

THE INTERDISCIPLINARY CENTER FOR THE STUDY OF BIOCOMPLEXITY

In vivo and in vitro models of antibody-mediated thrombosis



Lubica Rauova

Perelman School of Medicine
University of Pennsylvania

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127 Hayes-Healy

Tea at Hurley Globe - 3:30 pm

Experimental models of thrombosis that mimic human vascular disease are essential to unravel the molecular and cellular processes that contribute to pathologic thrombosis. Autoantibodies play a direct, pathogenic role in the hypercoagulable state in patients with several thrombotic disorders - the most common are heparin induced thrombocytopenia and anti-phospholipid syndrome. This talk will demonstrate the complementary types of information that can be obtained from in vivo and in vitro models of antibody-mediated thrombotic diseases, using heparin induced thrombocytopenia as a model disease where the prothrombotic state is directly attributed to pathogenic antibodies. Our in vivo murine microvascular laser injury model allows the direct visualization of the processes and testing of hypotheses in a complex living organism. In contrast, our in vitro microfluidic model allows the determination of specific cellular and molecular mechanisms of thrombosis under physiological and pathological flow and contributions of certain cell populations, as well as the roles of specific proteins and molecules in a completely humanized system. In combination, they offer new tools for studying the pathomechanisms of thrombosis and testing new specifically targeted therapeutics.