UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549

FORM 8-K

CURRENT REPORT
PURSUANT TO SECTION 13 OR 15(D) OF
THE SECURITIES EXCHANGE ACT OF 1934

Date of report (Date of earliest event reported): **June 2, 2009**

ALEXION PHARMACEUTICALS, INC.

(Exact name of registrant as specified in its charter)

Delaware	**000-27756**	**13-3648318**
(State or other jurisdiction of incorporation or organization)	**(Commission File Number)**	**(I.R.S. Employer Identification No.)**

352 Knotter Drive, Cheshire, Connecticut 06410
(Address of Principal Executive Offices) (Zip Code)

Registrant's telephone number, including area code: (203) 272-2596

Check the appropriate box below if the Form 8-K filing is intended to simultaneously satisfy the filing obligation of the registrant under any of the following provisions (see General Instruction A.2. below):

☐ Written communications pursuant to Rule 425 under the Securities Act (17 CFR 230.425)

☐ Soliciting material pursuant to Rule 14a-12 under the Exchange Act (17 CFR 240.14a-12)

☐ Pre-commencement communications pursuant to Rule 14d-2(b) under the Exchange Act (17 CFR 240.14d-2(b))

☐ Pre-commencement communications pursuant to Rule 13e-4(c) under the Exchange Act (17 CFR 240.13e-4(c))

Item 8.01 Other Events.

On June 2, 2009, Mayo Clinic issued a press release that describes research being conducted by a Mayo Clinic investigator, Dr. Mark Stegall. The press release describes Dr. Stegall's preliminary results from an evaluation of eculizumab as a treatment for a sub-set of kidney transplant patients who are known to be at high risk for antibody-mediated rejection, or AMR, of the graft organ. The release also discusses related research at Mayo Clinic with regard to the effect of systemic complement inhibition on endothelial activation in the kidneys of patients at high risk for AMR. Dr. Stegall is an independent investigator, and Alexion provided funding and material in support of his studies.

A copy of the press release is furnished as Exhibit 99.1 to this form 8-K.

This Current-Report on Form 8-K contains forward-looking statements, including statements related to potential health and medical benefits from eculizumab. 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® (eculizumab), delays in arranging satisfactory manufacturing capability and establishing commercial infrastructure, delays in developing or adverse changes in commercial relationships, the possibility that preliminary results of the study are not indicative of final results for the complete study, 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.

Item 9.01 Financial Statements and Exhibits.

(d) Exhibits

99.1 Press Release issued by Mayo Clinic on June 2, 2009 relating to its research concerning the prevention of antibody-mediated damage in kidney transplants.

Signature

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned hereunto duly authorized.

ALEXION PHARMACEUTICALS, INC.

Date: June 2, 2009

By: /s/ Thomas I.H. Dubin
Name: Thomas I. H. Dubin
Title: Senior Vice President and
General Counsel

Study Shows New Approach to Prevent Antibody-Mediated Damage in Kidney Transplants

Tuesday, June 02, 2009

BOSTON — Early results from a Mayo Clinic research study demonstrate the effectiveness of a new approach to blocking an important part of the immune system that causes severe damage to some kidney transplants. Historically, these patients have been very difficult to treat successfully because their immune systems are already primed with antibodies to destroy the donor organ. These findings were presented today at the American Transplant Congress.

Results show that the drug under study, called eculizumab, prevents antibody-mediated kidney transplant rejection by inhibiting the immune system's activation of one of the body's important defense mechanisms — the complement system. Antibody-mediated rejection is a major barrier to transplant in patients with antibodies against their living donors sometimes called "positive crossmatch kidney transplants."

Though the results are preliminary and the study is ongoing, Mayo Clinic's lead author, Mark Stegall, M.D., said the data suggest that eculizumab therapy may be a turning point for this select group of high risk kidney transplantation patients. "This innovative approach has the potential to make this type of high risk transplant possible for more people while improving outcomes," he says.

Background

Positive crossmatch patients have antibodies in their blood against foreign "tissue types" that are present on donor kidneys. These tissue types, termed Human Leukocyte Antigens (HLA), are the reason the transplant patient's body perceives the donated kidney as "non-self" tissue. These antibodies result from previous transplants, blood transfusions or pregnancies.

Increasingly recognized as a major problem, high levels of these antibodies delay transplantation, as evidenced by the approximately 7,000 people on the United Network for Organ Sharing (UNOS) kidney waiting list who are still looking for a match. Mayo Clinic has long been a leader in devising innovative approaches to help this challenging group of kidney patients, and these latest findings about eculizumab add to the expertise and options offered to patients.

Significance of the Mayo Clinic research

This work suggests a novel way to block antibody-mediated tissue injury. The Mayo team showed that eculizumab blocks the part of the immune system known as the complement system, which initiates tissue destruction. In this study, 10 positive crossmatch kidney transplant patients were treated with eculizumab. None of the treated patients developed antibody-mediated rejection compared to historical controls in which 60 percent with similar levels of antibody would have developed antibody-mediated rejection.

"These results are great news because they mean that none of the treated patients developed the most serious complication that normally threatens the transplant. This represents a quantum leap in this area," explains Dr. Stegall.

Research rationale

High levels of antibodies were once considered an absolute contraindication to kidney transplantation; however, Mayo Clinic researchers and other groups have developed new protocols to successfully overcome antibody barriers — mostly in the setting of living donation. Without such protocols, most of these patients would die without ever receiving a kidney transplant. Despite their general success, these protocols, which have been in use for almost a decade, have been complicated by a high rate of antibody-mediated damage which can lead to early graft injury that shortens the lifespan of the transplant. Preventing antibody-mediated rejection has been difficult. This new therapy may be a first step toward improved outcomes in these high-risk recipients.

Endothelial involvement

In addition to the 10-sample study in which tissue destruction was prevented in all patients, the Mayo team presented a

related, more detailed analysis of the ability of eculizumab to prevent kidney damage at the microscopic level. This study involved 62 tissue biopsies from 50 kidney transplant patients. The biopsies were analyzed using the electron microscope for evidence of the mechanism and process of tissue destruction.

Results showed that when acute antibody-mediated rejection occurs, it involves changes observable by electron microscope in the endothelial cells lining the kidney blood vessels. These changes correspond with high levels of antibodies against the donor circulating in the patient's blood serum. And importantly, by blocking a specific part of the immune system with eculizumab, doctors prevented endothelial activation. These results suggest the endothelial lining may be a potential target for developing new drugs to stop antibody-mediated tissue destruction so that more positive crossmatch patients can be successfully transplanted. More research is needed to confirm these findings.

Collaboration

The Mayo Clinic research team also included Tayyab Diwan, M.D.; Justin Burns, M.D.; Patrick Dean, M.D.; Lynn Cornell, M.D.; Manish Gandhi, M.D.; Fernando Cosio, M.D.; and James Gloor, M.D.

This research was funded by Alexion Pharmaceuticals, Inc.

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About Mayo Clinic

Mayo Clinic is the first and largest integrated, not-for-profit group practice in the world. Doctors from every medical specialty work together to care for patients, joined by common systems and a philosophy of "the needs of the patient come first." More than 3,300 physicians, scientists and researchers and 46,000 allied health staff work at Mayo Clinic, which has sites in Rochester, Minn., Jacksonville, Fla., and Scottsdale/Phoenix, Ariz. Collectively, the three locations treat more than half a million people each year. To obtain the latest news releases from Mayo Clinic, go to www.mayoclinic.org/news. For information about research and education visit www.mayo.edu. MayoClinic.com is available as a resource for your health stories.