Spring 2012 / Issue 4

INSIDE IBEC

The newsletter of the Institute for Bioengineering of Catalonia

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Positively influencing attitudes towards **international mobility** in the scientific community

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Meet IBEC's **Infrastructures team** and find out about the services they offer

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...and much more!

Starting afresh

The first quarter of 2012 saw a bumper crop of IBEC-led projects achieve EU funding or get started, with more in the pipeline.

First, the two CIBER-BBN projects that were earmarked for funding by the ERA-NET EuroNanoMed initiative (see last issue) both received the national support they need to get started. 'Nanostructured Gel for Cellular Therapy of Degenerative Skeletal Disorders' (STRUCTGEL), coordinated by the Molecular Dynamics at Cell-biomaterial Interface group, will tackle degenerative skeletal tissue disorders such as osteoarthritis, while 'Angiogenic nanostructured materials for non-consolidating bone fractures' (nAngioFrac), coordinated by the Biomaterials for Regenerative Therapies group, aims to develop tailored biodegradable and bioactive nanostructured scaffolds to promote tissue repair in pseudarthrosis.

Another major new project in which this group is a partner, alongside the Biomechanics and Mechanobiology team, is The Grail (page 5).

Next, IBEC's Nanoscale Bioelectrical Characterization group's collaborative project set to develop a new tool for non-destructive 3D nanoscale structural characterization, 'Volumetric Scanning Microwave Microscopy Analytical and Research Tool for Nanotechnology' (V-SMMART Nano), began on 1st March thanks to funding from the EU. Gabriel Gomila's group will contribute their expertise in the application of 3D tomographic imaging in living cells, as well as providing the technology to perform initial validation measurements and cantilever testing.

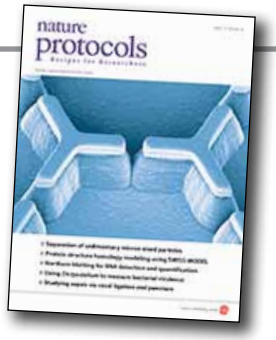
Most recently, a project involving IBEC through its affiliation with CIBERNED was approved for funding by the EU Joint Programme – Neurodegenerative Disease Research (JPND) initiative, which selected just four projects under a transnational call to 21 countries. The project, 'Biomarker based diagnosis of rapid progressive dementias – optimisation of diagnostic protocols' (DEMTEST), counts Molecular and Cellular Neurotechnology group leader José Antonio del Río as one of its partners. His group will contribute by analyzing and harmonizing the Tau samples, a protein associated with microtubules that is implicated in Alzheimer's disease, of the European Biobanks.

Other new projects include HEMO-iPS, which involves Ángel Raya and is funded by ERA-NET's E-Rare-2 programme, and Pau Gorostiza's Marató-supported project, Regeneration of neuronal circuits with optogenetic pacemakers. Ongoing projects that had meetings at IBEC in the first quarter of the year included HYPER and IPRES, Smart-IMS and the CIBER project Bioscaff-EYE. In 2011 60% of IBEC's funding came from competitive sources, as compared to just 14% in 2007. //

Left, lunchtime at the HYPER meeting; above, some of the nAngiofrac consortium

SCIENTIFIC NEWS

Mimicking the body to get results



The Molecular and Cellular Neurotechnology group published a paper in *Nature Protocols* in February which described a new technique for analyzing axonal growth and cell migration in the central nervous system, key processes in developmental neurobiology.

The method, which uses rat tail-derived type I collagen or commercial Matrigel which mimics the *in vivo* environment, is a drastic improvement on previous *in vitro* techniques, which tended to lack specific molecular interactions that play crucial roles in growth and migration during CNS development. "Nervous system development depends on growing or migrating neurons' interaction with certain molecules," explains group leader José Antonio del Río. "Although 2D cultures enable the biological characterization of the neurons, specific interactions that are essential to development can be missing."

The researchers imitated *in vivo* conditions by using 3D hydrogels made from tail-derived collagen, which were genetically modified to secrete the missing molecule, into which they placed the neural tissue. "We saw that the neurons and axons migrated and grew in a way which was much more akin to what happens in the body," says José Antonio. "In previous *in vitro* substrates, for example, tissues expand their axons radially to form a very dense meshwork. In the body, and in our new hydrogels, the growth occurs over long distances along specific pathways."

The new method is uncomplicated, easily reproducible and simple to prepare, and takes only 4 weeks. Moreover, the degree and behaviour of axonal growth or neural migration can be observed directly using phase-contrast, fluorescence microscopy or immunocytochemical methods. In this way, quantitative data can be developed to determine the effect of potential candidates on axonal outgrowth and neural migration, and the method can also be used for pharmacological screening. //

Tenure track at IBEC to 'leverage talent'

A 'tenure track' process is to be established at IBEC to allow young researchers to advance their careers and help the institute continue to grow.

Open to talented scientists at senior researcher level, the initiative will consider candidates both from outside IBEC and those already at the institute for a number of 'junior group leader' positions. After three years, the successful candidates will be evaluated to decide if they become full group leaders with independent research lines of their own.

"We needed a strategy that allows reasonable growth for IBEC in the face of financial hardship and ensures our continued scientific excellence," explains IBEC director Josep A. Planell. "It needs to continue to support the current structure, while allowing us to incorporate new external talent or leverage that which we already have inside."

Each year, starting in 2012, IBEC's Directorate will decide how many junior group leader positions can be offered. In cases where the researcher is internal and is to continue their tenure track within their group of origin, their group leader will act as mentor. "The tenure track process will identify candidates according to their CV, their proposed project and whether it fits with our scientific strategy," explains Josep. "Candidates will be assessed by IBEC's International Scientific Committee (ISC) prior to entry into the process and then again after three years." This second assessment will determine whether the candidates will go on to become a consolidated (full) group leader at the institute.

Six candidates – four men and two women – have already been chosen to undergo the first round of selection in 2012. Of these, three will be chosen, based on the results of the evaluation by the ISC during their meeting in June, to enter the tenure track process and take up positions as IBEC's first junior group leaders. //

More scientific news on www.ibecbarcelona.eu/archive: The mattress test: cells do it too • Developing a new solution to treat atherosclerosis • A breakthrough in understanding age-related disease • Shedding light on misbehaving cells • ...and more!

Face-to-face

A request from a school student to talk to a 'real' researcher has sparked a new initiative at IBEC to help nurture the scientific minds of the future.

Laura Iglesias, a high school student at the Instituto Alba del Vallès, met IBEC PhD student Marta Sanmartí on March 19th to talk about nanotechnology for her final baccalaureate work. "The interview was a great help for my project," Laura said afterwards. "I got a great idea of what nanotechnology is, how it benefits society and the importance of nanotechnology research. I resolved all my questions, and Marta gave me new ideas to help with my work."

Students or their teachers are welcome to contact IBEC with similar requests at events@ibecbarcelona.eu. //

SCIENTIFIC NEWS

Joining IBEC with great results

IBEC's newest senior researcher has just published some breakthrough results with his former group at McGill University.

Mateu Pla-Roca (see back page), who joined IBEC's Nanobioengineering group last month, and his colleagues at the Canadian institute have developed a blood test that could detect breast cancer at an early stage and might even render mammograms obsolete.

The new test, which is described in the April edition of *Molecular & Cellular Proteomics*, makes improvements to the existing technology while discovering a biomarker 'signature' for estrogen receptor-positive breast cancer, a common subtype. Rather than relying on the traditional carcinoembryonic antigen biomarker, which can also be found in healthy people, the method uses a new antibody-based microarray technology that allows the measurement of many protein biomarkers for breast cancer while minimising the possibility of obtaining false results.

Mateu's old lab is currently developing a handheld version of the test and is working on improving its sensitivity so as to be able to accurately detect cancer, and ultimately many other diseases, at the earliest possible stage.

The work was extensively covered in the media, including the *Montreal Gazette*, Global News Toronto, sciencedaily.com and *The Engineer*. //

On the move

Scientists are among the most mobile of employees; in fact, mobility is integral to a researcher's identity. But what are the factors that need to be taken into account, and how can institutes help?

There's no doubt that mobility benefits science. Rather than preventing researchers from leaving, institutes and the research community as a whole can profit from the brain-gain and brain-circulation that international mobility provides. In return, though, they should help remove obstacles, providing opportunities to return and good career prospects.

To review the current situation, an FP7 project "European Career for Researchers" carried out a survey of mobility among researchers in eight European countries. It showed that the main reasons for researchers to work abroad is to improve career development (73%), to work on particular research topics (63%), or to participate in a collaborative research project (57%). The high reputation of the host institution is another key factor (53%).

Among the major factors discouraging researchers to undertake international moves are family and other personal connections. At the same time, the complex administration of relocation (e.g. legal issues, social and health insurance, employment permits, housing, transportation, etc) and lack of support from the home institution (e.g. fear of losing a position for good) are the main barriers to mobility.

However, the survey results reveal that mobile researchers are more likely to demonstrate satisfaction than dissatisfaction with their stays abroad. The top three benefits are working conditions, gender balance, and leisure time activities. The survey also noted a positive correlation between the degree of mobility and the participation in projects with international funding. That is to say, mobility itself provides greater opportunities for the successful future participation in transnational collaborations.

At IBEC 33% of our researchers come from abroad. These foreign staff receive assistance from the institute on immigration matters such as getting a visa on time, finding accommodation, language courses, tax issues, and more.

Lately IBEC has been getting involved in initiatives related to European researcher mobility in Europe. Members of the Biomechanics and Mechanobiology group and Head of Human Resources Carol Marí recently took part in a focus group organised by the Generalitat de Catalunya's Agency for Management of University and Research Grants (AGAUR). The institute has also signed an agreement with AGAUR to act as a member of the European Commission's European services network EURAXESS, under which they will provide assistance to researchers coming or leaving the institution and provide data and statistics to the network as a whole.

"AGAUR is providing good support to institutes like IBEC regarding immigration matters. The role of embassies and consulates is also crucial to attract talent, but in their case, they could help by simplifying administration procedures," says Carol. "While there are discouraging factors about mobility which IBEC cannot possibly influence, like family considerations, we can focus on the other areas that could positively influence the perception of mobility in the scientific community." //

A platform for ideas

The V Annual Conference of the Biomedical Research Technology Platforms on 14-15th February was a chance to promote public–private collaboration and open innovation across the diverse sectors. The IBEC-managed Spanish Platform for Nanomedicine (NanoMed Spain) joined the platforms for Innovative Medicines, Biotechnological Markets and Sanitary Technology at the event, which provides a meeting point for stakeholders and institutions working in drug research and development, nanomedicine and healthcare technology. As well as the platform partners, representatives from the coordinating trade associations Farmaindustria, Fenin and Asebio were in attendance, as was the director general for Technology Transfer and Business Development for the Spanish Ministry of Economy and Competitiveness, Mª Luisa Poncela. All the proceedings of the event can now be viewed at www.medicamentos-innovadores.org. //

NanoMed Spain has a new website, which now offers extra features including a monthly newsletter, an RSS feed of news and events and a link to the platform's Twitter account. As well as a fresh new design and more frequently updated news, events and sector developments and activities, brand new sections include a technology portfolio and a section devoted to master's degrees and specialized programmes in emerging areas in health.

Take a look at www.nanomedspain.net.

Developing a new solution to treat atherosclerosis

We've all eaten rich meals or fatty foods and joked that we can feel our 'arteries hardening'. However, the reality of atherosclerosis – when fat, cholesterol, and other substances build up in the artery walls and form solid structures called plaques – is no joking matter. The consequences of this disorder can include stroke and coronary artery disease, the leading cause of death in many developed countries.

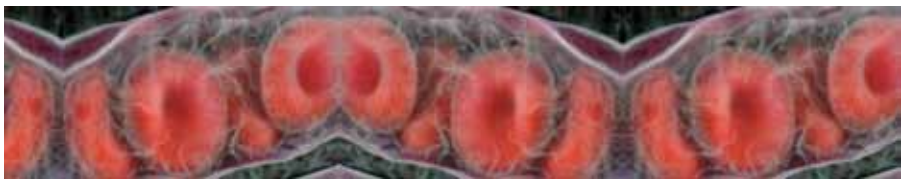
Now, a new scientific project involving IBEC and three other European research centres is set to offer a novel, minimally-invasive treatment for atherosclerosis patients, thanks to funding awarded by the European Commission.

The Grail project (Tissue in Host Engineering Guided Regeneration of Arterial Intimal Layer) will develop a bioactive and bioresorbable scaffold able to locally regenerate the vessel after endovascular surgery – when the atheroma or accumulation in the obstructed arteries is removed – in patients with the disorder.

"The purpose of this *in vivo* deployable scaffold, which won't require mechanical removal, is to offer an alternative treatment to mechanical re-channelling or bypassing of obstructed arteries," explains Elisabeth Engel, senior researcher in IBEC's Biomaterials for Regenerative Therapies group, which will carry out the research. "Using a regenerative approach compatible with current minimally invasive surgical techniques, the scaffold will substitute the diseased and stiffened area of artery and be repopulated by resident and circulating cells.

"When it is absorbed harmlessly by the body once its task is completed, all that is left will be physiologically responsive, regenerated tissue."

The project will take 60 months to complete and will also involve researchers at the universities of Liverpool (UK), Valladolid (ES) and Naples Federico II (IT), a clinical centre at the University Medical Centre of Utrecht (NL), and four industry partners from Italy, Spain and Switzerland. //



IBECinPICTURES

Seminars in the first semester of 2012 featured IBEC's Elena Martínez and Mateu Pla-Roca and invited speakers Anna Laromaine (above left) from ICMAB, Gustavo Deco and Ricard Solé from the Universitat Pompeu Fabra, and Gustavo V. Guinea from the Department of Materials Science of the Universidad Politécnica de Madrid. The IBEC students who contributed to the PhD discussions were Maria del Mar Cendra, Riccardo Levato, Rosa Letizia Zaffino and Andrés Martin Quirós, and outgoing Biomechanics and Mechanobiology head Damien Lacroix gave a Complementary Skills Session on 'How to become a successful group leader'. In addition to the regular series of seminars and discussion sessions, there was also a 'mini symposium' on biomechanics (above right) organised by IBEC group leader Xavier Trepat, which involved the IBEC group of Daniel Navajas and that of Ramon Farré at IDIBAPS.

More news on the web...

You can keep up-to-date with news and events at IBEC by visiting www.ibecbarcelona.eu

Save the month!

There are several major events on the IBEC institutional calendar this June, starting with the **5th Annual Symposium on Bioengineering and Nanomedicine** on Monday 11th. This annual chance to discuss work with colleagues and and network internally and externally is closely followed by the meeting of IBEC's **International Scientific Committee** on 12-13th June. Later in the month on 25th-29th June, the second **Interrogations at the Biointerface Advanced Summer School**, which will focus on the self-renewal/differentiation interface, will take place at IBEC. Open to PhD students and scientists interested in biomedical engineering approaches to stem cell research and regenerative medicine, the Advanced Summer School comprises two days of lab sessions and three days of lectures.

For more details about these and other IBEC events during the year, visit www.ibecbarcelona.eu/events.

New IBEC spin-off company

On 15th February IBEC director Josep A. Planell and UPC rector Dr. Antonio Giro Roca (third from right, above) signed the constitution of a new IBEC spin-off company, Rob Surgical Systems Inc.

A technology company driven by IBEC group leader Alicia Casals and senior researcher Manuel Frigola, as well as Josep Amat of the Automatic Control and Computer Engineering Department of the UPC, Rob Surgical Systems will manufacture the systems that IBEC's Robotics group has been developing in recent years.

The first product will be a minimally invasive robotic station, Bitrack, which has advantages over those currently on the market since it occupies less space in the operating room. Its specially adapted user interface also enables a faster start-up, reducing the cost of interventions. The new company will validate the initial prototype of Bitrack and obtain the certifications necessary to start marketing it in Europe and the United States.

Rob Surgical Systems already has the support of the medical direction of the Mayo Clinic in Phoenix, Arizona, and aims to look for other alliances to expand the market. "It's an important part of IBEC's mission to support our researchers in their technology transfer endeavours," says Josep. //

Marathon ordeal

Despite the unseasonably warm weather on 25th March, three brave IBEC souls got their running shoes on to take part in the Zurich Marató de Barcelona.

The grueling 42km race through the city, which is now in its 34th year and attracts some 15,000 participants, proved a fantastic experience for senior researcher Melba Navarro, who was running her first full marathon. "I'm delighted with my time of 4:18:44, but also simply glad to have completed the course," she said afterwards.

Seasoned marathon runner Gabriel Gomila was less happy: "Thirty-five minutes more than my best record! Nevertheless I enjoyed running, suffering and finishing the marathon. I'll do it again next year," said the group leader.

Senior researcher Oscar Castaño, who completed the race in 3:51:00, added: "As Gide said, 'One cannot discover new oceans unless he has the courage to lose sight of the shore'. Finishing the marathon made all the hard work and training worth it."

Top ESCOLAB; bottom, the IBEC stand at the Saló de l'Ensenyament

The importance of outreach

IBEC's exhibition stand at March's Saló de l'Ensenyament Education Fair in Barcelona, which showcased the BOND project and the world of olfaction, was swamped with young visitors keen to learn about the institute's research and job opportunities. The media was also on the scene, and news coverage of the event appeared on Barcelona Televisió and La 1's news programmes.

Other outreach activities this semester have included visits from local schools El Til·ler and L'Horitzó, as well as the annual ESCOLAB lab tour. There was even a biotechnology class all the way from Langkær Gymnasium near Aarhus, Denmark, whose teacher Peter Bonde Jensen wrote afterwards to say the visit to IBEC was "the absolute peak of some very exciting days in Barcelona".

"The benefits of outreach are enormous for both IBEC and its students," says Head of Communications and Outreach Vienna Leigh. "By teaching science to children and the public, students and researchers can improve their presentation and communication skills, as well as taking a 'step back' from their work and considering it from a layman's point of view. At the same time, such activities promote IBEC's research in the community, helps the public gain a better understanding of science, and encourage some students to pursue a scientific career when they meet 'real' researchers and see what the life of a scientist can be like."

If you'd like to volunteer to help out at any of IBEC's outreach activities, please contact ibeccommunications@ibecbarcelona.eu. //

INTERVIEW

"Now we'll have time to breathe a bit"

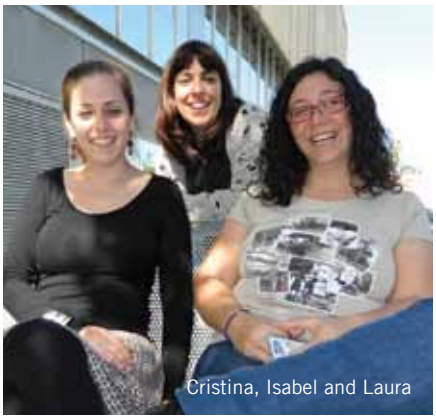
After several years working at more than full capacity, IBEC's infrastructures team has some welcome respite with the addition of a second technician, Cristina Rivero.

"We've now been able to redistribute our work and devote more time to providing the best possible service to the IBEC community," says Head of Infrastructures Isabel Oliveira. "Our aim is to maintain and continuously improve the IBEC labs and facilities, to enable researchers to concentrate on their work without having to worry about the day-to-day practicalities."

Cristina, who was formerly a chemistry student at the UB and a visitor to IBEC's Nanoprobes and Nanoswitches group, is now learning the ropes under the guidance of Laboratory Technician Laura Gómez. "The main tasks of the technicians are to make sure everything is running smoothly, that all the common working areas, equipment and machines are maintained properly and in working order, and that the instruments are calibrated," explains Isabel. The infrastructures team also orders and distributes laboratory supplies, provides a safe working environment, and gives training and demos to newcomers to the lab.

"While the daily running of the lab effectively and safely is of the utmost importance, we're also happy to have more time now to devote to the optimization of resources and responding to the specific needs of the research groups," says Isabel who, as manager of the group, works closely with IBEC's group leaders to plan, execute and maintain their labs, coordinates with the PCB about construction works and the optimisation of space, and buys, installs and sets working practises for new machines.

The team can be contacted with any queries or problems on infraestructures@ibecbarcelona.eu. "We're relieved to have this extra help," adds Isabel. "It means we'll have time to breathe a bit." //



Cristina, Isabel and Laura

The ties that bind

Unraveling the mechanisms that regulate gene expression is a major challenge in biology. A necessary first step is to identify regulatory elements, such as binding sites for transcription factors (proteins that control the flow of genetic information), in DNA. Now IBEC researchers have developed a new method for identifying these sites, short DNA segments known as motifs, quickly and easily.

"Most computational methods for finding motifs are based on position-specific scoring matrices (PSSM), which assume that positions within a binding site are independent of one another," explains Erola Pairó, first author on the paper published in *Bioinformatics* and, until recently, a PhD student at IBEC. "But some studies demonstrate that interdependence among the positions exists."

The researchers' method uses databases of known transcription factor binding sites to check out candidate pieces of DNA, looking for pairs of positions that appear to be interdependent. "A score of similarity between our piece and the pieces of DNA that are known to be transcription factors allows us to predict whether the candidate is also a binding site," explains Erola, who is currently writing up his PhD thesis. //

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// The **president of IBEC's International Scientific Committee**, Prof. Jean-Louis Coatrieux, was a guest speaker at an Expert Policy Workshop on biomedical engineering on March 27th. The high-level meeting at the European Parliament, which was co-organised by the European Alliance of Medical and Biological Engineering and Science (EAMBES), invited three key opinion leaders to identify how biomedical engineering can help position the EU as a global leader in health technologies, and saw the participation of MEPs and representatives of the European Commission.

// IBEC Associate Director Josep Samitier is a committee member for scientific content of 24th-25th May's **MIHealth Forum**, the first forum on healthcare management and clinical innovation. To register, visit www.mihealthforum.com.

// The IBEC-led BOND project featured in the February 2012 ObservatoryNANO Briefing entitled *Agrifood: Sensors in Food Production and Processing*. The ObservatoryNANO four-page Briefings, funded by the EC under the FP7, focus on topics of particular interests in terms of economic potential, scientific breakthroughs or impact on the European citizen (www.observatorynano.eu/project/catalogue/B).

// IBEC's **Annual Report 2011** is now available, and a new section for this year is 'scientific highlights'. Hard copies will be available from the document display points in the PCB or from the IBEC Communications and Outreach department soon. Alternatively, download or view a copy online at www.ibecbarcelona.eu/documents.

IBEC PEOPLE

The new senior researcher in the Nanobioengineering group, **Mateu Pla-Roca**, obtained a PhD in Chemistry in 2004 at the UAB. Until 2007 he was a postdoc at IBEC before moving to McGill's University, Montreal. From 2009 to 2011 he was at the Laboratory for Surface Science and Technology at ETH Zürich. His research interest is the development of scalable technologies for multiplex protein analysis in complex samples.

More new starters (since 1 Jan): Maria Bulwan, Nanobioengineering; Mário Hüttener, Microbial Biotechnology & Host-Pathogen Interaction; Soledad Pérez, Biomaterials for Regenerative Therapies (postdocs). Mariana De Niz Hidalgo, Luís Rigat, Nanobioengineering; Milad Avazbeigi, Artificial Olfaction; Noelia Campillo, Cellular & Respiratory Biomechanics (PhD students). Maria Valls, Nanobioengineering; Paula Marañón, Microbial Biotechnology & Host-Pathogen Interaction; Jacob Holter, Biomaterials for Regenerative Therapies (masters students). Lluís Martorell, Control of Stem Cell Potency; Antonio Buendía, Artificial Olfaction (technicians). Maria Estirado, Cristina Rivero (support services).

Leavers (since 1 January): Damien Lacroix, group leader; Christian Morgenstern, Marco Cantini, Cécile Perrault, Beatriz Prieto, postdocs; Sara Barreto, Nuno Coelho, Oscar Castillo, Erola Pairó, Jordi Comelles, Sabine Oberhansl, PhD students; Payman Mossaffa, Cristina León, Emma Federici, masters students; Edouard Fulchin, undergraduate; Èlia Solà, Antonio José Sánchez, Ernest Moles, technicians; Anabel Alemany, Support Services.

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AWARDS AND HONOURS

PhD student **Juan Manuel Artés** from the Nanoprobes and Nanoswitches group is the recipient of a 2011 CIDETEC prize for Scientific Research in Electrochemistry. He will be presented with his award at the next general assembly of the Real Sociedad Española de Química (RSEQ)'s Grupo de Electroquímica in July.

Jérôme Noailly, now senior research associate in the Biomechanics and Mechanobiology group, was elected to the final Executive Board of the Spanish National Chapter of the European Society of Biomechanics at the first chapter meeting in November last year.

Want to get involved?

If you have an idea for an article for *InsideIBEC* or would like to write one yourself, please contact us. Is your group starting or finishing a project? Is there an important change in procedure that people should know about, or a deadline coming up? Perhaps something interesting has happened in your area of research, or perhaps you've had an interesting visitor. Maybe you'd just like to find out what the IBEC community thinks about something, or you have a request for help.

Send your ideas to vleigh@ibecbarcelona.eu.

IBEC EVENTS

25th May
PhD Discussions session: Jordi Comelles (Nanobioengineering), Lorena Redondo (Nanoprobes & Nanoswitches)

11th June
5th Annual Symposium on Bioengineering and Nanomedicine

12-13th June
ISC meeting

22nd June
IBEC Seminar: A humanized dynamic *in vitro* model to study Parkinson's disease. *Antonella Consiglio, Neural Commitment and Differentiation Group, IBUB*

25th-29th June
Interrogations at the Biointerface Advanced Summer School: The self-renewal/differentiation interface

29th June
IBEC Seminar: Modeling contractile stresses in adhesive cells and cell colonies. *M. Cristina Marchetti, Physics Department & Syracuse Biomaterals Institute, New York, USA*

6th July
PhD Discussions session: Xavier Puñet (Biomaterials for regenerative therapies), Bogachan Tahirbegi (Nanobioengineering)

13th July
IBEC Seminar: Electronic tongues at the UAB. *Manel del Valle, UAB*

For more, see www.ibecbarcelona.eu.

IBEC in pictures

IBEC director Josep A. Planell and celebrity chef Ferran Adrià were two of the contributors and invited panelists at the launch of the Telefónica/JdeJ Editores book *Cómo la tecnología cambió mi vida* on 20th February. The book, which includes chapters from the leading movers and shakers in technological innovations today, is a fundraising initiative whose authors contributed free of charge. Proceeds from its sale will go to charity.

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