



CRG RECEIVES THE HR EXCELLENCE IN RESEARCH AWARD

Bruna Vives

In November, 2013, the CRG received the ‘HR Excellence in Research’ award from the European Commission. It is recognition of the CRG’s commitment to developing and implementing an HR Strategy for Researchers, designed to bring practices and procedures in line with the principles of the European Charter for Researchers and the Code of Conduct for the Recruitment of Researchers. The CRG is the first institute in Catalonia to be awarded the logo, and only the sixth in Spain.

The HR Strategy for Researchers initiative supports research institutions and funding organisations in the implementation of the European Charter and Code in their policies and practices. It awards the “HR Excellence in Research” logo to those institutes that undertake an internal gap analysis comparing their current policies and practices with the European Charter and Code and adopt an action plan. The CRG internal gap analysis and action plan were

developed in an inclusive and open process involving a highly motivated working group composed of representatives from all the professional categories and in consultation with many other members of the CRG. Thank you all!

The Action Plan 2013-2015 has been adopted and approved by the CRG Executive Board to enable the CRG to fulfil the HR Vision and Strategic Objectives in alignment with the European principles. The CRG’s vision is to recognise researchers and staff as essential contributors to CRG success by offering a supportive, encouraging and challenging working environment that promotes equal opportunities, ethical integrity and work-life balance. The highlights of the Action Plan include strengthening the Gender Action Plan, creating a Training Unit and developing a comprehensive Staff Handbook for CRG members.

More information: www.crg.eu/HRExcellence <

12 M€ TO STUDY THE 3D STRUCTURE OF THE GENOME AND ITS ROLE IN GENE EXPRESSION

Last December, the ERC announced the results of their Synergy Grants call for proposals. The call was addressed at scientific projects carried out by different interdisciplinary groups of researchers

tackling issues at the forefront of knowledge, new areas of research, and novel methods and techniques. The call aimed to reward proposals that demonstrated synergies with complementary aspects and which contained added value to enable progress that would be impossible for researchers working individually.

The groups of Miguel Beato, Thomas Graf, Guillaume Filion and Marc

A. Marti-Renom (CNAG-CRG) were awarded one of these prestigious grants for their joint project “4D-genome: Dynamics of human genome architecture in stable and temporal changes in gene expression”. This project aims to address the 3D structure of the human genome and its role in gene expression from various different points of view.

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EDITORIAL



Bruna Vives
Head of Grants and
Academic Management

HR EXCELLENCE IN RESEARCH: STRENGTHENING RESEARCH CAREERS AT THE CRG AND IN EUROPE

Strengthening research careers and promoting mobility in Europe is a top EU priority for attracting and retaining the best scientific talent in Europe and achieving a genuine European research labour market. Several initiatives promoted by the European Commission, such as the HR Excellence in Research, address the current barriers to researcher mobility and the attractiveness of research careers. Promoting gender equality and strengthening the gender dimension in research programmes, supporting the career development of young scientists and diversifying their skills and career opportunities, as well as developing transparent recruitment policies are key challenges in the European Research Area.

Implementing an HR Strategy in line with these key EU priorities will place the CRG at the forefront of the European research landscape, enhancing its international visibility and reinforcing the role of the CRG as one of the top life sciences institutes worldwide. The award will be an added value in H2020, the new European Framework Programme for Research and Innovation launched on the 1st January 2014. We encourage all CRG members to disseminate the logo and to use it in H2020 applications, particularly in Marie Skłodowska-Curie Actions.

The HR Excellence in Research recognition awarded by the European Commission demonstrates the commitment of the CRG to providing attractive working conditions for researchers and staff and is an opportunity to increase efforts by implementing a comprehensive HR strategy adopting international best practices with high quality standards. We have a long way to go, but the cornerstone has been set, and I strongly believe that the award will make a difference to the CRG as a whole, whilst contributing to enhancing human potential in Europe. <

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(Continued from frontpage)

The classic way of studying the genome as a linear text is being displaced by the new dynamic and complex vision of organisation in the nucleus. We know that a gene's location in space modulates the expression of the genome, although we are unable to explain what establishes and maintains this interaction. To address this issue, the 4D-Genome project brings together a variety of research groups that study the genome from different angles.

“With this project we intend to take full advantage of the experience and different capabilities of the team members to characterise the dynam-



From Left to right: Miguel Beato, Guillaume Filion, Thomas Graf and Marc Marti-Renom

ics of the three-dimensional structure of the genome and discover to what extent gene expression is modulated in response to external stimuli”, comments CRG group leader Guillaume Filion.

The researchers hope to produce a three-dimensional map of the properties of the and expression genome that will enable us to better understand how the genome responds to external changes and controls gene expression. <

INSIDE

NEW TRAINING UNIT

Elias Bechara



“The wisest mind has something yet to learn”. Following this principle, the CRG has created the training unit to afford excellent training to its residents. The aim of the unit is to centralise the training activities at the CRG. Divided into three separate branches, the CRG will offer:

- External training: tagged as courses@CRG, delivering maximum value to the international scientific community.
- Internally: CRG Coach, an extensive training programme based on the needs of the CRG residents and embracing both scientific and transferrable skills. This currently in the processes of being set up.
- The Technology Transfer branch or CRG Star: to include all entrepreneurship courses, the business school and the new ideas from the TT office.

The training unit will also provide support to the graduate and postdoc committees and perform several other tasks including the management of the teaching lab and the internet/intranet webpage.

We would welcome your ideas/suggestions to: training@crg.eu <

4th EMERGENCY AND EVACUATION DRILL AT THE CRG

Sonia Alcazar

All the staff at the CRG and PRBB participated in the 4th emergency and evacuation drill held on 12th November last year. It was a great success thanks to the emergency team and the collaboration of all the staff.

The fire drill began in the Grants and Academic Management Department where the fire protocol was activated. The simulation took 21 minutes for the whole building and 10 minutes in the case of the CRG.

These drills are carried out for the education and training of both the emergency teams and the staff of the centre, whilst at the same time making it possible to detect points for improvement and evaluate the time needed for evacuation and intervention. The aim for 2014 is to improve order at the meeting point to facilitate the head count as well as to offer practical fire extinguishing courses for all the members of the emergency team. <



CRG PRIZES

The winners of the 2nd edition of the CRG Prizes have been announced. This contest awards collaborative projects both from the scientific and the management areas. At the management level, the management innovation best project went to Jaume Bacardit and Toni Hermoso for their project “Control laboratory stocks with your finger: Lab Inventory App”.

At the scientific level, the first prize in the Tech Transfer category went to Karl Wotton and Eva Jimenez for their project “An improved biosensor: eradicating the extinction of acquired behaviour”.

Finally, in the scientific collaborative projects category, the panel decided to award two different projects *ex aequo* to Tommaso Cavazza and Bruno Di Stefano for their project “Investigating the role of centrosomes in stem cell potency and self-

renewal” and Moraea Philips and Karl Wotton for their project “Investigating the effects of sublethal doses of neonicotinoid pesticides on prey detection in the beneficial insect *E. balteatus*”. These two collaborative projects have been awarded additional funds of 10,000€ each to further develop them. The four winners in this category were happy not only because of the recognition of their proposals but also for the opportunity to develop their projects. <



INSIDE

4th CERCA HR Meeting

David Ordaz

On 12th December, 2013, the 4th HR Meeting of CERCA institutes was held at the CRG. It was attended by representatives from more than 15 centres and during the meeting several common and frequent issues that crop up in these departments were dealt with, including recruitment, immigration and audits. <



SEEDS FOR TWO NEW TRANSLATIONAL RESEARCH PROJECTS

Michela Bertero

Last year the CRG launched the first internal call to provide seed funding for new translational research projects. The call required the proposals to be a collaborative effort between at least one PI from the CRG and a clinical group or a biomedical company. Two projects will be supported for one year with up to 50,000€ each. Isabelle Vernos will collaborate with the EUGIN clinic to explore novel and original screening methods for male infertility, and Stephan Ossowski will team up with several groups at the Hospital Vall d'Hebron to apply next generation sequencing to diagnose primary immunodeficiency in children.

The second call will be launched before the summer. <

EU & MORE

OFFICIAL LAUNCH OF H2020: FUNDING OPPORTUNITIES AT DIFFERENT CAREER STAGES

Bruna Vives

Horizon 2020, the new European Framework Programme for Research and Innovation (2014-2020), was officially launched on 1st January, 2014. For the first time, the European Commission has defined funding priorities over two years. Most calls were published on 11th December, 2013, with more to follow over the course of 2014. The draft versions of all 2014-2015 work programmes are available, although some of those for 2015 will only be officially approved this year.

The published calls for 2014 are worth around €8 billion, with funding focused on the three pillars of Horizon 2020 (Excellent Science, Industrial Leadership and Societal Challenges).

H2020 offers funding opportunities at different career stages:

- PhD Students: There is no direct funding for individual PhD projects, but PhD students can apply for a PhD po-

sition within the framework of a funded training network (Marie Skłodowska-Curie Innovative Training Network). All offers are published online on the EURAXESS website.

- Postdocs: The Marie Skłodowska-Curie Individual Fellowships offer funding to researchers of any nationality for 2-year research projects. The mobility of researchers is an eligibility requirement.
- Principal Investigators: Principal investigators can participate in collaborative or training projects in a consortium as partner or coordinator. Depending on their career stage they can also apply for individual projects funded by the European Research Council (ERC). For excellent researchers starting or consolidating their own independent research team, there are two types of grants depending on their career stage (ERC Starting Grant - 2-7 years since PhD - and Consolidator Grant - 7-12 years since PhD). Researchers at an advanced stage of their career with an excellent track record and a cutting-edge research project can apply for an Advanced ERC Grant.

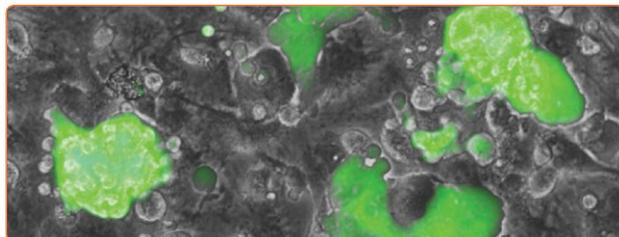
For more information please contact the Grants Office. <

A BIG STEP FOR CELL REPROGRAMMING

In 2012, Dr. Shinya Yamanaka, together with Dr. John Gurdon, was awarded the Nobel Prize in Medicine for discovering it was possible to transform tissue cells into induced pluripotent stem cells (iPS). The problems with this discovery are that only a very small percentage of cells can be reprogrammed, the reprogramming process takes weeks and its success rate is somewhat hit-and-miss.

Researchers from the CRG have recently described in *Nature*, a novel mechanism by which adult cells can be reprogrammed into iPS cells successfully and in a very short period of time. “Our group was using a particular transcription factor (C/EBP α) to reprogramme one type of blood cell into another (transdifferentiation). We have now discovered that this factor also acts as a catalyst when reprogramming

adult cells into iPS”, explains Thomas Graf, group leader at the CRG and ICREA research professor. “The work we’ve published presents a detailed description of the mechanism for transforming a blood cell into an iPS. We now understand the mechanics used by the cell so we can reprogramme it and make it become pluripotent again in a controlled way, successfully and quickly”, adds Graf. <



Colonies of iPS cells obtained four days after reprogramming with Yamanaka factors, after having expressed C/EBP α in B lymphocytes for 18 hours

THE SUGAR BEET GENOME: SEQUENCED AND ANALYSED FOR THE FIRST TIME

The sugar beet accounts for nearly 30% of the world’s annual sugar production, according to the United Nations Food and Agriculture Organisation (FAO). Not in vain has it been a crop plant in cultivation all around the world for the last 200 years. Recently, a team of researchers from the CRG and the Max Planck Institute for Molecular Genetics, led by Heinz Him-

melbauer, head of the Genomics Unit at the CRG, together with researchers from Bielefeld and other partners



Sugar beet plant. Author: Thomas Kraft.

from academia and the private sector, have, for the first time, been able to sequence and analyse the sweet genes of this beet. The results of the study, published in *Nature* last December, shed light on how the genome has been shaped by artificial selection.

“Information held in the genome sequence will be useful for further characterisation of the genes involved in sugar production and identification of targets for breeding efforts. This data is key to improving the sugar beet crop with respect to yield and quality and for its application as a sustainable energy crop”, suggest the authors. <

SENESCENCE IS A NORMAL PROCESS IN THE EMBRYO, AND IS NOT ONLY LINKED TO AGEING AND CANCER

Senescence is a cellular process that has historically been described in ageing and cancer. Now, for the first time, researchers at the CRG and CNIO in Spain have revealed that this state is not exclusively related to stress and tumour proliferation but that it is also needed in a normal setting during embryonic development.

Last November, in *Cell*, Keyes and his collaborators described senescence as a fundamental part of the biology of two major signalling centres in the embryo which helps to control normal limb

and nervous system development. Likewise, the CNIO study led by Manuel Serrano, and postdoctoral researcher Daniel Muñoz-Espin, identified identical processes in two other tissues: in the developing kidneys and the ear.

Both studies go on to show how the coordinated removal of senescent cells by macrophages plays a key role in the remodelling of the developing tissues, a process that is required for normal patterning. Interestingly, the tissues where the researchers describe the occurrence of senescence are among those most frequently affected by congenital birth defects, suggesting that an investigation of the mechanisms regulating senescence in the embryo might help to explain the causes of certain developmental abnormalities. <

NEWS FROM THE PUBLISHERS

EMBO PRESS – ONE FOR ALL

Yvonne Kaul

New publishing platform for EMBO scientific journals

EMBO Press stands for innovative online functionality, design and a fast and fair publication process for their four journals: The EMBO Journal, EMBO reports, Molecular Systems Biology and EMBO Molecular Medicine. Launched in December 2013 at the annual meeting of the American Society for Cell Biology in New Orleans, EMBO Press provides a consistent set of editorial policies, processes and quality standards that are known as the Transparent Process.

EMBO Press has dedicated scientific editors that ensure a rapid and informed editorial process. The editorial process, which in-

corporates referee cross-commenting, allows the EMBO Press journals to accept most papers after a single round of clearly defined, realistic experimental revision. The editorial process also places an emphasis on publication ethics (including systematic prepublication screens for text duplication and image aberrations). A unique element is the publication of Source Data underlying figures and the replacement of supplementary information with Expanded View encompassing collapsible figures in the main manuscript, reporting controls, replicates, negative results, extended methods, algorithms, computer code, models and datasets. A manuscript transfer mechanism between the four journals allows efficient publication of high quality articles.

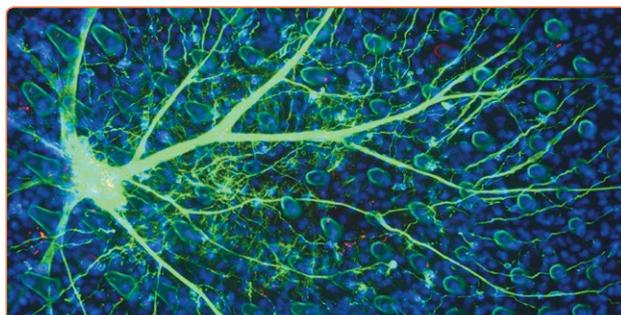
EMBO Press (www.embopress.org) is published in cooperation with Wiley and HighWire Press. <

CRG & SOCIETY

FIRST PUBLIC EXHIBITION OF CRG SCIENTIFIC PICTURES

From November 8 to December 1, images by researchers at the CRG were presented in the Can Manyé Art and Creation Space in Alella. The aim of the exhibition, which was supported and produced by the Banco Sabadell Foundation, was to share not only the research that is done at the centre but also the uniqueness of the images and the parallels and synergies between art and science.

“We are very proud to be able to share these images with people. Their beauty and magnificence means that the work taking place in the CRG crosses the border of that which is purely scientific and acquires a new dimension in culture and art”, said Luis Serrano, director of the CRG. For her part, Mercè Pomer, head of Can Manyé Art and Creation Space stated *“Science and art are two aspects of*



Neuropeptides: the nervous system messengers. ©CRG, Fyodor Kondrashov.

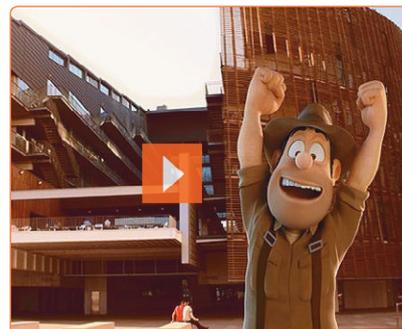
human creativity seemingly separated and unconnected to each other. But they subtly interact more often than we imagine”.

The exhibition was a complete success and will be displayed again this year in Denia (June) and Barcelona (September). <

THE CRG AND ‘DESCUBRE CON TADEO’

The friendly daydreaming 3D animated adventurer, Tadeo Jones, explains what the CRG is and what kind of research projects are carried out there in one of the episodes of the series “Discover with Tadeo”. In the 12th episode of the series that aims to introduce kids to the world of research, this funny fictional character tries to explain what genomics is.

You can catch Tadeo’s unique view of the CRG and his special research proposal at: www.telecinco.es/tadeojones/descubre-con-tadeo/Capitulo-Centro-Regulacion-Genomica-CRG_2_1678980209.html <



FEATURING CRG

OUR ANNUAL MAJOR APPOINTMENT

James Sharpe

“*More than the sum of its parts*”. This classic saying can sometimes sound meaningless. In what way can a collection of parts be more than just a collection of parts? Surely, a complex biological organism is precisely that: a huge collection of clever little pieces carefully put together to produce an amazing result. Nothing more, nothing less. However, we increasingly recognise that the trick for making complex organisms involves much more than the many individual parts (genes, proteins etc.). The real trick is knowing how these parts are carefully wired together into larger control networks. How is this web of interactions within each cell organised so that useful, reliable behaviours *emerge*, rather than a fragile Heath-Robinson contraption? (or Rube-Goldberg if you're American).

The 12th CRG Symposium (30-31 October 2013) focused precisely on this question – Biological Control Networks. Since network concepts are useful for many different fields in biology, this generates two benefits that were both evident at the meeting. Firstly, diverse topics can be brought together and their underlying similarities revealed using a common language. For example, two of the most basic and important examples of emergence

are switch-like behaviours, or oscillatory behaviours, driven by negative feedback loops. Talks at the symposium returned to these same concepts again and again in different biological contexts: gene regulatory networks, protein interactions and neural networks. Secondly, the field attracts



an unusually broad range of interdisciplinary experts – because network approaches have already been further developed in other fields such as ecology and economics. Consequently, the speakers represented a wide range of disciplines, from maths and physics to neuroscience. This undoubtedly contributes one of the exciting challenges of systems biology – it is almost impossible for an individual to master the whole field – an open-minded approach is essential. But with 12% of attendees travelling here from abroad (from 9 different countries) in addition to the ample local audience, it was clear that the meeting was a resounding success! <

2013 PhD ANNUAL SYMPOSIUM

One of the most important CRG events took place last November: the PhD Symposium. The presentations and organisation were all done by CRG students: 2nd year students gave 12 minute talks in the auditorium and received useful feedback from CRG PIs, while 3rd year students presented posters and were evaluated by a Postdoc Committee. David Hayes was awarded the prize for the best talk and Mekayla Storer the award for the best poster. The event concluded with a Graduate Ceremony where Caroline Bruns received the Eppendorf Award for the best doctoral thesis of 2013 and there was an amusing video of the collected experiences of recently-graduated PhDs. <



AWARDS AND HONOURS

Toni Gabaldón, group leader of the Comparative Genomics laboratory and **Marc A. Marti-Renom** group leader of the Structural Geomics have been awarded ICREA Research Professor.

Mara Dierssen, group leader of the Cellular and Systems Neurobiology is the new President of the Spanish Society for Neurosciences (SENC).

Pedro Carvalho, group leader of the Biogenesis and Organelle Homeostasis laboratory has been elected EMBO Young Investigator.

Miguel Beato, **Thomas Graf**, **Guillaume Filion** and **Marc A. Marti-Renom**, researchers of the Gene Regulation, Stem Cells & Cancer Programme, have been awarded an ERC Synergy Grant

The **CRG** has received the HR Excellence in Research award from the European Commission.



PEOPLE @ CRG

WELCOMES

We warmly welcome



Pablo Cironi will be the new head of the CRG Technology Transfer department. He has over 14 years of experience in research and development in drug discovery, molecular and synthetic biology, and six years of managing tech-transfer.



Monica Morales joined the CRG in 2012 as Core Facilities project manager and has now been elected the new head of Core Facilities. She has more than 5 years of experience as a research associate at the IRB in Barcelona and over 5 years as a postdoctoral researcher at the Memorial Sloan Kettering Cancer Centre in New York.



Elias Bechara was selected as the new CRG training manager. He was a postdoctoral researcher in Juan Valcárcel's laboratory and, from now on, will manage the teaching and training issues at our institute.

Julia Canet, Victoria Pokusaeva and Alina Korbut (Evolutionary Genomics); Noemí Carranza and Koh Onimaru (Multicellular Systems Biology), Ewa Ksiezopolska, Damian Loska and Ernst Thür (Comparative Genomics); Marc Sitges (EGA); Andrea Battola and Ivanova Tsvetomira (Cytokinesis and Chromosomes Segregation); Enrique Blanco and Andreas Lackner (Epigenetic Events in Cancer); Laura Barba (Gene Function); António Santos (Intracellular Compartmentation); Pol Cuscó (Genome Architecture); Ajinkya Deogade, Elie Fink and Elena Knoche (Sensory Systems and Behaviour); Julia Albaigès (Cellular and Systems Neurobiology); Carolina Gallo (Design of Biological Systems); Reza Sodaei (Computational Biology of RNA Processing) and José Manuel Eiré (Management).

FAREWELLS

Our best wishes to:



Mark Isalan and his group Gene Network Engineering moved to Imperial College London in December. He joined the EMBL-CRG Systems Biology Research Unit in 2006 and during his stay at the CRG was awarded an ERC Starting Grant. His group continue to work on protein and gene network engineering, aiming to design biological systems that behave predictably and robustly.

Julien Villeneuve (Intracellular Compartmentation), Damien de Vienne, Gabriela Aguilera and Jaime Huertas (Comparative Genomics), Moraea Phillips (Sensory Systems and Behaviour), Meritxell Pons, Tiziana Pederzani and Davide D'Amico (Cellular and Systems Neurobiology); Hyun Hor, Esther Lizano, Daniel Trujillano and Mónica Báñez (Genomics and Disease); Esther Blanc and Celia Soto (Management); Robert Oliete (Organelle Biogenesis and Homeostasis); Lorena Zubovic (Regulation of Alternative pre-mRNA Splicing); Chang Jia Ming (Comparative Bioinformatics); Andrea Corsinotti (Hematopoietic Stem Cells, Transdifferentiation and Reprogramming); Marco Mariotti (Computational Biology of RNA Processing); Rebecca Baumstark, Carmen De Agustín and Manjunatha Kogenari (Gene Network Engineering) and Bernhard Paetzold (Design of Biological Systems).

DIARY

03/02/14

INGENIUM MiniSymposium

PRBB Auditorium, Dr. Aiguader 88, Barcelona
www.crg.eu/ingenium-symp14

17-20/02/14 - **Courses@CRG**

Exome Sequencing

Doctor Aiguader 88, Barcelona.
www.crg.eu/exome_sequencing_2014

27-28/03/14

Integrative and Computational Biology Joint Symposium - V IMPPC Annual Conference and 4DCellFate Workshop.

PRBB Auditorium, Dr. Aiguader 88, Barcelona.
www.imppc.org/congress/v_annual_conference/

02-04/06/14

Next Generation Sequencing Conference (NGS) 2014

PRBB Auditorium, Dr. Aiguader 88, Barcelona.
www.iscb.org/ngs2014

26/11/13

CRG Core Facilities Technology Symposium about Microscopy

Doctor Aiguader 88, Barcelona.
www.crg.eu/technology_symposium_140626

06-07/11/14 - **13th CRG Annual Symposium**

Gene Regulation, Stem Cells and Cancer

PRBB Auditorium, Dr. Aiguader 88, Barcelona
More info coming soon.



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