

The Ninth Frontier

Welcome to the latest newsletter of the ESF Frontiers of Functional Genomics RNP – FFG.

Following our recent call for proposals, we are pleased to be supporting five new events in functional genomics in 2011 which cover a range of topics from statistical genetics to epigenetics. Unfortunately this call was the final call for applications to the FFG programme as the programme will end at the end of November this year.

The future of the programme thereafter is uncertain, but if you would like to be kept informed of any future developments, please do subscribe to our email list at <http://www.functionalgenomics.org.uk/sections/contact/join.htm>.

Also in this newsletter we have 2 meeting reports: one in the Austrian Alps where participants combined the pursuit of science with the pursuit of snow, while in Luxembourg the emerging reality of personalised medicine was under discussion. Finally, our Czech committee member shares her experiences of life in proteomics.

Future Events

A Global View of Disease Genomics, Helsinki, Finland, 18-19 May 2011

2nd International Workshop on Orthology Inference and Applications, Hinxton, UK, 17-19 June 2011

Mass Spectrometry based identification and localization of post-translational modifications, Warsaw, Poland, 29 August – 2 September 2011

4th European Conference on Chemistry for Life Sciences, Budapest, Hungary, 31 August – 3 September 2011

Summer Institute in Statistical Genetics. Liège, Belgium, 5-14 September 2011

From Phenotypes to Pathways - Inferring network architecture from perturbation maps, Cambridge, UK, 15-17 September 2011

5th Central and Eastern European Proteomic Conference, Prague, Czech Republic, 19-22 September 2011

Epigenomics and Gene Regulatory Networks Controlling Cellular Responses, Turku, Finland, 3-4 October 2011

The Rhythm of Life: Cycles in Biology, Heidelberg, Germany, 17-19 November 2011

For scientific reports from our past events, please go to our website <http://www.functionalgenomics.org.uk/>.

There's something about Alpbach

Elizabeth Cook

The picturesque village of Alpbach in the Austrian Tyrol once again provided the backdrop for the 5th ESF/EU AFFINOMICS workshop on Affinity Proteomics in March 2011. Over 100 participants from throughout Europe and the USA, representing both academic institutes and industry, gathered for 3 days in the latest in a series of workshops on affinity proteomic research.

As in previous years, there was plenty of time for outdoor activities in the glorious sunshine and of course the obligatory visit to Schrödinger's grave. Unfortunately, the snow didn't join us in the Alpbach village, although there was enough in the mountains for many of us to enjoy the slopes.



But back to the science... The conference participants were treated to an array of really interesting and inspiring talks on topics covering the fields of proteomics and affinity reagents. The conference started with overviews on large proteomics projects including the Human Proteome Project and Human Protein Atlas. This continued with presentations on the generation of affinity reagents including recombinant antibodies and alternative protein and DNA-based binders, and the production and use of antibody and protein micro-arrays. Talks and poster presentations also discussed the wide range of applications of affinity reagents including personalized medicine, analysis of multi-protein complexes, intracellular imaging, identification of cancer biomarkers and drug targets, screening of patient samples and even the slightly unexpected potential use of discovering life on Mars!



The intense few days was perfectly topped off with a fantastic party on the final evening, where the live band Stars'n'Bars were persuaded by an enthusiastic crowd to perform not only one, but two encores. Who knew scientists could dance so well?! I'm already looking forward to the next meeting!

Your medicine

Carsten Carlberg and Lars Kristiansen

The workshop "*Personalised Medicine for the European Citizen – towards more precise medicine for the diagnosis, treatment and prevention of disease*" took place at the University of Luxembourg, Campus Limpertsberg on January 13-14th 2011. The workshop was positioned and organised within the context of a newly approved ESF forward Look on Personalised Medicine, and served to provide a structure and further sharpen the objectives, methodology and expected outputs from this foresight. This included addressing state-of-the-art, define the key stakeholders and target audience.

The area of personalised medicine represents an important European strategic priority area. From a purely 'reductive' approach, recent years' technological breakthroughs are increasingly allowing modern clinicians to take an integrated biological approach to health and disease. These developments will move medicine from finding cures much more towards individualised prediction, diagnosis, treatment and prevention of diseases, using an individual's molecular profile. This development has implications that involve not only biomedical and technological issues, but also impinges on overarching societal, ethical, regulatory, economical and legal questions.

Reflecting the broadness of the topic of personalised medicine and the interdisciplinary approach by ESF to the Forward Look, the invited participants represented quite different and complementary expertise that spanned the biomedical sciences, social sciences and humanities.

Following an inspiring keynote address by Dr. Kári Stefánsson from decode Genetics, a combination of breakout and plenary sessions followed. Important topics from these discussions on personalised medicine included i) standardisation/integration/harmonisation of its technologies, ii) developing and improving education in this sector, iii) using society as an actor, iv) identification and use of European genetic differences as a strength, and v) informing medical practitioners about technological development that drive the process of personalised medicine. In addition, the working groups discussed the challenges and opportunities for personalised medicine as well as future scenarios. There was a clear consensus among the participants that an interdisciplinary approach to a foresight analysis focused on personalised medicine would indeed bring new and relevant input to European decision makers.

Further information about the ESF Forward Look on Personalised Medicine is available here at <http://www.esf.org/iPM>.

Steering committee spotlight

Hana Kovarova is the Czech representative on the FFG steering committee. Her PhD in Prague left her with a thirst to learn more, so she travelled at the earliest opportunity to well renowned labs, in particular to Switzerland, where she learnt proteomics and 2D gel electrophoresis – techniques which were to form the basis of her future career. On her return, she brought proteomics to the Czech Republic through her lab at the Faculty of Medicine Charles University in Hradec Kralove. Together with her collaborators in McGill University, Canada and Umea University, Sweden, she applied proteomics to the study of host–pathogen interactions. This brought about a profound change in her research in the days to follow. Since then, the understanding of protein networks and the quest for protein biomarkers has allowed her to focus on various diseases including cancer and anti-cancer therapy, and reproductive biology and infertility in women. This work is now being carried out in the new proteomic facility that she established in the Institute of Animal Physiology and Genetics, Czech Academy of Sciences in Libechev, where additional research is currently focused on neural stem cells and their therapeutic potential in trauma and neurological diseases such as spinal cord injury and amyotrophic lateral sclerosis.

Understandably she still feels the need to catch up with the lost 'golden opportunity' during Communist rule between 1968 and 1989. It was a very difficult period for her and her family, when they were cut off from the outside world with restrictions that made it hard to travel and communicate. So for her now, free time means the pleasure to do whatever comes to mind without any of the previous fears or restrictions. With that new found freedom, she can indulge her thirst to learn more about other cultures, religions and traditions – helping her to come to terms with the earlier difficult times. In addition, she now lives in the countryside and enjoys it with family and friends and in particular, her grandchildren who are her pride and joy!

With such passion for her family, it is not surprising that this passion spills into Hana's career where she is using proteomic approaches to help infertile women to have their own families: Human Follicular Fluid (HFF) analysis brings together a combination of several advanced proteomic techniques to unmask key biomarkers which may be useful as prognostic or diagnostic 'handles' in woman undergoing *in vitro* fertilisation with a view to developing a panel of prognostic / diagnostic markers to help such women conceive.

Finally, Hana works tirelessly to promote proteomic and international science in Central and Eastern Europe and together with the committees, has hosted four successful meetings with the fifth Central and Eastern European Proteomic Conference planned in Prague this September. You can meet her there by registering at <http://2011.czproteo.cz/>.

Compiled and created by Cheryl Smythe, FFG Coordinator