysplastic Syndromes (MDS), Aplastic Anemia (AA) or Other Bone Marrow Failure Syndromes (BMF): Interim Results from the EXPLORE Trial." The poster will be presented on Saturday, May 30 from 8:00 a.m. to noon in West Hall C on Level 2 of the Orange County Convention Center in Orlando, Fla.

Interim results from the EXPLORE trial are based on 5,285 patients with evidence of bone marrow failure, including 4,433 with MDS, 451 with AA, and 351 with other bone marrow failure syndromes (including patients with more than one diagnosis). To eliminate variability in the detection and reporting of PNH cell populations, a central laboratory employed a commercially available high-sensitivity flow cytometry test to identify GPI anchor-deficient PNH red blood cells and white blood cells, resulting in 0.01% sensitivity. Interim results are as follows:

- PNH cells were present in 70% of patients with AA, 55% of patients with MDS, and 55% of patients with other BMF syndromes when tested at a sensitivity of 0.01% PNH cells.
- PNH clones of clinical significance (â%¥1% of white blood cells) were found in 25% of patients with AA (113 of 451), 1% of patients with MDS (54 of 4,433) and 5% of patients with other BMF syndromes (16 of 351).
- Among patients with PNH clones of clinical significance, elevated levels of hemolysis, or red blood cell destruction, were evident in 38% of patients with AA, 44% of patients with MDS, and 69% of patients with other BMF syndromes. In PNH, excessive hemolysis can lead to thrombosis, pulmonary hypertension, kidney failure, pain and fatigue in affected patients.
- Most patients who tested positive had smaller populations of PNH cells (< 1% of white blood cells), demonstrating the need to test patients using flow cytometry with sufficiently high sensitivity capable of detecting these abnormal cells.
- PNH cells were identified in patients with all subtypes of MDS as well as in patients with both severe and non-severe aplastic anemia, supporting the clinical importance of testing all MDS and AA patients.

**Importance of Detecting PNH Cells**

Research shows that patients with MDS, AA and other BMF syndromes have a greater likelihood of having PNH. However, these patients are often overlooked for PNH testing due to the perceived rarity of PNH cells, and also because certain symptoms of BMF syndromes overlap with those of PNH. Importantly, the identification of PNH cells in patients with BMF syndromes may impact the mode of treatment for the bone marrow disorder, regardless of the treatment decision regarding the patient's PNH. For example, studies have suggested that the presence of even a small number of PNH cells detected by high

sensitivity flow cytometry may predict that the AA or MDS component of patients' disease has a higher likelihood of a clinically important response to immunosuppressive therapy (IST). (1,2,3)

Researchers continue to enroll patients with AA in the EXPLORE study, which is expected to eventually test almost 6,000 patients. When completed, the results are expected to help define those patients with bone marrow failure syndromes who should be tested for PNH and how the test should be conducted.

"A growing number of hematologists and oncologists are interested in establishing better diagnostic pathways for PNH with the goal of ensuring timely diagnosis and effective management of this ultra-rare, debilitating and life-threatening disease," said Leonard Bell, M.D., Chief Executive Officer of Alexion Pharmaceuticals, Inc. "The EXPLORE trial provides valuable data to support this effort and further establishes the important role of early diagnosis with high sensitivity flow cytometry in testing patients with bone marrow disorders for the presence of PNH cells." Alexion has developed and currently markets a treatment for patients with PNH approved in the U.S., European Union, Australia, and Canada.

**About PNH**

PNH is an ultra-rare blood disorder that strikes people of all ages, with an average age of onset in the early 30s. (4) Approximately 10 percent of all patients first develop symptoms at 21 years of age or younger. (5) PNH develops without warning and can occur in men and women of all races, backgrounds and ages. PNH often goes unrecognized, with delays in diagnosis ranging from one to more than 10 years. (6) It is estimated that approximately one-third of patients with PNH do not survive more than five years from the time of diagnosis. (6) PNH has been identified more commonly among patients with disorders of the bone marrow, including aplastic anemia (AA) and myelodysplastic syndromes (MDS). (7,8,9) In patients with thrombosis of unknown origin, PNH may be an underlying cause. (5) More information on PNH is available at www.pnhsource.com.

**About Alexion**

Alexion Pharmaceuticals, Inc. is a biopharmaceutical company working to develop and deliver life-changing drug therapies for patients with serious and life-threatening medical conditions. Alexion is engaged in the discovery, development and commercialization of therapeutic products aimed at treating patients with a wide array of severe disease states, including hematologic and kidney diseases, transplant, cancer, and autoimmune disorders. Soliris$^{(R)}$ (eculizumab) is Alexion's first marketed product, approved in the U.S. and Europe in 2007, and Canada and Australia in 2009. Alexion is evaluating other potential indications for Soliris as well as other formulations of eculizumab for additional clinical indications, and is pursuing development of other antibody product candidates in early stages of development. This press release and further information about Alexion Pharmaceuticals, Inc. can be found at: www.alexionpharma.com.

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**Safe Harbor Statement**

This news release contains forward-looking statements, including statements related to potential health and medical benefits from Soliris. Forward-looking statements are subject to factors that may cause Alexion's results and plans to differ from those expected, including for example, decisions of regulatory authorities regarding marketing approval or material limitations on the marketing of Soliris, delays in arranging satisfactory manufacturing capability and establishing commercial infrastructure, delays in developing or adverse changes in commercial relationships, the possibility that results of clinical trials are not predictive of safety and efficacy results of Soliris in broader patient populations, the possibility that initial results of commercialization are not predictive of future rates of adoption of Soliris, the risk that third parties won't agree to license any necessary intellectual property to Alexion on reasonable terms or at all, the risk that third party payors will not reimburse for the use of Soliris at acceptable rates or at all, the risk that estimates regarding the number of PNH patients are inaccurate and a variety of other risks set forth from time to time in Alexion's filings with the Securities and Exchange Commission, including but not limited to the risks discussed in Alexion's Quarterly Report on Form 10-Q for the period ended March 31, 2009, and in Alexion's other filings with the Securities and Exchange Commission. Alexion does not intend to update any of these forward-looking statements to reflect events or circumstances after the date hereof, except when a duty arises under law.

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