



Pulmatrix Demonstrates Superiority of iSPERSE in Delivering An Effective Multi-Drug Inhaled Dose Compared to Conventional Formulation

*In Vitro Data from Comparative Studies with Advair®
Showed Capabilities of Novel Inhaled Dry Powder Platform*

Company Pursuing Proprietary and Partnered Inhaled Drug Candidates

Lexington, Mass., October 31, 2011 -- [Pulmatrix](#), a clinical stage biotechnology company discovering and developing a new class of therapies for the prevention, treatment and control of respiratory diseases, today announced that it has demonstrated that [iSPERSE™](#), its inhaled drug platform, shows superiority in delivering an effective therapeutic dose of the active ingredients in Advair®, salmeterol and fluticasone, compared to conventional lactose blend Advair. These data from *in vitro* studies show the potential of iSPERSE, a proprietary cationic salt formulation inhaled as a dry powder, to efficiently deliver consistent doses, which can have relevance to patients having lower or impaired lung function. Based on these and other data, Pulmatrix is now advancing a number of proprietary iSPERSE drug formulation candidates including small molecules, combinations and biologics in a variety of therapeutic areas, including chronic obstructive pulmonary disease (COPD), cystic fibrosis, asthma, idiopathic pulmonary fibrosis (IPF), pulmonary arterial hypertension (PAH), and non-CF bronchiectasis, as well as pursuing partnerships for iSPERSE.

“These *in vitro* studies clearly demonstrate several of the key attributes of iSPERSE compared to traditional lactose blends: delivery efficiency of respirable particles, improvement of the delivered dose of active ingredients and flow rate independence,” said Michael Lipp, PhD, Vice President of Development and Intellectual Property at Pulmatrix. “We believe these iSPERSE traits will translate to improved efficacy to patients related to dose reproducibility, reduced side effect profiles, and broader applicability to patient populations with compromised lung function.”

In the *in vitro* studies cited, Pulmatrix demonstrated that iSPERSE is superior to conventional inhalation drug delivery technologies in dose delivery, dose efficiency and inhalation flow rate independence. In these studies, an iSPERSE fluticasone and salmeterol combination was matched to commercially available Advair. iSPERSE showed three times greater delivery of drug to the lungs over the lactose blend while maintaining consistent particle size over a range of inhalation flow rates. These data will be presented at the 11th US-Japan Symposium on Drug Delivery Systems, which is being held from December 16-20, 2011, in Lahaina, Hawaii.

Mike Yeadon, PhD, former Vice President and Chief Scientific Officer of the Allergy and Respiratory Unit of Pfizer and member of Pulmatrix’s Scientific Advisory Board, said: “For decades, just three basic methods existed for creating inhalable drugs: nebulized

solutions, lactose-based dry powders and metered-dose inhalers. Like many in respiratory R&D, I thought that was all there could be. But iSPERSE's small, dense particle technology appears to add another and valuable option. Its potential could be huge and not only for existing drugs. As a drug discoverer, I am aware of a number of areas of target-rich biological processes for which drugs could be invented, which may not easily fit into the existing inhalation drug-delivery technologies. Rather than discard such candidates, or worse, the targets themselves, I'd recommend innovators take a close look at iSPERSE. If this becomes proven in clinic, it could become the new gold standard."

Additional data relating to the technical specifications and delivery capabilities of the iSPERSE technology were presented earlier this year at The International Society for Aerosols in Medicine (ISAM) in Rotterdam, Netherlands. At ISAM, Pulmatrix highlighted data on specific iSPERSE applications that have been formulated for a variety of classes and compounds including long-acting bronchodilators, long-acting anticholinergics, corticosteroid and multiple LABA/ICS and LAMA/ICS combinations.

About iSPERSE

[iSPERSE](#) is a novel inhaled dry powder delivery platform developed by Pulmatrix for use in the delivery of drugs via inhalation for local or systemic applications. iSPERSE uses proprietary cationic salt formulations to create a robust and flexible platform that can accommodate low or high drug loads in highly dispersible particles, yielding drug delivery capabilities not feasible with conventional dry powder technologies that rely on the use of lactose blending or low-density particles. The properties of iSPERSE have meaningful therapeutic and patient benefits, including the potential for single formulations with multiple drugs, effective inhaled drug delivery to patients with normal or impaired lung function, and the use of simple and convenient inhaler devices. iSPERSE offers the potential of a strong safety profile, as, in addition to drug and drug molecules, iSPERSE dry powders comprise exclusively generally regarded as safe (GRAS) salts and small quantities of additional, safe excipients if needed. iSPERSE powders are made via a straightforward, proven one-step spray-drying process capable of high and consistent yields.

About Pulmatrix

[Pulmatrix](#), Inc., 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 <http://www.pulmatrix.com>.

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