Pulmatrix’s PUR118 Demonstrates Potential to Reduce Acute Exacerbations of the Lung Associated with Progressive Respiratory Diseases, such as COPD, Asthma, CF, and Respiratory Infections

Results from Two Preclinical Studies Presented at European Respiratory Society Annual Congress Highlighted Anti-Inflammatory Mechanism of Action of iCALM

Lexington, MA, September 27, 2011 — Pulmatrix, a clinical stage biotechnology company discovering and developing a new class of therapies for the prevention, treatment and control of respiratory diseases, announced today results from two preclinical studies demonstrating that PUR118, the company’s novel, inhaled dry-powder therapeutic, was effective in reducing airway inflammation and exacerbation response in animal models of progressive respiratory diseases. The results were presented during oral and poster sessions on September 26 and 27, 2011, at the European Respiratory Society (ERS) Annual Congress in Amsterdam, Netherlands.

Reducing the frequency and severity of acute exacerbations (AEs)—serious complications that drive disease progression and cause loss of lung function—is a major goal in managing chronic obstructive pulmonary disease (COPD), asthma, cystic fibrosis (CF), and other chronic and infectious respiratory diseases. An inhaled dry powder, PUR118 is Pulmatrix’s lead drug candidate based on the company’s proprietary iCALM technology, a novel therapeutic approach that targets the cause of acute exacerbations of the lung to prevent inflammation and infection, rather than treating the resulting symptoms.

“While treating acute exacerbations is vital for patients with progressive respiratory diseases, there are no available therapies that target the underlying root causes of acute exacerbations of the lung,” said Robert Clarke, Ph.D., Chief Scientific Officer and Vice President of Research and Development of Pulmatrix. “The data from these two respiratory disease studies support our novel approach of targeting the cause of acute exacerbations and clearly demonstrate PUR118’s ability to reduce airway inflammation and significant potential for decreasing acute exacerbations of the lung. These results support the growing body of evidence we have that shows that PUR118 represents a fundamentally unique new way to treat and manage COPD, asthma, cystic fibrosis, and other progressive respiratory diseases.”

Highlights of Studies

Oral Presentation (ERS 2011 Abstract #4499): “Inhaled Calcium Salts Reduce Tobacco Smoke-Induced Airway Inflammation and Improve Lung Pathology.” In a mouse model of acute tobacco smoke-induced airway inflammation, PUR118 reduced inflammation and improved lung pathology with equivalent efficacy to the positive control, a p38 MAP kinase inhibitor. In this study, C57BL6 mice were exposed to tobacco smoke (TS) for 4 days or 11 days. Treatments with salt-based dry powder (DP) (40µmol/kg) were delivered by inhalation exposure. Mice were euthanized 24 hours after the last TS exposure, BAL
cells were quantified and histopathology performed. In a 4 day exposure model, treatment with PUR118 once daily 1 hour or 6 hours before TS reduced inflammatory cells [for 1h, macrophages (52%) and neutrophils (62%), compared to control (p<0.01)]. In an 11 day exposure model, PUR118 reduced inflammation in prophylactic or therapeutic dosing regimes and markedly reduced the severity and incidence of peri-vascular and peri-bronchiolar inflammation, bronchiolitis, alveolitis, and pneumonitis by histopathological analysis.

*Poster Presentation (ERS 2011 Poster #2552): “Inhaled Calcium-Based Dry Powder Inhibits Rhinovirus-Induced Inflammation and Exacerbation in a Mouse Model of Allergic Airway Inflammation:”* In an asthma-like mouse model of rhinovirus infection and AE, PUR118 significantly inhibited rhinovirus-induced airway inflammation and rhinovirus-driven exacerbation responses. PUR118 was tested for efficacy against Rv in a mouse model of infection and AE using Rv1B infection in naïve and ovalbumin (OVA)-challenged mice. Mice (Balb/c) were treated with PUR118 or control DP by whole body exposure, twice daily (BID) 2d prior to Rv infection (5x10^6 TCID50) and BID on day of infection. Bronchoalveolar lavage (BAL) inflammation was evaluated 24h post-infection. Additional indices of infection and exacerbation included: viral titers, and expression of relevant cytokines and chemokines. Rv infection caused significant neutrophilic inflammation in naïve mice (7.5x10^5 BAL neutrophils/ml) and exacerbated inflammation in OVA challenged mice (44% increase over control) with increased neutrophils, cytokines and chemokines. In naïve mice, PUR118 treatment reduced neutrophilic inflammation by 38%, which correlated with reduced cytokine and chemokine expression. Similar results were observed in OVA mice where PUR118 treatment reduced neutrophilic inflammation by 40%.

**About PUR118**

PUR118, Pulmatrix’s lead product candidate based on the company’s proprietary iCALM technology, is a novel inhaled, dry powder therapeutic in development to treat patients with chronic obstructive pulmonary disease (COPD), cystic fibrosis (CF), asthma, and influenza through the combined effects of reducing airway inflammation, augmenting airway clearance, and priming the airway’s innate defenses to combat respiratory pathogens. In preclinical studies, PUR118 has demonstrated broad-spectrum activity against multiple viral and bacterial pathogens in both *in vivo* and *in vitro* models. PUR118 is currently in Phase 1b clinical trials for patients with COPD.

**About Pulmatrix**

Pulmatrix is a clinical-stage biotechnology company discovering and developing a new class of therapies for the prevention, treatment and control of respiratory diseases. Pulmatrix’s lead proprietary therapies, called inhaled cationic airway lining modulators (iCALM), are a novel approach to prevent and treat acute exacerbations and improve lung function in patients with chronic respiratory diseases. iCALM therapies have broad potential to treat and prevent a wide range of respiratory diseases, including respiratory infections such as influenza; ventilator-associated pneumonia (VAP) and respiratory syncytial virus (RSV), as well as progressive or chronic respiratory diseases such as COPD, asthma and cystic fibrosis. For additional information about the company, please visit www.pulmatrix.com.

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