

RETREATING

> Spring is the perfect moment to escape from the lab and get away from work with your colleagues, not only to share projects and scientific discussions but also to be with the researchers from your programme in a more relaxed atmosphere.

The Cell and Developmental Biology and the Bioinformatics and Genomics programmes as well as all of the CRG Core Facilities held their retreats in the previous months.

Below are some of the images <



CRG POSTDOC SYMPOSIUM

> **Juan Sarasua**. On June 14, the PRBB Auditorium hosted the III CRG Postdoc Symposium, an initiative reflecting the work of the CRG postdocs with special guests from various international institutes. In an effort to broadcast this event, we encouraged participants to help us communicate the talks through twitter.

Take a look at the results via this QR code or go to:
<http://storify.com/CRG/iii-crg-postdoc-symposium-2012> <





> Science is a fast evolving field. Updating and acquiring new skills is crucial for scientists at all stages in order to succeed. Interest in taking courses is high, as we discovered again last week, with the 2nd edition of the Systems Biology Summer Course (this time accepting scientists from all over the world): we had to turn down 35 applicants for the 24 available spots. At the end of the week 91% of the participants rated the course as excellent/very good. Comments like “The course made me look at my experimental data with a new perception” and “If I’d done this course last year it would have saved me a lot of time” demonstrate the importance of training.

Training motivates us and gives us that energy we sometimes lose in our daily routine. This energy comes from learning new things, or seeing them from a different angle, and from discussing them with other people. Of course, the success of a course depends on enthusiastic participants and great teachers. We were lucky, we had both! In addition, with 5 teachers as



well as a number of participants travelling here from abroad, the course provided a stimulating international forum. And last but not least, this course would not have been possible without the help of the 7 highly motivated CRG postdoc volunteers.

We know that teaching is important, that there is a great deal of interest in it at the CRG and beyond, and that we have a professional crew at the CRG to offer high-quality courses. So, what are we waiting for? Bring on the courses! Ideas anyone?

Hilde Janssens <

Further information on Courses@CRG at www.crg.eu/courses

CRG & CO

ETTBio PROJECT

> The CRG is participating in a European project aiming to identify, exchange and transmit best practises for effective technology transfer in biotechnology. Ten European partners are working together to encourage innovation and economic development on a regional level. The CRG is the only Spanish research centre participating in the project.

This collective effort to improve transfer policies will help boost the creation of new companies, generate new jobs and lead to higher turnover. First, ETTBio will create a catalogue of comparative assessment criteria for technology transfer in biotechnology. Once they have identified the best practises for the regional challenges, they will draft some suggestions for policies and plans to be implemented in each region. The final objective is to seek out common policies, present them to national and European political representatives for technology transfer in biotechnology and allow the individual regions to move forward in this field. <

CRG AND CNAG JOIN FORCES TO BOOST GENOMICS RESEARCH

> CRG and CNAG have signed a collaboration agreement with the aim of boosting research in the field of genomic analysis. The partnership provides the framework for collaboration in specific research projects and the promotion of research of interest to both institutions.

The first consequence of the signing of this alliance is that the Structural Genomics group of the CNAG will also join the Gene Regulation, Stem Cells and Cancer programme of the CRG.

The Structural Genomics group, headed by researcher Marc A. Martí-Renom, is principally interested in revealing the molecular mechanisms that regulate the cell. With this dual affiliation, they will have better resources to develop their science both experimentally and computationally.

In the future, further projects will be jointly launched and perhaps more researchers will have dual affiliation too. So, welcome to the CRG new CNAG members! <



> Structural Genomics group: David Dufour, Davide Bau and Marc M. Martí-Renom.

THE INTERNAL CRG SOCIAL NETWORK

> *Tobias Maier*. Two researchers from the CRG have initiated an independent online discussion platform for CRG employees. Already over 80 researchers from the institute have created their user profiles at crg.mixxt.at and currently topics such as authorship issues and the newly available study room for PhD students and postdocs are being debated. "This forum offers an easy and intuitive way to discuss internal CRG issues beyond the existing mailing lists, for sharing photos from beer sessions and retreats to even exchanging documents" says Tobias Maier, one of the founders.

Additionally, the website aims to be a general repository of information on how to organise CRG events, how to survive your PhD and how to make the most of Barcelona. Accessing the forum at crg.mixxt.at requires online registration using your CRG email address.<

RENTA 2011 CAMPAIGN

> *David Ordaz*. On May 9, the centre held a seminar on filling out the 2011 "RENTA" tax return. This event was organised by the HR team and the speaker was a professional tax advisor who explained the process, news and rules of the Spanish treasury for this year.<



NEW ADMINISTRATIVE ORGANISATION

> *Gloria Lligadas*. Over the past few years the CRG has experienced exponential growth in its scientific activity. As a consequence, the management structure has been adapting as well as possible in order to be able to deal with the needs of the scientific personnel, with the aim of minimising the administrative load of the researchers.

At the end of 2011, with the aim of being able to organise, adapt and optimise the organisation of the management, the consulting firm Deloitte was asked to undertake an analysis. As a result of this, a reorganisation of the management has been suggested. "This new organisation seeks to reshape the structure of the team, in order to be more efficient, adapting it to the changes and responding to the

current needs of the environment in which we find ourselves", commented Marian Marrodán, manager of the CRG.

Once more, the CRG seeks to be pioneering, not only in its science but also in its management and the centre's organisational model, evaluating the jobs of the personnel in this area, the processes and the results. It is an innovative proposal for research centres, where often the science but not the management is assessed. Our short term goal is to implement a system of external evaluation for the coordinated management areas, in which other international research centres, such as the EMBL, have already expressed an interest.<

BANISHING ETHIDIUM BROMIDE

> Following the International Labour Organization campaign "Promoting safety and health in a green economy" and according to the centre's Corporate Social Responsibility plan, the CRG is replacing the Ethidium Bromide in its protocols and laboratories. There are now other reagents available with the same performance in terms of RNA and DNA staining which are much safer. Starting in September, all EtBr will be removed from the laboratories and all the equipment and areas exposed to this product will be decontaminated.<

THINK GREEN!

> In 2011 the CRG used enough energy to power 755 homes for a year, 4,277 lab waste container units were collected and 1,000,000 sheets of A4 were consumed. To reduce these figures and according to the future CRG Corporate Social Responsibility Plan, the CRG has launched a sustainability campaign.

It started in June and has finished in July and aims to raise awareness of the need to implement sustainability measures and save energy as well as improve the habits of the members of the CRG regarding saving and reducing energy consumption.

Help us to reduce all of our consumption for the benefit of both the environment and ourselves. Contribute to saving energy with your actions simply by turning off your computers, lights, machines or chemical extractor hoods when leaving and use water responsibly.<



CRANIAL SIZE AND CHILDHOOD OBESITY GENES IDENTIFIED

> Two collaborative studies involving the Centre for Research in Environmental Epidemiology (CREAL) and the Centre for Genomic Regulation (CRG) have identified a number of genes involved in the size of the cranial perimeter and childhood obesity.

In the first case, these results may help us to understand the mechanisms involved in neurodevelopment, as well as mental retardation. It identifies two genetic variants in two genes associated with the cranial perimeter of children aged between six months and two and a half years old.

The second study shows that there is overlap between the genes associated with obesity in adults and obesity in children, as of the 9 genes solidly identified, 7 had been previously linked to obesity in adults. The study has also identified, for the first time, 2 further genes related to the regulation of various intestinal functions. These two investigations have been published in *Nature Genetics* and were based on seven studies of genetic associations in a total of 10,768 European children. <

SEQUENCED GENOMES KEY TO FOOD

> Researchers from the labs led by Roderic Guigó and Toni Gabaldón in the CRG Genomics and Bioinformatics programmes participated in the sequencing and functional analysis of two plant species and a species of yeast, keys to agricultural and wine production.

Firstly, a study of the tomato (*Solanum lycopersicum*) genome, published in the journal *Nature*, has revealed that gene repeats explain certain features of this fruit as well as possible keys to its evolutionary success.

Furthermore, the sequencing of the melon genome that appears in the journal *PNAS* was the first Spanish public-private initiative to obtain the complete genome of a species of higher plants. The study led by researchers from CRAG, CSIC and IRTA and promoted by Genoma España, involved 9 research centres and had the support of 5 companies and 5 autonomous communities in Spain. The study revealed that the melon genome comprises 450 million base pairs and 27,427 genes, of which 411 have been identified that could have a disease resistance function. Also identified were other genes that could define the maturity of the fruit and characteristics such as the taste and aroma.

Finally, work led by the University of Lund (Sweden) in collaboration with the CRG has described the genetic map of the yeast *Dekkera bruxellensis*. This yeast plays an important role in wine production, particularly by defining its aroma. The sequencing of *Dekkera* offers a new range of possibilities to wine producers and at the same time helps us better understand its evolution. The researchers studied the genetic basis of the yeast and the properties of this genetic basis which may be relevant for the production of wine. <



> The sequenced tomato (*Solanum lycopersicum*)



> The melonomics project obtained the sequence of the melon. (Photo: CSIC)



> *Dekkera Bruxellensis*, one of the most important yeasts for wine production.

CHIMERIC ARN: A NEW WAY OF CODING THE GENOME

> A group of bioinformatics experts at the Spanish National Cancer Research Centre (CNIO) in Madrid in collaboration with scientists at the Centre for Genomic Regulation (CRG) in Barcelona have published findings which point to still unexplored coding potential within the genome.

They have discovered that some RNAs may combine information from two different genes, hence they have named them “chimeric RNAs”. Roderic Guigó’s laboratory noted the prevalence of this phenomenon back in 2006 and this work is trying to establish its biological relevance. Chimeric RNA is partly responsible for there being more distinct proteins than there are genes. As if the system reading and translating the genes could find three or more meanings from any two. This occurs far more often than was first thought.

Numerous questions are still to be answered including: how important is this process out of all the information of the genome? And does this finally explain the mismatch between the number of genes and proteins? <



FEATURING CRG

ESF/EMBO CONFERENCE

> *Yogi Jaeger*. The ESF/EMBO Conference on ‘The Systems Biology of *Drosophila* Development’ was organised by Eileen Furlong (EMBL) and Yogi Jaeger (CRG). It took place from May 22 to 24 at the scenic location of Polonia Castle in Pultusk, Poland.

The meeting brought together an eclectic mix of developmental geneticists, mathematical modellers, and ‘omicists’ working on *Drosophila* development. The small format allowed early-stage researchers to present their work and interact with the invited speakers in an informal manner. Contributions by pioneers in the field such as John Reinitz (Chicago), and Bas van Steensel (NKI Amsterdam) as well as many exciting newcomers were complemented by a thought-provoking historical lecture by Alfonso Martinez-Arias (Cambridge). Polish hospitality was excellent and contributed a great deal to the success of the conference. The conference dinner and bonfire at the river will surely be remembered by all of us for a long time to come! <

CALL FOR ALUMNI

> We encourage all CRG Alumni to attend the CRG 10th Anniversary Symposium as well as the first official Alumni meeting. The purpose of this first meeting is to discuss the future and organisation of the CRG Alumni Association. It is to be held on October 19 after the CRG symposium.

Please, confirm your attendance by writing to comunicacio@crg.eu <



CRG PRIZES

> In May the CRG prizes were awarded to the best projects in management innovation, technology transfer and scientific collaboration. All of the awards have in common the fact that the projects should have been presented by at least two people from different departments or laboratories working together.

In this first edition, there were 9 projects presented in the management category, 3 in the category of tech transfer and 8 in the category of collaborative research. All the projects submitted were of a very high standard and it was not easy for the jury to choose the winners. The winning projects include truly innovative work.

In the case of research, the top project was based on the functional analysis of miRNAs as inhibitors or buffers in the gene expression of neurones, presented by Sergio Barberán, Silvina Catuara, Marc R. Friedländer and Luis Zapata. In the tech transfer category the award went to a proposal by Tobias Maier and Toni Hermoso to help scientists keep up to date with the latest scientific publications, and in the field of management innovation, a project proposing a programme of management staff mobility presented by Glòria Freixas, Olga Juderías and Mariana Morlans was honoured. <

CRG & SOCIETY

“FESTA DE LA CIÈNCIA”

> Once again, the CRG participated in the “Festa de la Ciència” organised by the Institute of Culture in Ciutadella Park. An entire weekend full of activities related to science and technology for the whole family. Several CRG researchers actively participated in the festival either by giving lectures or holding workshops to bring neuroscience, bioinformatics and genome architecture closer to the public. <



RESERVATION OF CRG ACTIVITIES FOR SCHOOLS

> The school year has finished, but at the CRG we're already getting ready for the next. The upcoming course will be full of new features but what is sure not to change is the speed with which our activities fill up. If you have friends or relatives who would like their school to participate in our activities, remind them that they can reserve primary school activities from September 3 onwards on the website of the Programme of Activities in Barcelona (PAE) at www.bcn.cat/educacio/pae. The reservations for secondary school activities open on September 5 on the www.escolab.cat platform. <

WHY USE DROSOPHILA IF IT'S NOTHING AT ALL WITH ME?

> This was one of the questions raised by one of the attendees at the science cafe “Decoding humanity” on

June 27. The discussion began with a word game to help the audience understand that, even though we can read the genome, we still are not able to understand everything it says. Dr. Gemma Marfany from the UB and Juan Valcárcel from the CRG answered all the questions that those attending the cafe brought up. Questions were discussed including the importance of genetic inheritance, the ability to modulate the genome and techniques and animal models used in the laboratory for the study of DNA. <



“JOVES I CIÈNCIA” AT THE CRG

> As has happened every year since the Catalunya-Caixa Youth and Science programme began, the CRG has participated in the Molecular Biology and Genetics lab of the E2C3 CX MónNatura stays in Planes de Son. 15 young people spent 2 weeks in this high Pyrenean village immersed in the challenges set by researchers Daniel Trujillano and Marina Garcia together with Annick Labeuw.

Additionally, currently the labs of Guillaume Fillion, Thomas Graf, Manuel Mendoza, Roderic Guigó and Ben Lehner all have one extra researcher. Five young people from the E2C3 Research Centre stays will spend three weeks working side by side with researchers from the centre. <

BEYOND GENOMICS: ETHICAL CHALLENGES CAN IMPINGE ON THE WAY YOU DO RESEARCH

> *Gabrielle Bertier*. GEUVADIS (Genetic European VARIation in health and DISease) is a 3-year research project funded by the European Commission and coordinated by Xavier Estivill. It involves 17 labs, who all work together towards a common objective: creating standards in human genome and transcriptome sequencing data production, exchange, and analysis.

One of the project activities is dedicated to ethical, legal and social issues (ELSI). Indeed, the increased and 'democratised' use of genome sequencing technologies in research, as well as in clinical practice, has consequences for society and health systems, and may give rise to 'ethical' problems. Our whole genome sequence reveals an immense quantity of data about us; and although it is an extremely valuable source of information for the prevention and treatment of diseases, it might also be used contrary to our own interests, by insurance companies or through the internet. Still, it is difficult to estimate what the actual risk is, and how much is based on typical technosceptical fear.

At the GEUVADIS kick-off meeting in 2010, one of our PIs, upset by all the theoretical talk about the 'ethical' risks of WGS, provocatively suggested that all PIs in the project should just get their genome sequenced to show that "it's not such a big deal". Taking this literally, we designed an individual questionnaire in which we asked all the GEUVADIS experts their opinion about having their own genome sequenced. This had actually never been done before in such a direct and personal way, and we immediately received very positive feedback from the labs after the discussions; as well as from all the ELSI research community when the first results of the study came out.

Intriguingly, while 76% of the respondents are willing to have their genome sequenced for research, almost all of them want to have the right to withdraw from the study. This is a striking result, considering that the very same researchers unanimously agree that having a sample removed from their database can drastically affect the statistics and therefore "should be avoided at all costs". In other words, experts working in the field, who truly believe that this research is useful, are also aware of potential risks for participants and take them seriously, showing that they are not simply ungrounded concerns.

Even though this study began as a side project, it has now gained in momentum and importance. I recently presented our results at the Genomics Networks conference in London and was amazed by the flood

of questions and congratulations we received from the audience.

One of the main things I realized after talking to numerous experts from the ELSI of genomics is that the direct communication I have with the lab and the researchers at the CRG is a rare privilege for ELSI research. The lab environment, in which genomic research is actually being performed, and its people, are often far distant from social sciences researchers. This separation maintains the inherent gap between natural and social sciences; caused by the use of different methods, languages, and codes by researchers in these separate fields. If natural scientists tend to see ELSI as just another administrative burden to stop them from performing their research, social scientists viewed me enviously as if I had access to a very nice set of docile 'lab scientist' guinea pigs. The model we have been able to build in GEUVADIS, and in other EU projects, provides a stark contrast to that.

A few weeks after I came back from London, Tuuli Lappalainen, a post-doc student from Geneva, won a poster prize at the Cold Spring Harbour Biology of Genomes meeting with another GEUVADIS study: "Integration of transcriptome and genome sequencing uncovers functional variation in human populations". The success of these two high quality collaborative studies from two very different fields of genomics demonstrates that intense dialogue within the consortiums of EU projects can be highly beneficial. This would be my response to an often-heard criticism about the emptiness of the promises of large EU projects, with the sceptical view that collaboration stops once the money arrives.

I believe this also exemplifies how a project manager who is successfully integrated into a research project can actively contribute. This is our strategy at the International and Scientific Affairs (ISA) office, and it has certainly proven successful for our GEUVADIS project. <



> Gabrielle Bertier and Jane Miller, ESRC Genomics Network Conference 2012 - Genomics in Society: Facts, Fictions and Cultures.

WELCOMES



Marc Martí-Renom and his Structural Genomics laboratory are joining the CRG. Marc holds a degree in Biology and a PhD in Biophysics from the UAB. He trained in protein structure modelling at Rockefeller University. Later, he was appointed assistant professor at the University of California in San Francisco. From 2006 to 2011, he was group leader in the CIPF in Valencia. <

We also welcome:

Olivera Vujatovic, Nieves Lorenzo, Veronica Raker, Solip Park, Jae-Song Yang, Neus Martínez, Priyanka Sharma, Tanit Guitart, Emilio Palumbo, Daeyeon Kim, María Llamas, Laura Buxó, Mireia Ortega, Domenica Marchese, Francesca Di Giovanni, Mònica Morales, Rafael Bayona, and Luis Diambra. <

FAREWELLS

Our best wishes to:

Ester Cuenca,
Gabriel Neurohr
Anne Marie Alleaume
Joan Conangla
Martí Badal
Tobias Maier
Martina Niksic
Olivia Casanueva
Michael Breen
Angelika Merkel
Sarah Djebali
Julia Burnier
Jason Close
Peggy Janich
James Cotterell

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AWARDS AND HONOURS

> **Pedro Carvalho, Toni Gabaldón, Salvador Aznar-Benitah and Gian G. Tartaglia** have been awarded four ERC Starting Grants. Thanks to this highly prestigious grant, they will be able to approach different aspects of biomedicine: Revealing the lipid homeostasis and biogenesis, identifying molecular causes of stem cells regulation and aging, and discovering the evolutionary mechanisms and the role of long non-coding RNAs.

> **Ben Lehner**, group leader of the CRG Genetic Systems laboratory, has been awarded the seventh edition of the *Banc Sabadell Prize* to biomedical research. This prize recognizes and promotes the scientific career of young scientists in Spain. It is one of the most important prizes in Spain for young researchers with an outstanding curriculum in the field of biomedicine.

DIARY

20-22/09/2012

> Meeting

"Chromosomes, Stem Cells and Disease" & *Satellite Workshop "Modelling 3D-Structure of Chromosomes"*.
www.crg.eu/chromosomes_meeting

22-26/10/2012

> Courses@CRG "Second generation sequencing: lab methods and data analysis"

CRG Room 631 (6th floor), Dr. Aiguader, 88, Barcelona.
www.crg.eu/2012_symposium
Registration deadline: September 30, 2012

26-28/09/2012

> Courses@CRG "Förster Resonance Energy Transfer (FRET) microscopy"

www.crg.eu/FRET_School_2012

16/11/2012

> Core Facilities Symposium "Applying proteomics to life sciences: from ions to biology"

PRBB Auditorium, Dr. Aiguader, 88, Barcelona
More info coming soon at www.crg.eu

17-18/10/2012

> Anniversary Symposium "10 Years of Research, Education and Training at the CRG"

PRBB Auditorium, Dr. Aiguader, 88, Barcelona.
www.crg.eu/2012_symposium
Registration deadline: September 30, 2012

19-20/11/2012

> CRG PhD Symposium

PRBB Auditorium, Dr. Aiguader, 88, Barcelona
More info coming soon at www.crg.eu