



## Perosphere's Anticoagulant Reversal Agent Clinical Trial Results Published in the New England Journal of Medicine

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DANBURY, Conn.--(BUSINESS WIRE)--Perosphere Inc. announced today publication of results from a phase 1/2 clinical trial of Perosphere's investigational anticoagulant reversal agent, PER977, as an Online First epub ahead of print in the *New England Journal of Medicine* ([www.nejm.org](http://www.nejm.org)).

Conducted at the Duke University Clinical Trials Research Unit, the first-in-human study demonstrated that administration of a single dose of 100 to 300 mg of PER977 restored hemostasis from the anticoagulated state induced by edoxaban to baseline levels. Edoxaban is an investigational oral once-daily, direct factor Xa-inhibitor being developed by Daiichi Sankyo.

The extended Letter to the Editor, titled "Use of PER977 to Reverse the Anticoagulant Effect of Edoxaban" describes the results of the double-blind, placebo-controlled phase 1/2 study (Clinicaltrials.gov NCT01826266) of single intravenous escalating doses of PER977 administered alone, and following a 60 mg oral dose of edoxaban in 80 healthy subjects. Anticoagulation, as assessed by whole blood clotting time (WBCT), decreased to within 10% above the baseline value observed before administration of edoxaban within 10 to 30 minutes of administration of 100 to 300 mg of PER977 and was sustained for 24 hours with no rebound and requiring no infusions. Measurements of WBCT had increased by 37% over baseline following edoxaban. Notably in patients who received placebo, the WBCT did not return to baseline for 12 to 15 hours. Of special note was the lack of pro-coagulant signals from three biomarkers (D-dimer, tissue factor pathway inhibitor and prothrombin factor 1.2). Adverse events potentially related to PER977 were limited to transient mild perioral and facial flushing, dysgeusia and one report of moderate headache.

Dr. Jack Ansell, lead author of the Letter and former Chairman of the Department of Medicine at Lenox Hill Hospital in New York and a scientific advisor to Perosphere, stated "...the fact that PER977 was shown to be safe, well tolerated, and, most importantly, effective in reversing edoxaban, one of the new factor Xa oral anticoagulants, is a major step forward in developing a readily available and simple to use reversal agent for the new oral anticoagulants."

Perosphere's CEO, Dr. Solomon Steiner said "Perosphere recently completed an additional study of PER977 administered to healthy subjects' anticoagulated with the low molecular weight heparin, enoxaparin, in which a single intravenously administered bolus of 100 to 300 mg PER977 produced complete and sustained reversal. Based on *in vitro* and *in vivo* animal studies in which PER977 reversed the factor IIa inhibitor, dabigatran (Pradaxa®), low-molecular-weight-heparin, unfractionated heparin and the Xa inhibitors, edoxaban (Savaysa™), apixaban (Eliquis®), and rivaroxaban (Xarelto®), we believe PER977 will prove to be a broad spectrum anticoagulant reversal agent in man."



### **About the Need for Anticoagulation Reversal**

Anticoagulation is utilized for the treatment and prevention of thrombosis in upwards of seven million patients annually in the United States. Despite the volume of anticoagulants used, as many as half of the patients who are candidates for treatment do not receive appropriate therapy, often due to concerns by both physicians and patients regarding increased risk of hemorrhage and associated morbidity (intracranial hemorrhage, transfusion, hypovolemia, shock, compartment syndrome, cardiac arrest). An additional serious consideration among patients receiving anticoagulants is disruption of therapy in the event of emergency surgery or invasive procedures resulting in elevated risk of thrombosis in the interim.

In the United States for the 12 months ending June 2013, among patients treated with factor Xa- and IIa- inhibitor anticoagulants, it is estimated that approximately 918,000 patients experienced bleeding with approximately 345,000 emergency room and 227,000 hospital admissions. Current therapies for the management of bleeding secondary to anticoagulation are supportive. Therefore, a single reversal agent for low-molecular-weight heparin, unfractionated heparin and the new oral anticoagulants would provide an improved therapeutic option for these serious conditions while addressing an unmet medical need.

### **About PER977**

PER977 is a small synthetic water-soluble new molecular entity that directly combines with heparins, fondaparinux and related anticoagulant drugs (i.e., direct Xa- and IIa- inhibitors) allowing rapid re-establishment of a normal blood coagulation state. This reversal effect is due to direct binding to the anticoagulant molecule with no binding to blood coagulation factors or to other proteins in the blood. PER977 is undergoing clinical development as a sterile, intravenous injection. Phase 2 studies are ongoing and nearing completion.

### **About Perosphere**

Perosphere is a private specialty pharmaceutical company focused on developing rescue medications. For more information, please visit [www.perosphere.com](http://www.perosphere.com).

### **Contacts**

Solomon S. Steiner, PhD  
President & CEO  
Perosphere Inc.  
203-885-1116  
[s.steiner@perosphere.com](mailto:s.steiner@perosphere.com)

James C. Costin, MD  
VP of Clinical & Medical Affairs, CMO  
Perosphere Inc.  
203-885-1369  
[j.costin@perosphere.com](mailto:j.costin@perosphere.com)