JAMES RENNIE BEQUEST

REPORT ON EXPEDITION/PROJECT/CONFERENCE

Expedition/Project/Conference Title: Woodshole Immunoparasitology Conference

Travel Dates: 23rd - 26th April

Location: Woodshole, Massachusetts.

Group Member(s): Constance Finney, 3rd Year PhD student in the Maizels group

Aims: To broaden my ideas and gain some insight into current foci in immunopathology so as to plan my final experiments for my PhD.

OUTCOME (not less than 300 words):-

The Woodshole Immunoparasitology conference celebrated its 10th anniversary this year, with very high standard talks from all speakers. Being a single session conference meant that no compromises had to be made as to which talks to attend. Also, talks were all well attended which led to interesting post-talk discussions. With over 50 speakers and a further 75 poster presentations, there was much to discuss! However, WHIP remains one of the 'smaller' conferences, and personally, I benefited from the small size of the conference as it made it easier to meet and interact with scientists from other labs.

The conference concentrated on the immunology rather than the parasitology of the diseases studied, with some very interesting investigations of basic immunology using parasite models. These included work on IL-31, a recently discovered cytokine, and how it controls TH2 inflammation in helminth infection (J. Perrigoue, David Artis lab). Also presented was work on Toll-like receptor (TLR) 11, recently shown to bind profilin from *Toxoplasma gondii* (F. Yarovinsky, Alan Sher lab).

Excellent keynote lectures were given by Alan Sher - general introduction to the conference - Andreas Radbruch, speaking on the humoral memory in relation to parasitic infections and Anne O'Garra, who gave an amazingly comprehensive lecture on IL-10 and our advances in understanding the role of this molecule in immune responses. These talks helped tie the conference together and remind us of how far our understanding of the immunology of parasitic disease has come in the past 20 years.

Much of the work presented during the conference centred on the regulation of immune responses during parasite infections. Natural regulatory T cell (Treg) specificity has been a topic of much debate recently and work presented by in the Belkaid lab showed that after *Leishmania* infection, natural Tregs specific to the parasite could be found in the draining lymph nodes. These results were further validated by data from the same lab showing very similar Treg proliferation to antigen in a *Cryptosporidia* infection.

Daniel Beiting (J. Appleton lab) was asked to speak at the last minute (due to visa problems resulting in the absence of one of the speakers), and gave an excellent talk on IL-10 and TGF-β dependent regulation during *T. spiralis* infection in mice. Using cell transfers into transgenic animals, he showed the importance of both these molecules during infection.

Martin Guilliams (A. Beschin lab) presented work on murine trypanasomiasis, with evidence that the chronic phase of disease is controlled by Tregs. Using the super-agonist CD28 antibody to expand Tregs (something of relevance considering recent news stories involving disastrous drug trials using a similar antibody in humans), they found they could increase survival by reducing immunopathology.

Mark Wilson (R. Maizels lab) presented work on the control of allergy in mice by gut nematode infections, where a chronic *Heligmosomoides polygyrus* infection can lead to suppression of experimentally induced asthma. Cell transfers of Tregs as well as B cells could transfer this protection. TGF-β, but not IL-10, was thought to be involved in the regulatory processes.

The independence of IL-10 and FoxP3 in regulatory responses was a topic that often cropped up in both talks and posters. With the use of the anti-FoxP3 antibody along with intracellular cytokine staining for IL-10, flow cytometric analysis showed that in nearly every situation studied, the two markers did not co-stain. This was surprising as it had been postulated these markers were strongly linked.

Another major theme of the conference (as in immunology in general) was the recognition of parasites by PRRs (Pathogen Recognition Receptors) including TLRs. Intriguing results presented by Svenja Steinfelder (D. Jankovic lab) on *Schistosome* Soluble Egg Antigen (SEA) showed that although this molecule induces dendritic cells (DCs) to stimulate a TH2 response in the absence of adjuvant, this process does not require TLR signalling through MyD88. SEA does not activate DCs, although it induces their migration. It was therefore inferred that SEA contains parasite-derived DC-chemotactic factors.

On the social side, the conference was extremely well organised such that interactions between attendees was easy and encouraged. The poster sessions were spread over two evenings, leaving enough time for everyone to have a good look round. This also meant that I received a lot of feedback for my poster from various researchers working in the same field. Apart from the poster sessions, the legendary lobster bake was held on the last night, consisting of as much lobster as you can eat, followed by a disco and a trip to the local pub for the hardier attendees. The atmosphere throughout the conference was very friendly, and it was possible to speak to everyone freely without feeling (too) intimidated.

On the whole it was an extremely useful conference, with a very high standard of presentations. Networking was made extremely easy by the organisers which meant that a good time was had by all. I would like to thank the James Rennie Bequest Fund for allowing me to go on such a trip in the final year of my PhD.

Constance Finney
Maizels Lab
University of Edinburgh