Institute of Medical Biology
A*STAR

Seminar Announcement

- All Are Welcome -



Speaker : **Prof Arne Akbar**

Professor of Immunology, Division of Infection and Immunity
University College London

Title : ***"Blocking inflammation to enhance cutaneous immunity during ageing"***

Date : 4 October 2016 (Tuesday)
Time : 11:00am – 12:00pm
Venue : Creation Theatre, Matrix Level 4
Host : Prof Birgit Lane

Abstract:

The incidence of varicella-zoster virus (VZV) re-activation increases during ageing. Although the effects of VZV re-activation are observed in the skin (Shingles) the number or functional capacity of skin resident VZV specific T cells have not been investigated. There were no differences in the numbers of skin resident CD3, CD4, CD8, CD11c or CD163 expressing cells between young (<40 yrs) and old (>65 yrs) subjects. VZV-specific $CD4^+$ T cells identified by cytokine secretion or by tetramer analysis were significantly increased in the skin compared to the blood, but there were no age associated differences in these cells. In contrast the number of $FoxP3^+$ regulatory T cells (Tregs) and expression of the inhibitory receptor PD1 on $CD4^+$ T cells were significantly increased in the skin of older humans. Therefore skin resident VZV-specific $CD4^+$ T cells are functionally competent in older but may be restricted by multiple inhibitory influences *in situ*.

We investigated the effect of Zostavax vaccination on the skin response to VZV skin test antigen in old healthy subjects. This induced a greater clinical response and significantly increased T cell infiltration into the site of VZV antigen challenge in the same individuals. In this talk I will show data on altered leukocyte infiltration and gene expression analysis at the site of VZV challenge in the skin before and after Zostavax vaccination.

About the Speaker:

Professor Akbar's work involves studies at the interface between academia, industry and clinical practice. He is internationally recognized for his studies on mechanisms that control the differentiation and senescence of human T lymphocytes and two of these studies were published in 2014 in Nature Immunology and the Journal of Clinical Investigation. In addition, he has made seminal observations about how different CD45R isoforms can be used to discriminate between primed and T cells and these markers are now used in routine diagnostic practice. His group was one of the first to identify human regulatory T cells. He was closely involved in the development of Basilizximab (Simulect), used for the prevention of acute solid organ graft rejection (Akbar is a joint patent holder) that has been used to treat ~300,000 patients. His group has also developed cutaneous recall antigen challenge models in humans for the study of immunity *in vivo* that have been adopted by researchers worldwide and by Glaxo Smith-Klein. His research group consists of basic scientists and clinicians facilitating the translational aspects of his work. The benefit of this combination is exemplified by the recent award of a highly competitive multidisciplinary MRC Experimental Medicine Grant (Akbar PI) to investigate whether blocking p38MAP kinase in older humans *in vivo* enhances their responses to recall antigen challenge in the skin. These studies are based on original mechanistic data that was generated in the Akbar Lab.