JAMES RENNIE BEQUEST

REPORT ON EXPEDITION/PROJECT/CONFERENCE

Expedition/Project/ Conference Title: 13th International Conference on Systems Biology (ICSB 2012)

Travel Dates: 19th-23rd August, 2012.

Location: Toronto, Canada

Group member(s): Eugene Fletcher

Aims:

- To interact with the top scientists working in the field of systems and synthetic biology
- To be abreast with current research in this field.
- To present my work to a large audience in the form of a poster presentation

OUTCOME (not less than 300 words):-

The International Conference on Systems Biology (ICSB) is the world's biggest systems biology meeting aimed at bringing together over a thousand scientists and other stakeholders to discuss hot trends in systems and synthetic biology. This year's conference, the 13th in the series of meetings, took place in Toronto, Canada from the 19th-23rd of August, 2012.

The meeting began in the afternoon of the 19th of August with a welcome note by the conference president, Professor Charlie Boone from the University of Toronto. This was followed by a keynote lecture by Timothy Hughes. He presented some data on work being done in his lab to look at sequence specificity of eukaryotic DNA and RNA binding proteins. The first day was quite short since it was meant for registration and ended with a wine reception.

Plenary talks were used kick-start the conference each morning. These talks were interesting and informative. George Church, a renowned geneticist, spoke on how to read and write genomes. One interesting thought he shared was that reading genomes will enable us identify potential disorders at conception and re-writing or editing DNA can be used to correct such disorders. On the third day of the conference, there was a rather unusual but insightful talk by David Botstein from Princeton University. He spoke about the need to develop an integrative introductory science curriculum for undergraduate students. He stated that introductory biology courses should be taught in such a way that it incorporates concepts from other disciplines such as mathematics, chemistry and physics that are relevant to the students only at the time. He added that teachers should do away with the 'learn this now and use it in the future' way of teaching and that, concepts should be taught 'just in time'. The final day's plenary talk was given by Mike Synder on personal genomics stating that in future, people's genomes will be sequenced at birth and will be essential for identifying and treating diseases since genome sequencing is getting cheaper.

There were several parallel sessions to cover twenty two scientific topics making it quite difficult to select which ones to attend as some of them ran at the same time. The genome to phenotype, chemical biology, synthetic biology and metabolomics sessions were of particular

interest to me. This gave me a rare opportunity to listen to great talks from Jens Nielsen, Chandra Ritchie, Eric Brown, among others who are working on projects that have several links to mine.

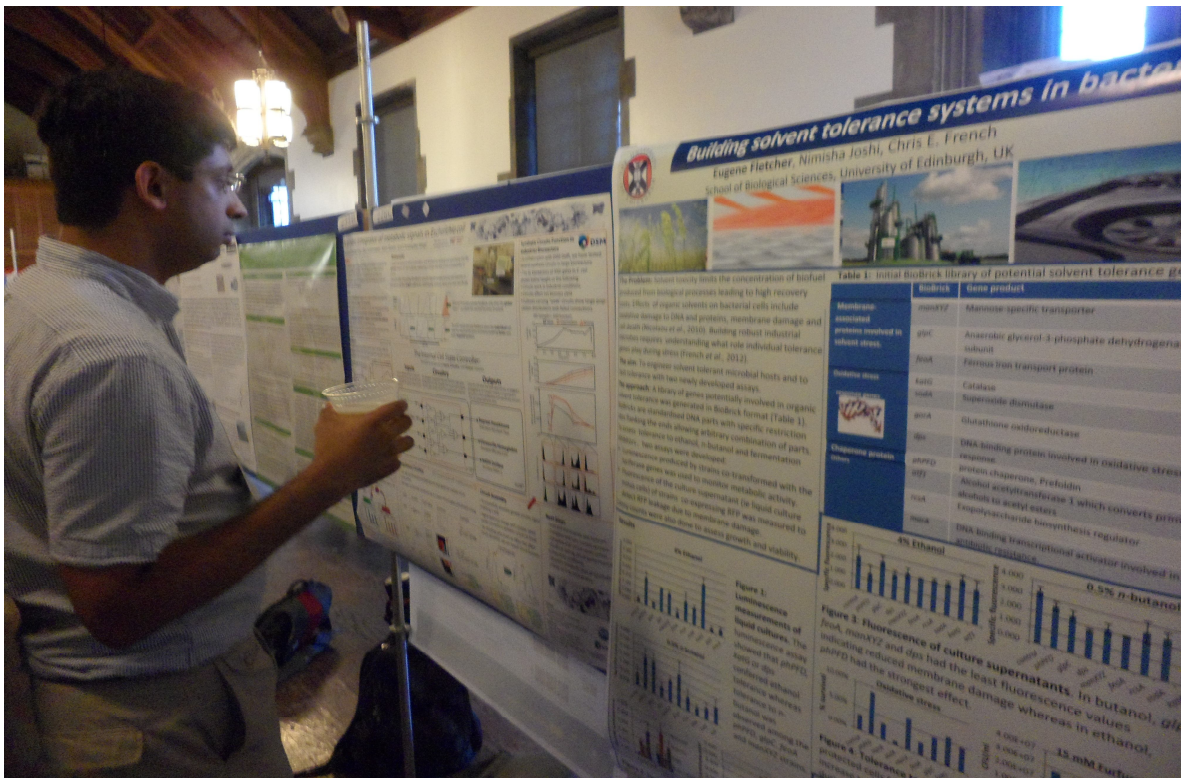
Poster sessions were organised on the second and fourth days of the conference. I got the chance to present my own work on one of the days. The title of my poster was 'Building solvent tolerance systems in bacteria'. A number of people came by my poster to have a chat and through that I got some good feedback from a diverse group of scientists. It was an excellent opportunity to improve upon my oral communication skills.

Apart from these, there were a series of tutorials and workshops on how to get published, new tools for synthetic biology, transforming discovery into opportunity and several others.

Having been involved with Edinburgh's team for the iGEM (International Genetically Engineered Machine) competition, I seized the opportunity of being in Toronto to meet and share ideas and experiences with the Toronto iGEM team.

Social events were not left out of the conference schedule enabling participants to network with each other and talk more about their work in an informal setting. The conference ended with a bus tour of key places in Toronto followed by a trip to the Niagara Falls which turned out to be a stunning experience indeed.

I would like to thank the James Rennie Bequest for supporting my travel to this conference as it gave me the opportunity to learn new ways of doing science, share my work with a large audience and interact with people with similar interests in synthetic and systems biology.



One of the participants having a look at my poster