CBR

The Centre for Blood Research Seminar Series

Wednesday October 12, 2016

LSC 3 | 12-1 PM

Dr. Paul O'Shea

Professor and Associate Dean,
Research, Faculty of Pharmaceutical Sciences, UBC

"Dissecting the Blood Interactome: basic molecular physiology towards redefining complex diseases"

I will outline some of the approaches we take for studying the manifold biomolecular interactions that take place between plasma proteins and blood cells and more particularly between the plasma proteins with each other.

The presentation will address two related topics, the first dealing with blood-borne biomarkers of Alzheimer's Disease (AD) both in terms of their measurement, analysis and interpretation using label-free detection methods. The evolution of a molecular profiling approach to developing an effective AD biomarker panel will be described. It will be shown that AD may be detected in clinical samples (including matched CSF and plasma) with a very high degree of confidence and the MCI to AD transition predicted with very encouraging levels of confidence. These biomarker panels are then used to reconstruct the nature of AD. In other words the appearance of a biomarker profile as a predictive pattern for AD is used to determine where molecular failings may occur that allow a redefinition of the disease that augments an understanding of the so-called amyloid hypothesis.

The second part of the presentation will deal with the complex interplay between plasma molecules with each other and blood cells (both red and white). It will be shown that the 'free' concentration of many proteins depends both on their own concentration and that of many other plasma components. If time permits, this will be discussed in the context of homeostasis and the response to disease.

Live Online Seminar Viewing:
http://tinyurl.com/cbrseminaronline