November 19, 2012

UK Scientists Report on Efficacy of Aradigm's Lipoquin™ Against Pneumonic Plague

A Single Dose of Aradigm's Liposomal Ciprofloxacin Delivered 24 Hours Post-Exposure with a Lethal Dose of Plague Provided Full Protection

HAYWARD, Calif.--(BUSINESS WIRE)-- Scientists from the UK Defence Science and Technology Laboratory (Dstl) report, in a preliminary study, that they have demonstrated that a single dose of Aradigm Corporation's (OTCBB:ARDM) (the "Company") liposomal ciprofloxacin formulation Lipoquin administered 24 hours after exposure to a lethal dose of the bacterium *Yersinia pestis* provided full protection in a murine model of pneumonic plague. In comparison, a single dose of oral ciprofloxacin administered 24 hours post-exposure provided no protection.

The Gram-negative bacterium *Yersinia pestis* is the causative agent of plague, a disease thought to be responsible for the death of 200 million people through devastating pandemics such as the Black Death. Inhalation of *Y. pestis* can result in the most severe form of the disease, pneumonic plague, which if untreated may have a mortality rate of 100%. Currently, there is no licensed vaccine for use in humans.

In the study, the animals were followed for up to 28 days post-exposure. Exposure to aerosolized *Y. pestis* was lethal with all untreated mice succumbing to a systemic infection by day 3 post-exposure. A single dose of oral ciprofloxacin administered at 24 hours post-exposure did not prevent mortality and only increased the mean time to death to 5 days compared to 3 days for untreated mice. In comparison, a single dose of Lipoquin delivered via the nose into the lungs of the animals provided 100% protection and significantly improved survival compared to a single dose of oral ciprofloxacin ($P < 0.0001$); a single dose of aerosolized Lipoquin administered at 24 hours post-exposure provided approximately 70% protection and significantly improved survival when compared to a single dose of oral ciprofloxacin ($P < 0.001$).

In their report, the scientists state that the study demonstrated the superior efficacy of Lipoquin compared to oral ciprofloxacin as post-exposure prophylaxis against *Y. pestis*.

Scientists at Dstl previously demonstrated the efficacy of Lipoquin compared to oral ciprofloxacin against *Francisella tularensis* (the causative agent of tularemia) infection using the highly virulent SCHU S4 strain: a single dose of aerosolized Lipoquin provided full protection against lethal exposure in a murine model of *F. tularensis* infection. In addition, a single dose of aerosolized Lipoquin was superior to a five-day course of twice-daily oral ciprofloxacin therapy, which provided only minimal protection.

Additionally, in a previously reported collaborative study with the Health Protection Agency and Dstl, Aradigm's inhaled liposomal ciprofloxacin was shown to be effective in a mouse model against *Coxiella burnetii* — the causative agent of the disease Q fever. *C. burnetii* is endemic worldwide, infects a wide variety of animals and humans and has a low infectious dose by the inhalational route. Clinical presentation in humans may lead to an acute infection with flu-like symptoms, or a chronic life-threatening disease. A recent epidemic of Q fever in humans took place in the Netherlands in 2009, with 2,357 reported cases and 6 deaths. Current oral antibiotic treatment of Q fever can be lengthy and complex.

"We are very excited to see that our inhaled liposomal ciprofloxacin has been found to show very promising efficacy against three possible bioterrorism agents, making it potentially a useful broad-spectrum prophylaxis and treatment against such infections. We continue to seek opportunities for additional funding for this type of work via collaborations with government agencies with the view that our liposomal ciprofloxacin may be approved under FDA and similar overseas regulations relating to new drugs or biologics for potentially fatal diseases where human studies cannot be conducted ethically or practically," said Igor Gonda, President and CEO of Aradigm.

About inhaled ciprofloxacin (Pulmaquin™ and Lipoquin)

Ciprofloxacin is a widely prescribed antibiotic to treat infections of the lung frequently experienced by cystic fibrosis (CF) and non-cystic fibrosis bronchiectasis (BE) patients. It is often preferred because of its broad-spectrum anti-bacterial action. The available oral and intravenous formulations of the drug are used to treat episodes of acute exacerbations of lung infections in CF patients. The Company's once-a-day novel inhaled formulations of ciprofloxacin are encapsulated in liposomes, allowing for a sustained release of the drug within the lung and improving airway tolerability. The formulations are to be used for chronic maintenance therapy as they are expected to achieve higher antibiotic concentration at the site of infection and relatively low systemic antibiotic concentrations to minimize side-effects. Lipoquin is a liposomal formulation of ciprofloxacin. Pulmaquin is a

dual release formulation that is a mixture of Lipoquin with unencapsulated ciprofloxacin. Pulmaquin has been tested extensively in preclinical tests, as well as in the ORBIT-2 Phase 2b bronchiectasis study in which outstanding antimicrobial activity coupled with good safety and tolerability was found, and, most importantly, the positive impact on prevention of exacerbations compared to placebo was also observed. The Company previously reported positive results in Phase 2a studies of 22 CF patients and 36 BE patients who received Lipoquin once-a-day for 2 (CF) or 4 (BE) weeks, respectively. Additionally, Aradigm is developing these formulations as a potential medication for the prevention and treatment of high threat and bioterrorism infections, such as inhaled anthrax, tularemia and Q fever. Aradigm has been granted orphan drug designation for liposomal ciprofloxacin for cystic fibrosis in the U.S. and the E.U., and for the combination of liposomal ciprofloxacin and free ciprofloxacin for BE in the U.S.

About Aradigm

Aradigm is an emerging specialty pharmaceutical company focused on the development and commercialization of a portfolio of drugs delivered by inhalation for the treatment of severe respiratory diseases. The Company has product candidates addressing the treatment of bronchiectasis, cystic fibrosis, inhalation tularemia and anthrax infections, and smoking cessation.

More information about Aradigm can be found at www.aradigm.com.

Forward-Looking Statements

Except for the historical information contained herein, this news release contains forward-looking statements that involve risk and uncertainties, including the ability of animal results to predict efficacy in humans, as well as the other risks detailed from time to time in the Company's filings with the Securities and Exchange Commission (SEC), including the Company's Annual Report on Form 10-K for the year ended December 31, 2011 filed with the SEC on March 28, 2012, and the Company's Quarterly Reports on Form 10-Q.

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Source: Aradigm Corporation

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