Therapy for heparin-induced thrombocytopenia (HIT) targeting the epitope structure of the disease-inducing antibody

Docket # 14-7144

State of Development
- Solved crystal structure of PF4 in complex with antibodies
- In vivo data showing RTO prevent HIT induced by KKO

Intellectual Property
Provisional Patent application, 60/076,213 filed November 6, 2014

Desired Partnerships
Collaboration

Technology Overview
Roughly 12 million patients are exposed to heparin annually and up to 1% of these patients will develop heparin-induced thrombocytopenia/thrombosis (HIT), a life-threatening complication where patients make antibodies that bind to the heparin/PF4 complex, resulting in thrombosis and thrombocytopenia. The Greene lab has identified and compared two antibodies respectively named KKO and RTO. KKO recognizes PF4 and stabilizes the complex with heparin, a critical initiating step in the pathogenesis of HIT. Conversely, RTO binds to an epitope that overlaps with KKO on the surface of PF4, preventing PF4 tetramerization, a critical step for the pathogenesis of HIT. This knowledge of KKO and RTO will support the development of an antibody assay to diagnose and/or monitor the progression of HIT but also the development of non-anticoagulant treatment.

Advantages
- Knowledge of the first crystal structure of PF4 in a complex with Fabs
- Provides novel target epitope for diagnosing and the development of non-anticoagulant therapeutics for HIT
- Potential to decrease misdiagnoses, decrease rates of complications, and decrease mortality

Learn More
Viviane Martin
Director, Perelman School of Medicine Office, Penn Center for Innovation
(215) 573-5402
martinv@upenn.edu

Inventor
Mark Greene, M.D., Ph.D., F.R.C.P. http://www.afcri.upenn.edu/ourfaculty/green_bio.html