Frontiers of Functional Genomics

An ESF Research Network Programme

EUROPEAN SCIENCE FOUNDATION

SETTING SCIENCE AGENDAS FOR EUROPE

The Eighth Frontier

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

Although originally scheduled to finish in May 2011, I'm pleased to tell you that the FFG programme has recently been granted an extension to run until the end of November 2011. As a result there will be a final call for proposals for both travel grants and science meetings in the spring of 2011 – please see further details below.

The future of the ESF FFG programme thereafter is uncertain as the call from the ESF for new programmes has been postponed following the merger of the ESF with EUROHORCS. Having supported 110 events and 142 travel grants in the area of functional genomics since 2003, the end of the FFG programme will leave a gap in the European functional genomics arena, but the committee are investigating how it might continue in some form.

Following our recent call for proposals, we are pleased to be supporting 8 new events in 2011. We are particularly pleased to be supporting the symposium – A Global View of Disease Genomics which will honour the enormous contribution Professor Leena Peltonen-Palotie made to the field. Leena sadly died earlier this year having suffered from bone cancer.

Also in this newsletter we hear from just one of those 142 beneficiaries of the travel grant scheme and our Estonian committee member shares with us his adventures on the high seas of genomics.

Final opportunity to apply for science meetings and travel grants

FFG invites proposals from organisers of science meetings to be held before the end of November 2011 on topics with a clear connection to the programme. Priority is given to events taking place in countries that financially support the programme. The deadline for submission of science meeting proposals is Friday 25 March 2011.

FFG is also offering a number of Short Visits and Exchange Grants (up to 6 months). Projects must be within the scope of the programme and start before the end of November 2011. Priority is given to applicants coming from and intending to visit labs in countries that support the programme. Short Visit Grants now also cover support for attending practical courses in the area of functional genomics. The next deadline for grant applications is Friday 25 March 2011.

For further details and to apply online, please visit our website www.esf.org/ffg or for regular updates on events and funding opportunities contact cheryl.smythe@bbsrc.ac.uk or join our email list at www.functionalgenomics.org.uk/sections/contact/join.htm.

Future Events

Personalised Medicine for European Citizens, Luxembourg City, Luxembourg, 13-14 January 2011

5th Workshop on Affinity Proteomics, Alpbach, Austria, 14-16 March 2011

Wilhelm Johanssen Symposium: the impact of deep sequencing on the gene, genotype and phenotype concepts, Copenhagen, Denmark, 21-23 March 2011

Multilevel Interpretation of Cancer Genome Data, Madrid, Spain, 27-29 March 2011

Biochemistry of Proteomics, Zakopane, Poland, 28-31 March 2011

Systems Biology of Cellular Regulation, Dresden, Germany, 3-5 May 2011

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

For scientific reports from our past events, please go to our website www.functionalgenomics.org.uk.

In silico, in Cambridge

Miguel Rocha

On the first day of May, I arrived in Cambridge for a period of three months. It was a long weekend and the weather was dry and a bit cold, at least by Portuguese standards. Although it was not my first time in Cambridge, I was still surprised with the lively city centre. The first three days of leisure were important to know the city, to set up the flat I had let and also to have my first social event, organised by my host group at the European Bioinformatics Institute. Nick and all the other members of the Luscombe group made me feel at home, since the first weekend … and up until the farewell party in the end of July.

My scientific endeavour was to enrich the previous research of my group at the University of Minho, in Portugal, that deals with the reconstruction of metabolic models and its use in *in silico* strain optimisation. The aim was to improve these models and phenotype simulation methods by including regulatory information. The work proceeded fairly well, given the time constraints of such a short period. But I learned so much more …

As a sabbatical visitor, I was away from all the normal duties of my daily life (teaching, management, student supervision) for the first time since my PhD conclusion. In a way, I had to re-learn how to do research on a full time basis which was quite fun!

The weekly group meetings and the numerous informal scientific discussions over a cup of coffee helped me in the specific work I was conducting, but also in a broader way in defining new research goals for the next years. Also, the scientific environment provided at the EBI is vibrant, with numerous interesting talks every week that help to foster new ideas.

Personally, the major difficulty was to be far from my two daughters, but the low cost flights helped a lot! Also, I managed to have all my family to visit Cambridge in July, a nice experience for all of us.

Well, now back to my duties in Portugal, I surely miss the nice time in Cambridge … I hope to be able to collaborate with EBI researchers in the near future.

Where is Wally?

Judith Boer

Unrealitymag.com

The first European Meeting on Next-Generation Sequencing was recently organised in Leiden, The Netherlands, with funding from the ESF FFG Programme. The Scientific Committee brought together genetics experts who pioneer with next-generation sequencing from Europe, the US, China and Japan to present their work and share their experiences with European researchers. The focus was mainly on the applications of high-throughput sequencing to accelerate research on evolution, gene expression and regulation, as well as biomedical and diagnostic applications. Debbie Nickerson from the University of Washington in Seattle, on her way to analyse and make public a 1000 exomes, called finding the disease gene for a recessive disorder, "a walk in the park". Going to the next level, several speakers showed successful examples for finding disease genes for autosomal dominant syndromes. More challenging routes lay ahead to apply this approach to diseases with more complex genetics. To use the analogy from Edwin Cuppen, Hubrecht Institute and University Medical Center Utrecht, The Netherlands: To find the few functional and causal polymorphisms among the many millions of variants between a patient and the reference genome is like "searching for Wally", the favourite picture book of his 7-year-old son. While the outlook to the future showed that there are newer technologies being developed to sequence more and better, it is important to solve and disseminate the data analysis problems of today, including the use of next-generation sequencing to understand structural genomic variation.

Steering committee spotlight

Andres Metspalu is the Estonian representative on the FFG steering committee and was born in 1951 in Estonia under Soviet rule. His interest in molecular biology was awakened while in the last year of high school, when a new school textbook for biology was introduced, where, for the first time, genes and DNA had a prominent place. Before that time Lyssenko ruled, and the mention of genes could have put the teacher out of a job. Hungry for more information, Andres started to read more himself and in order to get the best education in natural sciences he studied medicine. During the early years of medical school, the lure of the white coat and stethoscope around the neck almost swayed his choice, and for a brief moment he considered becoming a physician. Thankfully he was told by his first mentor "there are lots of surgeons around, but very few who can understand medicine and molecular biology at the same time". This put him back on track, and his PhD in Kiev on ribosome structure and function was followed by a short post-doc at Joan Steitz's lab in Yale, after which, in order to make better use of his medical education, he moved to human genetics – the area for which he is now famed. He satisfied his "appetite for the white coat" by setting up the Molecular Diagnostic Centre at the Tartu University hospital and ran it for more than 10 years while holding a chair of biotechnology at the Institute of Molecular and Cell Biology at the University of Tartu.

When the Human Genome Project started in the US, Andres was keen to find a more efficient method to analyse mutations: he came up with the idea of using fluorescent primer extension with ddNTPs on microarrays. With an invitation from Tom Caskey to Houston, the proof of principle experiments were carried out and APEX, as it is known today, was developed. An Estonian Biobank was next on Andres's agenda. It took almost 10 years to build, but now there is a population-based biobank with 50,000 subjects which is well integrated into international networks and well used for human genetic and genomic studies.

Amazingly, Andres finds time to "reset my grey matter" by taking part in a 10-day regatta on the Baltic in July with friends on a Beneteau 36.7 and by skiing with his family in the French Alps in winter. After his sabbatical at IARC in Lyon his family is "engaged" to France and they try to spend as much time as possible there enjoying the culinary delights.

Compiled and created by Cheryl Smythe, FFG Coordinator