Alexandra Lucas, J Clin Exp Cardiolog 2014, 5:3
http://dx.doi.org/10.4172/2155-9880.S1.019

OMICS Group Conferences
Accelerating Scientific Discovery

4th International Conference on
Clinical & Experimental Cardiology
April 14-16, 2014 Hilton San Antonio Airport, TX, USA

Serpins as therapy: From virus to man

Alexandra Lucas
University of Florida, USA

Serpins have critical regulatory roles in coagulation and inflammatory pathways. These ubiquitous regulators are present in organisms from viruses to horseshoe crabs and to mammals, representing a large percentage of circulating proteins in the blood. The impact of serpins on normal physiological function and homeostasis is evident in patients with genetic mutations that case severe disorders such as deficiency in alpha1 antitrypsin and neuroserpin and lethal sepsis with disseminated intravascular coagulation (DIC) where there is serpindys regulation. Modification of serpin activity is used for treating some clinical disorders, e.g. heparin is used to decrease clotting through activation of antithrombin (AT III) and AAT replacement which is given to patients with genetic deficiency and emphysema. Prior studies have also reported the use of N terminal serpin peptides for treatment in sepsis and HIV. Our research group has been examining virus-derived serpins as potential therapeutics. Prior work beginning with our original studies with the Myxomaviralserpin, Serp-1, have demonstrated significant reductions in vascular disease with Serp-1 treatment in models of arterial balloon angioplasty and in aortic, renal and cardiac transplants in rodent models. Serp-1 treatment improved mortality in lethal Mouse gamma herpes virus (MHV68) in interferon gamma receptor (IFNgR) knockout mice. and mouse adapted Zaire Ebola infection with associated reduced pulmonary hemorrhage, and congestion Serp-1 has also been tested in a phase 2A clinical trial after coronary stent implant with a demonstrated significant reduction in markers for myocardial damage, related work with mammalian serpins such as NSP have also demonstrated anti-inflammatory activity in animal models. In recent work we have assessed the capacity of Viral and mammalian serpin reactive center loop (RCL) peptides to expand serpin functions and to reduce inflammatory responses with significant reductions in plaque growth in a aortic transplant model. In conclusion, viral serpins have evolved over many millions of years to form highly efficient regulators of host central inflammatory pathways, identifying new therapeutic targets and potential function as anti-inflammatory protein drugs.

Biography

Alexandra Lucas moved to the University of Florida in 2006 from the Robarts Research Institute and University of Western Ontario in London, Ontario, Canada, where she has been a principal investigator studying inflammation, specifically monocyte and T lymphocyte activation in vascular disease. She also a co-inventor and co-founding scientist for Viron Therapeutics, Inc., a biotechnology company that is now in clinical trial analyzing viral anti-inflammatory proteins as a new class of therapeutic agents. She is a practicing interventional cardiologist in addition to running an active basic research lab in vascular inflammatory research with bovver 100 paper and reviews and 16 patents published. She has been an active member of the Canadian Society for Atherosclerosis and Thrombosis Board having also served as Editor-in-Chief and serves on the American Heart Association grant panel. She is additionally on the editorial board for several journals. She also directs an annual medical mission to Fte. Liberté in Haiti.

Alexandra.Lucas@medicine.ufl.edu