JAMES RENNIE BEQUEST

REPORT ON EXPEDITION/PROJECT/CONFERENCE

Expedition/Project/Conference Title: ENII Summer School.....

Travel Dates: 16-24 May 2009 .....

Location: Hotel Capo Caccia, Sardinia, Italy.....

Group Member(s): Vicky Ellis.....

Aims: Present a poster summarising my current data, learn about a wide range of immunology from leaders in the field, network with faculty members and fellow students .....

OUTCOME (not less than 300 words):-

The summer school is run by the European Network of Immunology Institutes, headed by Professor Paola Castagnoli. The location is Hotel Capo Caccia in Sardinia, Italy. The school is held annually and is a fantastic opportunity for PhD students from around the world to come together and learn about the current advances in the field from top immunologists. This year, it was a truly multi-national event, with the 120 students coming from 21 countries, some from as far away as Australia and the USA. The school is an intense 6 days of immunology, with lectures starting at 9am and poster sessions in the evenings going on until well after midnight!! There was plenty of opportunity to discuss specific data/lectures/posters with both the members of the faculty and fellow students between sessions, over breakfast, lunch, coffee or wine!!

Each of the 6 days spent at summer school followed a similar schedule: each morning there were 3 lectures from top immunologists, with a coffee break in between. Then after lunch (and siesta time!) there was a student presentation session lasting around 1 ½ hours, and a tutorial session for another hour. The tutorials were run by the speakers and provided the opportunity to ask specific questions in an informal setting. After dinner each night, the poster sessions began at 9pm and often went on well into the night!!

One of my objectives of going to summer school was to present my current data in the form of a poster. My poster session was on the Monday evening. The poster sessions were a small and serious affair, with only 25 students presenting each night. This allowed the other students and lecturers plenty of time to visit all the posters and discuss data in great detail. For me, this was the chance to discuss the details of my PhD project with interested scientists, and gain ideas and feedback from them. My poster was entitled "B cells shed CD62L in response to Toll-like receptor stimulation, and display altered migration patterns." I had a steady stream of people all evening and spoke constantly throughout!! Many interested students enquired about the *Salmonella typhimurium* model that I make use of, allowing me to explain the details of this murine infection and discuss possible improvements to the method of immunisation and the relevance to human disease. There were various B cell immunologists who were interested in their antigen presenting capacity and I enjoyed also sharing some of the other data generated in our lab and institute. Professor Michael Sixt, one of the lecturers, spoke to me for a considerable length of time about the migration patterns of B cells, and we discussed the importance of adhesion molecule and chemokine receptor expression regulation. We also discussed his data on dendritic cell migration. I gained a lot of ideas for future experiments from fellow students, who were asking "why haven't you done this experiment…" It is always great to hear fresh ideas and suggestions from people who don't know the nitty-gritty experiment details and have more of a "big picture" outlook. I now have a list of new experiments I would like to do on this project!!

Another of my objectives was to learn a wide range of immunology from both leaders in the field and from fellow students, through lectures, student presentations and posters. The diversity of immunology research on display at the summer school was impressive! I learned a great deal about cell subsets, techniques and molecules that I previously had very little knowledge of. I feel that I have expanded my immunological knowledge greatly by attending the summer school, which has sparked my enthusiasm for topics out-with my research, and highlighted how little I know!!! I now have a huge pile of exciting papers to read up on!

Below I have picked 2 of my favourite speakers from the week, and explained a little bit about the research they do and what they taught me:

- Reina Mebius: Reina gave a brilliant talk on the organogenesis of the immune system, focussing specifically on how lymph nodes are formed. She introduced me to a subset of cells that I was previously unfamiliar with, called lymphoid tissue inducers, or Lti cells. These cells form clusters very early in the lymph node development process, and without them, lymphoid development is completely absent. They first leave the blood vessels around embryonic day 14-16 and form clusters in the tissue. The signals for this early clustering event remain elusive. Once in the tissue, these cells stimulate the surrounding mesenchymal cells to become stromal cells, though signalling of TRANCE and IL-7. Subsequently, lymphotoxin signalling in the stromal cells induces chemokine production, e.g. CXCL13, CCL19 and CCL21. These chemokines then attract lymphocytes to the region, which therefore develops into a lymph node.

Reina's talk explained lymphoid development in a simple yet detailed manner. It was great to hear all about a basic process that each of us takes for granted.

- Jules Hoffmann: This years keynote speaker was Prof. Jules Hoffmann, a 'celebrity' in the immunology world! He is responsible for the discovery of the Toll gene in Drosophila, which subsequently led to the identification of its homologues in mammals, the Toll-like receptors (TLRs). These TLRs are a vital part of the innate immune system, allowing recognition of pathogens and rapid immune responses. Both humans and mice with mutations in the TLR genes or in genes involved in the TLR signalling pathway, are hugely susceptible to infections and therefore have reduced life expectancy. Jules' talk was interesting and informative, taking us through his years as a researcher, and highlighting the importance of fundamental research in insects. He had the audience captivated for the entire lecture!!!

In summary, I thoroughly enjoyed my week at summer school! It was a hugely interesting and useful experience, and I feel that I have expanded my knowledge greatly. The school provided me with a fantastic opportunity to present my data and receive feedback and suggestions from leading immunologists. I made a great many contacts in the field, which will likely help me in my future career. I wish to thank the James Rennie Bequest for providing financial support to make this trip possible.