Newsletter of the Centre for Genomic Regulation
Life @ CRG
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CRG PARTICIPATES IN NATUREJOBS CAREER EXPO 2013, LONDON

Gloria Lligadas / Imma Falero

On September 19th, for the first time the CRG participated in the NatureJobs Career Expo. The exhibition was organised by Nature and was held at the Business Design Centre, in London.

The objectives of our participation were several, the most important being to increase the international visibility of the CRG within the arena of life sciences research. A secondary objective was to promote the first-rate science being carried out both at the CRG and in other Spanish institutes despite the way the current financial situation is affecting science in our country. An important number of people were interested in finding out more about the reality of science here. We were able to explain to them that certain institutes like the CRG are fortunately in a secure enough position to compete internationally producing outstanding and cutting-edge research.

We were delighted to confirm that the CRG is an internationally renowned institute which will continue working to enhance and improve its reputation in biomedical research. <

CRG RECEIVES THE SEVERO OCHOA ACCREDITATION

The Secretary of State for Research, Development and Innovation, Carmen Vela, has presented the Severo Ochoa excellence accreditation - an award based on distinction - to five new institutes.

The award is valid for the next four years and comes with 1 million euros in funding per year for each centre. This will help strengthen their research capacities and enable access to more competitive grant calls, preferential access to large scientific facilities, flexibility in hiring new researchers, higher visibility and a greater capacity for attracting sponsors.

EXCELENCIA SEVERO OCHOA

During the event, Carmen Vela highlighted the level of excellence and competitiveness of the centres that were selected and emphasised that Spanish science "despite current difficulties, must advance on the path of excellence represented by these centres." <

EDITORIAL

Glòria Lligadas /
Head of Communication & PR

Imma Falero
Academic Officer

One of the primary objectives of the CRG is to attract international talent. This was the main reason that the CRG decided to take part in NatureJobs Career Expo, held in London on September 19th. This fair brings together organisations, institutes, universities and research centres from around the world which spend the day displaying and promoting their range of training and career possibilities.

Participating in this exhibition was a very positive experience as we did not only promote the CRG, but were also able to let people know about all the educational and job options offered at our centre.

And that was not all: we were able to see that the CRG is a prestigious, internationally recognised research centre. Many delegates were surprised at the quality of the science coming out of this institute, the cutting edge services and the avant-garde infrastructures available to our researchers, especially considering the financial situation of science in Spain.

From the inquiries we received, and contrary to what we had expected, it seems the CRG postdoctoral programme aroused the most interest among the visitors. Between 60 and 70% of participants who visited our stand at the fair were doctoral students looking for future postdoc positions. Particularly interesting were the visits of senior postdocs, originally from Spain, interested in positions as staff scientists and / or group leaders at the CRG in order to come back to work in their native country.

This experience has helped us realise that participating in such events is both necessary and very beneficial for the CRG from all points of view. For this reason, we strongly believe that the future plans of the centre should continue to include this kind of initiative that will undoubtedly serve to reinforce the image of the CRG as a centre of excellence in the field of life sciences on the international stage. <

INSIDE

BRAND NEW CRG INTERNATIONAL PhD PROGRAMME BROCHURE!

The CRG International PhD Programme has a brand new brochure! Please, go to http://issuu.com/crg-barcelona/docs/phd-issu to check it out and have a browse.

This publicity material has been coordinated by the Communications and PR department with the collaboration and contribution of the Graduate Committee, its chairs and representatives, the PhD Community, the Grants & Academic Office, the International & Scientific Affairs Office, our director and, of course, all the scientists. Hope you like it! <

THE CRG THINKS GREEN!

Due to the positive results of the 2012 Sustainability & Environmental Management Campaign, the General Services Dept. launched the 2013 campaign, which ran from the middle of June to the middle of July. Thanks to both the collaboration of the entire CRG community and some of the measures implemented, the 2012 energy consumption (electricity, air-conditioning, waste container units, paper and water) was reduced by around 8%. In this spirit of greenness, we should keep working together. We hope the 2013 campaign will contribute to even lower figures! <

INSIDE

FYODOR KONDRASHOV AWARDED AN ERC STARTING GRANT

Group leader of the Evolutionary Genomics laboratory at the CRG and ICREA research professor, Fyodor Kondrashov has been awarded an ERC Starting Grant for his project "Systematic investigation of epistasis in molecular evolution - EinME".

Thanks to this grant, Fyodor will be able to look at some basic questions on epistasis in molecular evolution. By using computational approaches and experimental assays he wants to address problems such as why a mutation has a deleterious effect in one species but shows no apparent consequences on the phenotype when it occurs in another. This five-year project has been awarded more than 1.4M€.

The prestigious ERC Starting Grants aim to support early-career talent in developing their best innovative ideas across the European Research Area. In this sixth Starting Grant competition, the ERC has selected 287 top scientists who have been awarded nearly 400 M€. The CRG has more ERC-awarded scientists in the life sciences category (7 Starting Grants and 3 Advanced Grants) than any other centre in Spain. <

CRG RANKED AS 9th BEST MEDICAL RESEARCH INSTITUTE IN THE WORLD

According to the latest SCImago Institutions Ranking report (www.scimagoir.com), the CRG is amongst the top ten research institutes in the world in the health sector.

The SCImago Institutions Ranking uses a set of bibliometric indicators to rank institutions by the quality of their research. The report lists all the organisations from a country which have published at least 100 papers in the last year of the five-year period.

In 2013, the report covers the years 2007-2011 and analyses 2,740 institutions. The report lists not only the total output (number of papers published) but also other indicators that evaluate scientific impact, thematic specialisation and international collaboration networks.

According to the most important criteria – the impact of the research papers published – the CRG is ranked ninth in the world, fourth in Europe and number 1 in Spain, in the health sector. <

SEEKING A TECHNICIANS REPRESENTATIVE

Mariana López, Sílvia Rodríguez & Martin Gigirey

Mariana's term has finished, so the technicians now need a new representative. For those of you thinking of proposing themselves as volunteers, you might be interested in knowing what the duties entail: meetings with the CRG director (at least once a year), meetings with the CRG director and CRG representatives (every 3 months), spotting important problems for CRG technicians as well as potential improvements, and listening to your colleagues' difficulties and special situations and trying to resolve them.

If you are interested in being a representative, please send an email to: techniciansrepresentatives@crg.eu <

NEW EQUIPMENT AND FURNITURE IN THE STUDY ROOM

Josep Queralt

The study room (470) has been refurbished following the suggestions of the PhD representatives. The main changes and improvements to the room include: a new distribution to improve light and working conditions, 3 new screens for connecting laptops to, wifi and sockets for getting on to the CRG network, a new PC and 2 new iMacs ready for use plus 2 armchairs to read papers in. <

EU & MORE

WHO'S IN YOUR NETWORK?

Joaquim Calbo

You like networks. You want to scrutinize nodes and edges, understand relationships. Are you part of a network as well? If so, there is no excuse: find out who's who in systems biology (even if you do not consider yourself a systems biologist), get connected to the network, meet your neighbours, discover who shares your interests and expertise, unravel information coded in the network, and build the community.

All this is now possible thanks to the European Systems Biology Community website (community.isbe.eu), a community-building tool designed to help connect the multidisciplinary and disperse population of scientists playing a role in systems biology, and to define the European landscape of systems biology. However, we need you! Help us build the community network by editing your own information online.

The initiative has been fostered and implemented by James Sharpe, coordinator of the Systems Biology Programme, and Joaquim Calbó, project manager in the International and Scientific Affairs team, in collaboration with Marzee Labs (whose founder, Peter Vanhee, is a previous CRG PhD student), as part of the EC-funded ISBE project (Infrastructure for Systems Biology – Europe). The beta-version of the website was launched on September 2nd, 2013, at the International Conference on Systems Biology in Copenhagen. <

INTERVIEW

ERIC KARSENTI AND THE IMPORTANCE OF SCIENCE COMMUNICATION

Juan Sarasua

On September 27th, Eric Karsenti from the EMBL gave a talk in the PRBB Auditorium on his recent project, Tara Oceans. The collaborative study collected samples and oceanographic data on planktonic ecosystems. More than 30 institutions participated in this 60,000 mile around the world expedition that lasted two and half years, from 2009 to 2012. Using the 33 m long sailboat Tara, researchers gathered data from the photic layer of the sea (0 to 500 m). They hope the data can be compared to the collection made by the "Expedición Malaspina 2010", another oceanographic expedition that focused mainly on sampling data from the deep seas.

"The initial idea with Tara Oceans was not to do scientific research" said Karsenti. "It was to sail around the world in the wake of Darwin's route and discuss the topics he wrote in his book *The Voyage of the Beagle* (originally published as *Journal and Remarks* in 1839). Everybody said it was a great idea but it would take a lot of time and would be very expensive. And then science came to the rescue: a real scientific expedition would be very useful to justify the expenses while at the same time helping us to communicate science to society".

"There is an opportunity to explain simple aspects of science when we communicate our results. For example, explaining

the cell structure and basic facts and relating them to our more advanced and recent findings", says Karsenti. He believes that basic scientific literacy is necessary these days. "Humans now have the power to completely change the earth. And we are doing so with no control, without knowing how it works. This is why the responsibility of society, and especially scientists, is enormous. We produce things the economy, politicians and all of society uses and needs, but this has important consequences. We must understand them all in depth, the ecological footprint of our acts, and that's why we started Tara Oceans". <

FUNCTIONAL GENETIC VARIATION IN HUMANS: COMPREHENSIVE MAP PUBLISHED

Understanding how each person's unique genome makes them more or less susceptible to disease is one of the biggest challenges in science today. Geneticists study how different genetic profiles affect whether certain genes are turned on or off in different people, something which could be the cause of a number of genetic disorders.

Over 50 scientists from nine European institutes led by the University of Geneva in the context of the GEUVADIS project, presented a map pointing to the genetic causes of differences between people. They measured gene activity by sequencing RNA in human cells from 462 individuals. The study, published in *Nature* and *Nature Biotechnology*, offers the largest-ever dataset linking human genomes to gene activity at the level of RNA.

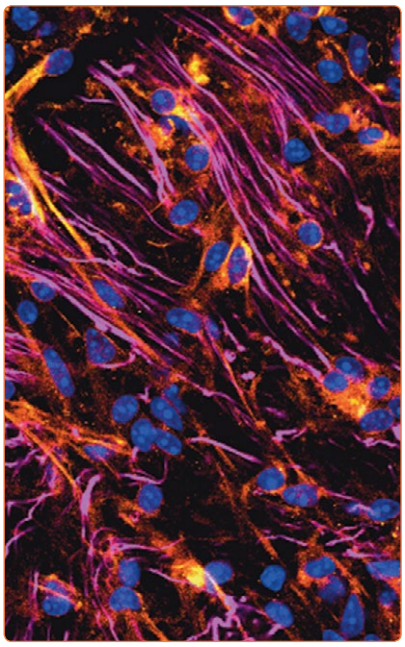
These results can provide powerful clues for diagnosis, prognosis and intervention in different diseases. "This work links genome variability at the structural level with gene expression profiles. It paves the way towards the study of gene function based on RNA information and its population variants", says Xavier Estivill. In addition to coordinating the GEUVADIS Consortium, CRG scientists Xavier Estivill and Roderic Guigó are leading the Spanish contribution to this particular study. <

A STEP FORWARD IN NEURONAL REGENERATION

CRG researchers have managed to regenerate the retina of a mouse thanks to neuronal reprogramming. Pia Cosma and her team have used the cell fusion mechanism to reprogramme the neurones in the retina. This mechanism consists of introducing bone marrow stem cells into the damaged retina. The new undifferentiated cells fuse with the retinal neurones and these acquire the ability to regenerate the tissue.

"For the first time we have managed to regenerate the retina and reprogramme its neurones through in vivo cell fusion. We have identified a signalling pathway that, once activated, allows the neurones to be reprogrammed", explains Pia Cosma, CRG group leader and ICREA research professor. "This discovery is important not only because of the possible medical applications for retinal regeneration but also for the possible regeneration of other nervous tissues", says Daniela Sanges, first author of the work and postdoctoral researcher in Pia Cosma's laboratory.

The study, published by the journal *Cell Reports*, demonstrates that the regeneration of nervous tissue by means of cell fusion is possible in mammals, and describes this new technique as a potential mechanism for the regeneration of more complex nervous tissue. <



RAPID WHOLE-GENOME SEQUENCING REDUCES TIME TAKEN TO DIAGNOSE XDR TUBERCULOSIS

Researcher from the CNAG and CRG, Marc A. Marti-Renom, has participated in a study revealing the potential of rapid whole-genome sequencing in a hospital setting for reducing the time taken to diagnose XDR tuberculosis from weeks to days. The study published in the journal *The New England Journal of Medicine* reported findings that might guide clinicians and reference laboratories in the identification of drug resistant tuberculosis.

The work, led by researchers from the University of Cambridge and Public Health England, started when a patient was first admitted to hospital with clinical and radiological features consistent with those of pulmonary tuberculosis. Current laboratory methods for identifying and typing the *M. tuberculosis* complex were performed. In parallel, DNA was extracted from the sample and sequenced.

The results of rapid whole-genome sequencing revealed a mixed infection caused by two strains of *M. tuberculosis*. 3D modelling of the structure of the mutated protein strain, performed by Marc A. Marti-Renom, helped improve the understanding of the molecular mechanisms underlying XDR tuberculosis. <

FEATURING CRG

NEW SUMMER INTERNSHIP PROGRAMME

Eduard Sabido / Imma Falero

This summer, the first edition of the new CRG Summer Internship programme for undergraduate students was launched with great success. The programme received more than 80 applications from all around the world, from which 8 students were selected to start their laboratory experience under the supervision of group leaders and senior postdocs at the CRG.

During the eight-week internship in July and August, 2013, they had the opportunity to work alongside experienced professionals and gain an understanding of how our organisation works.

With this new Summer Internship Programme, we hope to inspire, encourage and support a new generation of students in Life Sciences who will go on to make a difference. <

1st ADVANCED PROTEOMICS "COURSE@CRG"

The 1st "Advanced proteomics course for molecular and cellular biologists" will come to an end today after a week of intense dedication.

Lecturers from the CRG/UPF Proteomics Unit, the Centre for Biological Sequence Analysis, Department of Systems Biology, Technical University of Denmark (DTU) and the Institute of Molecular Systems Biology, Department of Biology, ETH Zurich, Switzerland, have spent a week with the students, providing them with up-to-date information on the top notch techniques in proteomics.

The course has been directed by Eva Borras, Cristina Chivas and Eduard Sabidó from the CRG/UPF Proteomics Unit. <

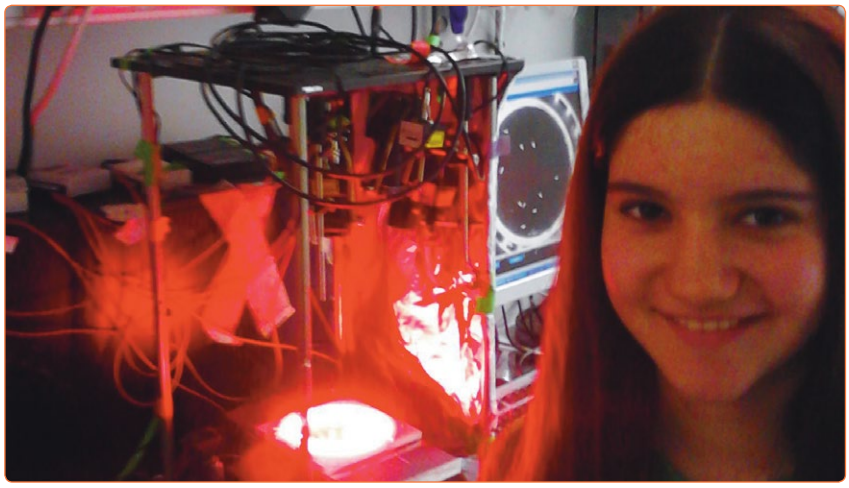
SAVE THE DATE – CRG ANNUAL SYMPOSIUM 2014

Blanka Wysocka

The 13th CRG Annual Symposium will be held on November 6-7, 2014, in the PRBB Auditorium. Under the title, "Gene Regulation, Stems Cells and Cancer", the CRG group leaders from the scientific programme of the same name are organising an event you cannot afford to miss. More info coming soon! <

CRG & SOCIETY

BENCH NOT BEACH: HIGH SCHOOL STUDENTS SPEND THEIR SUMMER AT THE CRG



For the fifth consecutive year the CRG gathered a group of students together for the *Joves i Ciència* (Young People and Science) programme. Five young people, chosen from between 800 sixth form hopefuls, joined the labs of Juan Valcárcel, Cedric Notredame, Matthieu Louis and Jerome Solon as well as Carlo Carolis's unit.

At the same time, the CRG also hosted 6 students for various experiments in the Teaching and Training Lab for their final school research projects. All enjoyed speaking to the different researchers at the CRG, and were very impressed and motivated to continue in the world of research. <

CRG AT RESEARCHERS' NIGHT 2013

The CRG has been involved in an international event: Researchers' Night 2013.

It took place simultaneously in many countries across Europe, in around 320 cities and in more than 800 locations. In Barcelona, Biocomunica't and the Dr. Robert Foundation at the UAB organised a variety of activities that this year centred on research into rare diseases.

The CRG was responsible for one of the experiments addressed at the general public. This was an experiment related to the research of Carme Agustín from the Gene Network Engineering laboratory, on Huntington's Disease. <

CORE FACILITIES

CRG CORE FACILITIES JOIN THE CORE FOR LIFE MEETING

Mònica Morales

Core Facilities at the CRG have participated in the second Annual Technology Forum of Core for Life (www.coreforlife.eu) that took place in Ghent, Belgium, on September 23-25. Core for Life was established in 2012 as an Excellence Alliance of Life Science Core Facilities in Europe, with the aim of addressing scientific, technological, organisational and funding challenges and exploring the potential of coordinating and bundling core facility expertise and resources across institutes and countries. The 6 members of the Alliance, distributed amongst 5 European countries, work together through coordinated synergistic actions.

CORE FOR LIFE

In the second annual meeting (the first was held in Sitges in November 2012), 52 Core Facility Heads and Directors participated in an interactive meeting with a balanced mixture of plenary talks. These explained the progress of the Technology & Ad Hoc Work Groups and emerging technologies in the field. Small group brainstorming sessions were held to delineate future CoreforLife actions. In parallel to the general programme the Directors met to formalise the CoreforLife operational model. <

PEOPLE @ CRG

WELCOMES

We warmly welcome:
Miquel Orobitg (Comparative Bioinformatics); Tian Tian (Hematopoietic Stem Cell Biology and Differentiation); Susana De Sola (Cellular and Systems Neurobiology); Heleia Roca (Comparative Analysis of Developmental Systems); Oscar Martínez (EGA); Aranzazu Rosado (Genome Architecture); Aaron New (Genetic Systems); Gerard Cantero (Intracellular compartmentation); Thomas Pujol (Biomechanics of Morphogenesis); Belén de Sancristóbal (Cellular and Systems Neurobiology); Joan Pallarés (Genomics and Disease); Kamil Makowski (Regulation of Alternative pre-mRNA Splicing); Himapriyanka Nadimpalli (Regulation of Protein Synthesis in Eukaryotes); Barbara Uszczynska, Judith Escarré and Sebastian Ullrich (Computational Biology of RNA Processing).

FAREWELLS

Our best wishes to:

Doris Meder, head of Core Facilities, left Barcelona and the CRG in September. 4,5 years ago she came to the CRG to set up the Core Facilities Programme. Thanks to her leadership, our core facilities improved their organisation and services and became an integral part to research and teaching at CRG. She also boosted the international collaboration of core facilities by launching the Core for Life alliance. She is joining the Max Planck Institute of Molecular Cell Biology and Genetics in Dresden.

Salvador Aznar Benitah and his laboratory have moved to the IRB Barcelona. They will continue their studies on the stem cells of stratified tissues such as the skin and oral mucosa. Salvador Aznar has been a junior group leader at the CRG for almost 6 years. He is an ICREA research professor and was recently awarded an ERC Starting Grant.

Jennifer Semple, Rob Jelier and Janet Melling (Genetic Systems); Mariana Gómez (Microtubule Function and Cell Division); James Cotterell (Multicellular Systems Biology); Gloria Pascual, Patrick S. Welz, Alexandra Avgustinova, Guiomar Solanas and Stefania Mejetta (Epithelial Homeostasis and Cancer); Cristina Militti (Regulation of Protein Synthesis in Eukaryotes); Vasiliki Michaki (Regulation of Alternative pre-mRNA Splicing); Ernesto Lowy (Bioinformatics Unit); Manuela Hummel (Genomics Unit) and Chiara Di Vona (Gene Function).

AWARDS AND HONOURS

Fyodor Kondrashov, group leader of the Evolutionary Genetics laboratory, has been awarded an ERC Starting Grant.

Salvador Aznar Benitah, group leader of the Epithelial Homeostasis and Cancer laboratory, has been awarded the Beug Foundation's Prize for Metastasis Research - the Metastasis Prize.

DIARY

30-31/10/13 - 12th CRG Symposium
BCN2 – Biologigal Control Networks in Barcelona
2013symposium.crg.eu

08-24/11/13
Scientific picture exhibition "Tree of Life"
Espai d'Art i Creació - Riera Coma Fosca, 42 - Alella, Barcelona
www.alella.cat/culturaifestes Can Manyé

15/11/13 - CRG Core Facilities Technology Symposium
Applying proteomics to life sciences: from ions to biology
www.crg.eu/technology_symposium_131115

21-22/11/13 - Barcelona Conference of Epigenetics and Cancer
Challenges, Opportunities and Perspectives
www.imppc.org/congress/bcec1

25-28/11/13 - Courses@CRG
Exome Sequencing Analysis in Disease & Clinical Research
www.crg.eu/exome_sequencing_2013

28/11/13 - CRG Core Facilities Technology Symposium:
Unsuspected Flow Cytometry applications on biological analysis
www.crg.eu/technology_symposium_131128

CRG Centre de Regulació Genòmica

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