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Report Keystone meeting March 29 – April 3, 2009, Banff, Canada

From 29th of March to April 3rd I had the opportunity to participate in Keystone conference on dendritic cells (DCs). The program was very challenging and another exciting aspect was that the meeting was joined with the meeting on Pattern Recognition Molecules and Immune Sensors of Pathogens. Pathogen recognition is an important aspect of DC function, so it was a great advantage that we could choose between at least two sessions.

The meeting started on Sunday evening with a joined plenary keynote session with lectures from Shizuo Akira (Osaka University, Japan) about toll like receptors and Ira Mellman (Genentech, Inc, USA) who covered (too) many aspects of DC biology in the context of MHC class II antigen presentation.

The first full day started with a session on phagocytosis and antigen presentation, one of my favourite subjects. The best talk was provided by Jose Villadangos (WEHI, Melbourne, Australia) who gave an overview of old and new work on antigen presentation routes in dendritic cells. During lunch was the first of four poster sessions. After lunch selected posters were presented. Interesting work was from Mireille Lahoud (WEHI, Melbourne, Australia) about Clec9A as a new death cell recognition molecule receptor and David Sancho (London Research Institute, UK) about the identification of a receptor that senses necrosis. The next plenary session covered various subjects and included interesting talks about IRF4 as an important factor in DC differentiation and persistence of MHC class I restricted antigen presentation by Erica Granger (Pennsylvania, USA).

On Tuesday the meeting proceeded with a session on dendritic cell precursors and homeostasis. Carlos Ardavin (National Center for Biotechnology, Spain) had a very interesting talk covering various topics on monocyte-derived DCs. Steffen Jung (Weizmann Institute of Science, Israel) showed very nice data on the mouse model they generate where they can deplete CD11c positive cells to study their function in vivo. After an afternoon break the day continued with an interesting session about recent advances in the DC field. Especially the work of Anna-Maria Lennon-Dumenil (Institut Curie, France) was interesting who showed that coordination of antigen presentation and DC migration are connected. In the parallel pattern recognition session Jürg Tschopp (University of Lausanne, Switzerland) showed very interesting data about malaria hemozoin as a ligand for the Nalp3 inflammasome.

Wednesday, the first session was focused on DCs in disease. During this session some tissue-specific DC subsets were introduced. Interesting lectures were given by Maria Rescigo (European Institute of Oncology, Italy) who studied a DC population in the gut that is tolerogenic and induces regulatory T cells. Jerry Aldridge (USA) presented a selected poster on so called tipDCs. These potent APCs are induced by the chemokines Mip1-3 in the case of acute influenza.

After lunch, a workshop was organized on systems biology of dendritic cells. Various speakers showed how the use of bioinformatics and proteomics can increase our knowledge of the immune system and DCs. The second part of the afternoon focused on

type I interferon production by dendritic cells. In the evening, posters were discussed with some small bites and drinks.

Thursday started with a joined plenary session about pattern recognition in dendritic cells and macrophages. One of the many interesting talks was covered by Gordon Brown (Cape Town, South Africa) who studied the role of dectin-1 in antifungal responses. During lunch I presented my poster “Antigen storage compartments in dendritic cells facilitate prolonged CTL cross-priming capacity”. Although it was the last day of the meeting still quite some people visited my poster. I was happy with the discussions and remarks. After lunch and posters, a workshop on DC differentiation and trafficking was organized. The day ended with a very interesting plenary session covering dendritic cells in cancer therapy. Jacques Banchereau (Baylor Institute for Immunology, USA) discussed practical issues regarding DC based immunotherapy and possibilities for in vivo targeting to DCs. Guido Kroemer (INSERM, France) discussed how chemotherapy can promote immunogenic favorable cell death. Carl Figdor (NCMLS, The Netherlands) showed results of a phase I/II trial using plasmacytoid DCs loaded with Ag-Ab complexes for cancer therapy. As last speaker of the conference Ralph Steinman (Rockefeller University USA) gave an overview of the meeting and expressed his hopes for the future. We should share forces to make the first molecular defined (in stead of crude) vaccine based on immunologic knowledge. To accomplish this we should move beyond our in vitro systems and TCR transgenic mice and use real antigen instead of model antigens. This was a great finale of a very interesting meeting.

In summary this meeting was an important opportunity for me. The meeting provided a good up to date overview of the field. In addition, I expanded my network and I got new inspiration for future research. Therefore, I want to thank the Dutch Society for Immunology for the financial contribution.