Comparing and Contrasting Techniques that Measure Cell-mediated Immunity Discussion Forum

The Royal College of Pathologists, Watson & Crick Room, 2 Carlton House Terrace, London

This event is a discussion forum, focused on comparing and contrasting available techniques that measure cell mediated immunity. The study of cell mediated immunity requires the identification of cell types and subsets involved, accurate determination of levels of effector molecules, and the kinetic assessment of these same effector molecules in real time. Advances in Fluorescence Activated Cell Sorting (FACS) allow the assessment of multiple effector molecules, via intracellular antigen detection, in defined cell subsets, via extracellular antigen detection. However, it does not allow the precise and timely assessment of these same factors, especially after re-stimulation of cell samples. Enzyme-Linked ImmunoSorbent Assay ELISA and Cytometric Bead Array (CBA) allow the accurate determination of one or multiple effector molecules, but information on their cellular origin is often sacrificed. Participants will have a chance to explore the advantages and pitfalls of effector molecule detection with the experts during round table and panel discussions

Meeting Chair**: Dr Marc Veldhoen,** *The Babraham Institute, Cambridge, UK*

This event has CPD accreditation
On registration please submit your questions to the panel that will be asked by the chair on the day of the event

9:00 – 9:30 **Registration**

9:30 – 9:35 **Introduction by Meeting Coordinator:** *Dr Astrid Englezou*, EuroSciCon, London, UK

9:35 – 9:45 **Introduction by the Chair:** Dr Marc Veldhoen, *The Babraham Institute, Cambridge, UK*

Talks by Invited Experts:

9:45 – 10:05 **Flow cytometry**
Dr Marc Veldhoen
Babraham Institute, Cambridge, UK

10:05 – 10:25 **Use of Multiplex Cytokine Analysis in Determining Secretion Profiles of Leucocyte Populations in the Female Reproductive Tract**
Dr Gendie Lash
Lecturer at Newcastle University
Leucocytes are a major cell population in the non-pregnant endometrium and early pregnancy decidua. Some of these cells have non-immune functions in addition to their classical immune functions. To decipher the functions of two of these cell types, uterine macrophages and uterine natural killer (uNK) cells we have used multiplex cytokine and growth factor analysis to determine the secretion profiles of these cell types. This has led to hypothesis driven functional studies based on their secretion profiles. Data will be presented on initial studies into choice of multiplex analysis system and the type of data we are able to generate using this approach compared to more conventional ELISA.

10:25 – 10:45 **TBC**
Dr Chris Willberg,
Nuffield Department of Medicine and NIHR Biomedical Research Centre University of Oxford Oxford UK

10:45 – 11:05 **Mid-morning Break**
Please try to visit all the exhibition stands during your day at this event. Not only do our sponsors enable Euroscicon to keep the registration fees competitive, but they are also here specifically to talk to you

11:05 – 11:25 **The use of flow cytometry to dissect vaccine and pathogen induced T cells responses**
Dr Phil Hogarth, TB Immunology, Animal Health & Veterinary Laboratory Agency, UK

Using a murine model of BCG vaccination & M. bovis challenge, we are investigating the T cell responses responsible for providing (driving?) protective immunity. Traditional techniques such as ELISPOT & ELISA combined provide valuable data, but fail to identify the phenotype or multiple functionality of responder T cells. Using Intracellular Staining (ICS) techniques, we are able to generate data describing 7 separate subsets of T cells based on cytokine functionality combined with surface phenotype.

We demonstrate that a single systemic BCG vaccination induces distinct systemic and mucosal populations of T effector memory (TEM) cells in vaccinated mice. These CD4+CD44hiCD62LloCD27- T cells are maintained for long periods in BCG protected mice, maintaining a vaccine–specific functionality.

11:25 – 11:45 **TBC**
11:45 – 12:05 **TBC**

12:05 – 12:35 **Working Lunch**
Please collect your lunch and take it to your discussion table (Session 1)
This is also a good time to fill out your feedback forms

12:35– 15:30 **Discussion Groups (Sessions 1-7)**

- Round table discussion groups (20 minutes each) will be held throughout the afternoon
- Delegates will rotate so that they may participate in all the discussion tables
- All delegates will also be allocated a session for visiting the exhibition stands
- Where appropriate delegates will be able to bring their samples to the discussions
- See end of agenda for description of discussion tables

15:30 – 16:30 **Question and Answer Session**
This session will include summing up of the discussion tables and questions submitted both prior to the meeting and throughout the day

16:35 **Chairman's Summing Up and Feedback Prize Draw**

About the Speakers

Phil Hogarth started his research career at the Liverpool School of Tropical Medicine, with a PhD in Immunoparasitology. Following postdoctoral training at Bristol University he joined AHVLA (formerly VLA) in 2001, becoming a team Leader/Senior Scientist. His main research interests are the T cell mechanisms by which vaccination protect against TB, and the identification of correlates of vaccine induced protection. Phil's expertise lies in the use of flow cytometry to identify the phenotype and function of T cells induced by vaccination or infection with TB. He is reviewer for many journals & funding agencies, including the EU and Wellcome Trust and the author of 23 papers.

Gendie Lash, who obtained her undergraduate and PhD degrees in Biochemistry from University of Otago, Dunedin, New Zealand in 1997. She then did Post-Doc jobs in Obstetrics and Gynaecology, University of Nottingham and Department of Anatomy and Cell Biology, Queen's University, Kingston, Ontario, Canada where she held a Canadian Hypertension Society Post-Doctoral Fellowship. In 2002 she moved to Newcastle University where she has been ever since and is currently a lecturer. Her current research focuses on blood vessel development in the non-pregnant uterus and maternal adaptations to pregnancy, with particular interest in the functional role of uterine leucocytes in these processes.

Keywords: Flow Cytometry, ICS, ELISPOT, BCG, TB, BCG, uNKCytokine, ELISA, Multiplex

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Meeting Web Site: http://www.regonline.co.uk/CMIdiscussion2012

NOTES ABOUT THIS EUROSCICON EVENT
For your convenience we would like to bring your attention to the following

- You will be issued with a FULL delegate list within 14 days of the event, which will include the email addresses of the delegates (we are sorry that there is