

Winter 2010 / Issue 1

# INSIDE IBEC

The newsletter of the Institute for Bioengineering of Catalonia

## *INSIDE this issue...*

IBEC to coordinate a major EU-funded research project on the treatment of spinal diseases

/page 2



New initiative in nanomedicine, BioNanoMed Catalunya, to be managed by IBEC

/page 3



The University of Pennsylvania's Dennis Discher was the distinguished speaker at the first IBEC seminar of the season

/page 4  
...and much more!





Left: Damien accepting the European Society for Biomaterials' Jean Leray Award in September

# MySpine: a virtual spine for a real problem

**EU-funded project aims to improve treatment and prognosis of spinal diseases**

**I**BEC is to coordinate a major EU-funded research project on the treatment of spinal diseases.

MySpine, or 'Functional prognosis simulation of patient-specific spinal treatment', will address current limitations in the treatment and prognosis of back problems such as degenerative disc disease. At the moment, clinical prognosis is largely based

**// "MySpine brings engineering rationale to the decision-making process"**

on past experience of the surgeon or trial and error, which can lead to complications and ill health following treatment or surgery. MySpine aims to develop a tool to guide clinicians in making the right decisions on how to treat various spinal pathologies using patient-specific data, a

rational engineering approach and a user-friendly software platform.

"The system will take into account various patient-specific factors, both from imaging data (MRI and CT scans) and from the activity levels of the individual," says coordinator Damien Lacroix, head of IBEC's Biomechanics and Mechanobiology group, who prepared the project together with postdoc Jérôme Noailly. "For example, spine geometries, tissue properties and loading histories – all of which vary wildly from person to person – will form the cornerstones of our predictive system."

MySpine's main objective will be the creation of a computing platform to be used in clinical settings. This interface, as well as the patient-specific 'database' of the lumbar spine, will allow clinicians to look at short- or long-term effects on tissue to explore the possible outcomes of disc degeneration

based on the specific patient. "The results will allow the recommendation of either replacement of the disc, doing nothing, or another course of treatment based on safe assessment of the risks and benefits of each simulated solution to the problem," explains Damien, who earlier this year was elected president of the European Society of Biomechanics and received the European Society for Biomaterials' Jean Leray Award in September. "It brings new engineering rationale to the decision-making process."

MySpine, which also involves groups from the Netherlands, Austria, France, Spain and Hungary, will start in March 2011 and is funded as a STREP (small or medium-scale focused research project) under FP7. It will join IBEC's growing list of coordinated EU projects, the next most recent of which was George Altankov's FIBROGEL, which was selected for funding in September. //

More project news on [www.ibecbarcelona.eu](http://www.ibecbarcelona.eu): Telethon funds for collaborative Fabry project • The regeneration game: Tackling tissue morphogenesis in humans • Spanning continents: tissue regeneration project wins EU funding • ...and more!

## SCIENTIFIC NEWS

### PNAS paper for IBEC researchers

**R**esearchers in Maria Garcia-Parajo's group were celebrating in August with an important publication in *PNAS*.

In their studies of the cell membrane, where preorganised components give rise to strategic advantages for protein function and signalling, the Single Molecule Bio-nanophotonics team were looking at lipid rafts – free-floating membrane regions of proteins and lipids – and have now demonstrated their cholesterol-mediated selective connectivity at the nanoscale.

Using single-molecule near-field scanning optical microscopy, PhD Student Thomas van Zanten and postdoc Carlo Manzo – together with collaborators from the Radboud University Nijmegen Medical Center in the Netherlands – perturbed the lipid raft nanolandscape and visualised the formation of cholesterol-dependent GM1 nanodomains less than 120nm in size. Subsequent *in silico* experiments at the University of Barcelona and Co.S.Mo. Lab at the PCB contributed to the high-resolution data that conclusively

demonstrates the existence of raft-based interconnectivity on resting cell membranes.

Their findings constitute a step towards a fuller understanding of the activation and clustering of lipid raft constituents, which amplify and strengthen pre-existing interactions and mediate signal transduction across the cell membrane. //

van Zanten, T. S. *et al*, 2010, Direct mapping of nanoscale compositional connectivity on intact cell membranes, *PNAS*, 107, 15437-15442



# BioNanoMed Catalunya launched

## IBEC-led alliance to bridge discipline gaps

Fòrum Biocat on 2 December saw the first announcement of a new initiative in nanomedicine, BioNanoMed Catalunya, fostered by IBEC and the Catalan Bioregion agency, Biocat. The alliance aims to bring together researchers, hospitals and companies working in the region to share know-how and resources, facilitate new developments in nanomedicine and gain international visibility for the advances in the field that are emerging in Catalonia.

IBEC and Biocat have been working together to develop the initiative since December 2009. The other research centres initially involved include IDIBELL, with a leading role from the biomedical side, as well as Hospital Clinic, Vall d'Hebron, ICIQ, ICFO, ICN, ICMAB, IQAC and the technological centre LEITAT Biomed. On the industry side, the core partners will be Ferrer, Grupo Lipotec and Biokit.

"In nanomedicine, experts from a huge

range of disciplines need to cross boundaries and work together to translate research results and lab discoveries into viable medical products and drugs," explains IBEC's head of corporate projects Arantxa Sanz.

"This alliance is a practical solution to overcome these barriers by combining resources and expertise from multiple organizations and making the results available to stakeholders and the community. Alongside this, a consolidated network will be much more effective than isolated partners to contribute to aims very much needed for nanotechnology deployment, such as the setting up of a regulatory framework, standards of best practice and professional training programmes."

BioNanoMed Catalunya uses as its model the Alliance for Nanohealth (ANH) in Houston, USA, which was founded in 2004. Comprising eight world-renowned universities and institutions within the Texas Medical Center and the Greater Houston

Region, the ANH is the first collaborative effort to bridge the gaps between medicine, biology, materials science, computer technology and public policy to facilitate R&D in nanotechnology.

The next step for BioNanoMed Catalunya will be in January 2011, when the alliance website is launched. "With BioNanoMed Catalunya, pharma and bio,

**// "This alliance is a practical solution to overcome barriers"**

academia and industry, technologists, biomedical researchers, clinicians and patients advocates are uniting," says Arantxa. "This is essential when the potential applications of nanotechnology in medicine include the most promising early diagnosis and targeted treatments for cancer and neurodegenerative diseases." //

## What is Fòrum Biocat?



The third annual Fòrum Biocat, which took place on 2 December at Casa Llotja de Mar in Barcelona, brought together more than 700 industrial and academic representatives from the biotechnology, biomedicine and medical technology sectors in Catalonia with the aim of fostering collaborations. Organised with the Barcelona Chamber of Commerce, the annual forum includes keynote speeches, a programme of round table discussions, the award ceremony for the BioEmprenedorXXI programme – which recognises the best plan to start up an innovative company in the life sciences sector – and the naming of the Ambassador to the BioRegion, as well as plenty of opportunities for networking.

## IBECinPICTURES

Since September, IBEC has hosted several events to bring together scientists and collaborators from all over the world, beginning with the meeting of the European project Neurochem on 1 October, which is coordinated by Artificial Olfaction group leader Santiago Marco. Four days later on 5 October, more than 60 researchers, medical professionals and company representatives came to IBEC for a CIBER-BBN conference entitled Research and Development of Advanced Therapies. In November, IBEC's events continued with the 8th meeting of the Molecular Microbiology group of the Sociedad Española de Microbiología

(SEM), organised by group leader Antonio Juárez and senior researcher Eduard Torrents along with the University of Barcelona. The last major event of the year to be hosted by IBEC was another European Project meeting on 2-3 December for AngioScaff (Angiogenesis-inducing Bioactive and Bioresponsive Scaffolds in Tissue Engineering). IBEC director Josep Planell's group and Damien Lacroix's Biomechanics and Mechanobiology team are working on the design and development side of the project.

*For a list of IBEC events at the beginning of 2011, turn to the back page.*



# Publishing: IBEC is 'Yukon gold'

**For a young institute, IBEC's publication record is a force to be reckoned with. But the figures also show that we can't rest on our laurels yet...**

Working out IBEC's scientific impact factor can seem as daunting as an algebra exam, but it's worth the effort. In 2010 the institute's number of publications in decile 1 – that which cuts off the lowest 10% of the ranking of the journal in its subject category based on impact factor – was 46%, up from 45% in 2009 and 26% in 2008. Our rating in quartile 1 (Q1) is 83%, as opposed to 81% in 2009 and just 59% in 2008.

All this points to a growing trend of publishing high and often. To put it into context, according to recent figures from

## // "IBEC has only been running at cruise speed since 2008"

SCImago Institutions Rankings' World Report 2010, which analyses research outputs of universities and research-focused institutions using the Scopus database and ranks selected centres, our Q1 rating holds up admirably against other Catalan institutes, and even beats some of them.

It's thanks to publications such as Nanoprobes and Nanoswitches' August JACS paper and the Control of Stem Cell Potency group's three top-scoring March publications that 'IBEC is Yukon gold', as Managing Director Abel Riera puts it, but most other groups are also publishing well in their own fields – the age-old flaw in the system being, of course, that high in one field is not necessarily high overall. If something isn't a highly-cited field, even its highest-impact journal has an impact factor many non-specialists would dismiss.

So when it comes to the actual impact factor rating for the institute, it's clear that the numbers aren't telling the whole story. In another report published by SCImago on the bibliometrics indicators of scientific activity in Catalonia, our normalised impact (NI) – the ratio between the average scientific impact of an institution and the world average impact, which is 1 – idles at a less than impressive 1.29.

So there's still a way to go, it seems. But IBEC isn't actually ranked by name in the SCImago World Report, despite its appar-

## IBEC in figures



ent sterling performance, and for this and the seemingly low impact factor there's a simple explanation. "IBEC has only been running at cruise speed since 2008," says Abel. "We're small and we're young, but taking this into account, our success so far speaks volumes." The Catalonia report, for example, spans the period from 2003 only up to 2008; and IBEC will start to appear in the lists when it's big enough to publish more than 100 papers in a single year.

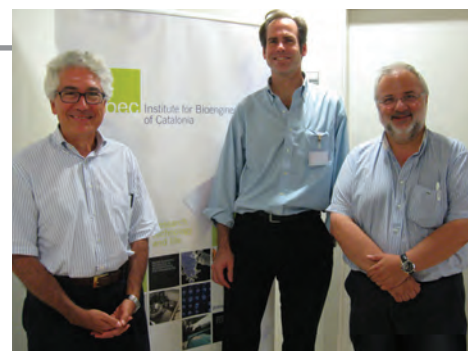
But though it may sometimes seem that the strength of publishing success is judged as the best way – or indeed the *only* way – to succeed in the eyes of the scientific community, it's important to remember that this has never been IBEC's standpoint. "While there are groups publishing in top-ranking journals, we have other groups with strengths in other areas: technology transfer, for example – we already have one active spin-off company which is making sales – or attracting funding, or offering education," says IBEC director Josep Planell. "Our interdisciplinarity gives us the edge, and with it comes our multi-talented approach, with all groups contributing in various ways to the common goal." //

..... Latest papers on [www.ibecbarcelona.eu](http://www.ibecbarcelona.eu): Garcia-Manyes, S. et al, 2010, J Am Chem Soc • Johansson, R. et al, 2010, FEBS J. • Martí, E. et al, 2010, Nucleic Acids Research • Fernandez-Busquets, X. et al, 2010, Current Alzheimer Research • ...and more!

## IBECinPICTURES

To kick off another quality season of IBEC seminars, Dennis Discher, a pioneer in the study of the relationship between stem cell differentiation and mechanical stimuli, was invited by IBEC group leader Daniel Navajas. Other international speakers included Winfried Randerath from the Universitätsklinik Bethanien in Solingen, Germany; Dirk Sommermeyer from Sahlgrenska University in Gothenburg, Sweden; Yongmin Kim from the University of Washington; C. A. van Blitterswijk from the University of Twente in the Netherlands; and Carlos Eduardo Semino, with affiliations to Barcelona, Leipzig and MIT. Leo Jaskowicz, a distinguished contributor to computer-aided surgery from the Hebrew University of Jerusalem, was an addition to the programme on 26 November. The brave PhD students who presented their work in this season's PhD discussion sessions were Miquel Casamitjana, Zaida Álvarez Pinto, Mercè Izquierdo Serra and Laura Casares.

For seminars at the beginning of 2011, turn to the back page.





## INSIDEIBEC...AND OUTSIDE

## Continental drift

IBEC researchers have been travelling far and wide this quarter, boosting the institute's international connections. As well as the regular flurry of meetings and conferences in other parts of Spain and in Brussels, scientists travelled to European destinations including London, Milan, Germany, Zurich, Greece and Cork for purposes ranging from meetings with collaborators to major congresses, such as the 23rd European Conference on Biomaterials in Tampere, Finland, on 11-15 September. More unusual European destinations were Bucharest, which hosted the 4th International Conference on Biomaterials (BiomMedD 2010) in September, and Billund in Denmark, famously home to Lego and, this year, the 5th Annual Meeting of the School of Immunology where María García-Parajo gave a plenary lecture.

More far-flung trips were Alicia Casals' visit to Tokyo for IEEE Biorob on 26-29 September with associated group leader Josep Amat and PhD student Luis Amigo, where she co-ran a workshop on Future Trends in Rehabilitation Robotics. Josep Samitier and George Altankov and colleagues also had a trip to the far east for the 1st Annual World Congress of NanoMedicine in Beijing, where both group leaders chaired sessions.

Singapore was a popular destination this quarter, with Damien Lacroix and Daniel Navajas attending the World Congress of Biomechanics there in August and María García-Parajo going two months later to the Mechanobiology Workshop and Biophysical Society joint meeting. In another far east trip, Oscar Seira of the Molecular and Cellular Neurobiotechnology group went to Dankook University in Seoul, with which IBEC has a collaboration agreement, while María was off again in the other direction, the University of New Mexico School of Medicine in Albuquerque. //



Above: Raimon Jané and Daniel Navajas at CASEIB in Madrid



Right: Alicia visits the lab of some colleagues in Tokyo

## More news on the web...

You can keep up-to-date with news and events at IBEC by visiting [www.ibecbarcelona.eu](http://www.ibecbarcelona.eu)

## News in brief • News in brief • News in brief • News in brief • News in brief • News in brief • N

// IBEC's main laboratory in the Hélix building now has a **Real-Time PCR machine** from Applied Biosystems, which is available for use by all IBEC researchers. The system supports SNP genotyping, gene expression profiling, microRNA expression, translocation analysis and gene detection. Online training courses, which are mandatory for anyone using the machine, will be provided by Applied Biosystems in the next couple of months.

For more information contact Isabel at [ioliveira@ibecbarcelona.eu](mailto:ioliveira@ibecbarcelona.eu).

// Copies of a White Paper on nanotechnology and bioethics which IBEC staff helped to compile are available for anyone who's interested in finding out more. '**Nanotechnology and Global Bioethics**' (pictured), which addresses problems arising from the applica-



tion of nanotechnology to biomedicine, the environment and biosafety, was put together by the opinion group of the University of Barcelona's Bioethics and Law Observatory, of which IBEC's associate director Josep Samitier and Head of Corporate Projects Arantxa Sanz are members. Contact Arantxa ([asanz@ibecbarcelona.eu](mailto:asanz@ibecbarcelona.eu)) for your copy.

## Training at IBEC: “Stronger teams and improved careers”



“Researchers often have to face new situations and contexts that go beyond scientific and lab activity,” says Head of Human Resources Carol Mari. With this in mind, throughout 2010 IBEC was offering the opportunity for staff at different career stages to learn new skills to help them improve their professional efficiency and to encourage more effective interaction.

The last part of the Leadership, Communication and Motivation course on 9 December was a chance for group leaders and support services managers to round up their findings and exchange experiences, as well as to reflect on the previous sessions, Leadership and Communication, held in May, and Leadership and Motivation in October. They also had individual coaching sessions to support the training.

“What I found particularly interesting was the opportunity we had to take a look at our own leadership work through the eyes of a professional,” comments Elena Martínez, senior researcher in the Nanobioengineering group, who attended

the group leaders’ course as Josep Samitier’s representative. “We were provided with strategies to help us understand the different members of the group and its various phases, and we learnt about how useful it is to establish agreements and rules.”

Also in October, 20 PhD students were attended a workshop in Scientific Writing in English, during which they learnt about aiming their papers at high-ranking journals and how to prepare their theses. Earlier in the year in March, 24 students were able to benefit from a workshop in Conference Presentation Skills in English, which combined presentation planning with a chance to practise public speaking.

“It is important that, in an ever-changing work environment, we offer training to ensure that our more established scientists and heads of units at support learn the people skills required to lead a group, and also that IBEC’s younger scientists receive some essential training for their scientific careers,” says Carol. “Improved efficiency means stronger research teams.” //

### SCIENTIFIC NEWS

## Beating the regeneration blockers

It’s known that the development of neuronal diseases such as MS and Alzheimer’s disease is connected with the levels of myelin – an insulating substance around nerve fibres – in the body, although the actual causes of these conditions remain unknown. Now IBEC researchers at have discovered a new group of interacting partners for myelin-associated receptors, which could shed light on the significance of imbalanced production or modifications of the substance.

Following injury in adults, axons have a limited capacity for regrowth; this restriction is caused by myelin-associated inhibitors (MAIs). In a study published online by the journal *FASEB* in November, Molecular and Cellular Neurobiotechnology group leader José Antonio del Río and postdocs Vanessa Gil and Franc Llorens discovered that blocking two shared receptors – NgR1, together with its coreceptors p75(NTR), TROY and Lingo-1, and paired immunoglobulin-like receptor B (PirB)

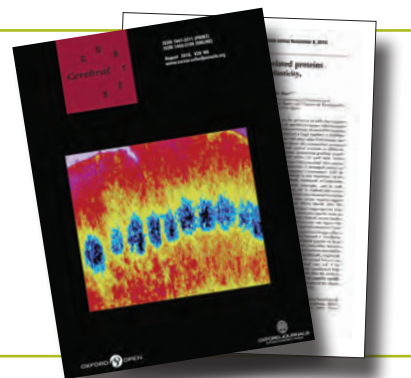
– prevents the inhibitors from restricting axonal sprouting and limiting the regeneration of damaged fibre tracts.

Other elements of the myelin inhibitory pathway are still unknown, but this identification and characterization of the roles and functions of some of the inhibitory molecules sheds light on one of the most competitive areas of research into neuroregeneration of the past several years. In addition, further data from within and outside the CNS environment suggests that most

of these proteins have other roles beyond axonal growth inhibition. “There could be new physiological roles for them in other processes such as development, neuronal homeostasis, plasticity and neurodegeneration,” says José Antonio. “Modifications could be considered as markers for certain diseases.” //

Llorens, F., Gil, V. & Del Río, J.A. (2010). Emerging functions of myelin-associated proteins during development, neuronal plasticity, and neurodegeneration. *FASEB J.*

// Their *FASEB* research being picked up on by international websites including *Science Daily* and several MS sites was a fitting end to a busy period for the group. They made it to the cover of *Cerebral Cortex* with their paper ‘Developmental expression of the oligodendrocyte myelin glycoprotein in the mouse telencephalon’ in August, and in November attended the inaugural scientific meeting in Zurich of Priority (Protecting the food chain of prions), an EU project they’re involved in which is funded under FP7.





## DIRECTORS' AGENDAS

## Spreading the word

Every month the directors are busy representing IBEC at scientific and political meetings, forums and assemblies in Barcelona and beyond...

SEP  
2010

**1st: Josep P** at a Key Enabling Technologies meeting, Brussels

**10th: Both** at the Ciber-BBN Board of Directors meeting

**14th: Josep S** attends a panel meeting in Venice of the EuroNanoMed ERA-NET initiative

**17th: Both** at collaboration agreement signing with Biopol'H

**22nd: Josep P** at the plenary meeting of Health University of Barcelona Campus (HUBc)

OCT  
2010

**4th: Josep S** at an Interbio Barcelona Innovation Workshop: NanoBiotechnology & IT for Health

**8th: Josep P** at an extraordinary Ciber-BBN meeting of centre

NOV  
2010

directors. **Jospe S** at Hospital Clinic for a Robotics Workshop

**20th: Josep P** speaks at BIOCAT's Conference on Biomaterials and later attends an Associació Catalana d'Entitats de Recerca meeting

**22nd: Josep P** at a KET meeting

**25th: Josep P** in Brussels for EC open days and a Materials Summit

**2nd: Josep S** at COST TD1003 meeting in Brussels

**3rd: Board of Trustees** meeting

**4th: Josep P** at a KET meeting

**5th: Josep P** at an EC open day on biotechnology in Brussels

**9th: Josep P** attends Bioagora

(Biopol'H) and a C4 Scientists/Politicians meeting. Both attend a Palau de la Generalitat de Catalunya Recognition Ceremony for Researchers. **Jospe S** gives a public lecture at Cosmocaixa

**12th: Josep P** at an ACER meeting

**16th: Both** attend a meeting about BioNanoMed Catalunya (see page 3)

**22nd: Both** attend a Reunión Comisión Coordinación Consorci (IDIBELL and Biopol'H)

**25th:** At the general assembly of GENESIS-RED, **Jospe S** gives a talk on NanoMed Spain

**29th: Josep S** at NANOJASP in Barcelona. **Jospe P** at the Ciber-BBN Board of Directors meeting

DEC  
2010

**1st: Josep S** at a Ciber-BBN forum on Drug Delivery, Barcelona

**2nd: Both** at Fórum Biocat (page 3)

**Continuously throughout the year:**

Team coaching (Biopol'H)

Workshops in Innovation, Collaboration and Leadership

## Making connections

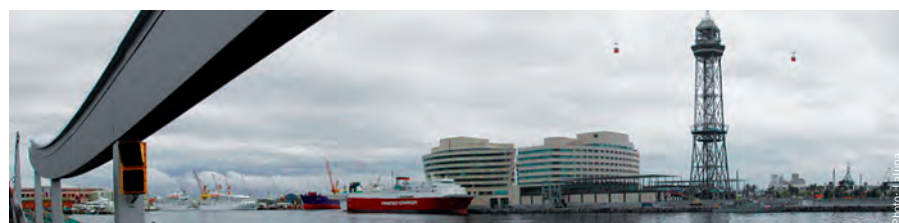
September 2010 saw the kick-off meeting in Barcelona of the Connect-EU programme, an initiative that aims to promote and reinforce Catalan participation in the EU's instruments for research funding such as FP7 and the forthcoming FP8.

The creation of a Connect-EU network is one of the highlights in the programme. IBEC leads the network's working group on nanobiotechnology, which will advise ACCIÓ – the agency set up by the Catalan Government to make Catalan enterprise more globally competitive – about which are the 'hot' topics and the Catalan strengths in this field. The resulting research agenda will increase opportunities to achieve EU funding under the current and future framework programmes.

Other local research centres involved in

the network include ICFO, ICN and Vall d'Hebron, as well as several companies and CSIC centres. With their expertise on their relevant fields, ACCIÓ will also be able to improve international relations for Catalonia, attract outside investment and develop synergies between research and business, ensuring that Catalan research can hold its own alongside Spain and the rest of Europe.

The Connect-EU conference at Barcelona's World Trade Center (pictured) on 22-23 September, which was organised by ACCIÓ and Catalan research promoters Talència, attracted more than 700 participants. The next step for IBEC's working group is to produce a white paper on nanobiotechnology R&D in the region to present in 2011.



## A great honour



In a ceremony on 16 December, IBEC director Josep Planell was elected as Academician of the Royal Academy of Science and Arts of Barcelona. Josep gave a talk, 'A strategy in regenerative medicine of bone: development of biodegradable scaffolds for bone regeneration' before being sworn in by the president, Rafael Foguet i Ambrò.

Membership of the society, which was established in 1764 under the name 'Experimental Physio-mathematical Council', is a great honour, limited by number and strictly by nomination.

## IBEC PEOPLE



ICREA research professor **Xavier Trepà**'s ERC Starting Grant sees him well on the way towards having his own lab and group at IBEC. Currently a senior researcher in the Cellular and Respiratory Biomechanics group, Xavier did his PhD at the University of Barcelona in 2004 before going to Harvard as a postdoc. In 2008 he returned to the UB as a Ramon y Cajal researcher. His research focuses on the fundamental biophysical mechanisms underlying cell migration both at single cell and tissue level, a process which underlies a wide range of phenomena in health and disease. In December Xavier published a 'News and Views' article in *Nature Methods* commenting on recent research in cellular mechanobiology.

### IBEC IN THE MEDIA...

Project manager **Juan Fran Sangüesa** found himself on the midday bulletin of Catalan television channel TV3 on 22 September. Juan Fran was attending Jornada Connect-EU (see page 7) at the World Trade Center in Barcelona when he was filmed as he gave a presentation about the BOND project. He was then asked to comment on his concerns about the current financial climate and projected budget cuts. "I guess I had my fifteen seconds of fame," said Juan Fran afterwards. "I had more airtime than the Minister for Innovation, Universities and Enterprises, who was interviewed in the same news item!"



## AWARDS AND HONOURS

PhD student **Victor Pomareda** from the Artificial Olfaction group won a best poster award for 'Hard modelling in non-negative matrix factorisation: Application to ion mobility spectrometry' at the Chemometrics in Analytical Chemistry 2010 conference in Antwerp in October.

Former IBEC researcher **Javier G. Fernandez** has won the best thesis award from the University of Barcelona's Claustre de Doctors for the PhD project he developed while in Josep Samitier's lab.

### More news on the web...

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## 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.

**Whatever your idea, please let us know!**

## IBEC EVENTS

### 14 January 2011 IBEC Seminar

Cerebral cortex network dynamics  
*Maria V. Sanchez-Vives, IDIBAPS*

### 28 January PhD Discussions

**Complementary Skills Session:** Is art a new way of doing science?

*Josep Perelló, University of Barcelona/ Arts Santa Mònica*

**February** (actual date TBC)

**Meeting** of NanoMed Spain

### 4 February IBEC Seminar

Two examples of cell physics phenomena: cell adhesion and cell division

*Daniel Riveline, ISIS, Strasbourg*

### 18 February IBEC Seminar

Self-assembling protein microarrays and surface plasmon resonance imaging to study high-throughput protein interactions of p53 and Mdm2

*Manuel Fuentes, University of Salamanca-CSIC*

### 23 February

**ESCOLAB**

### 9-11 March

**Workshop** on Bioinspired computation for chemical sensing

### 18 March IBEC Seminar

Tough scaffolds for bone repair: a hybrid approach to tissue engineering

*Julian Jones, Imperial College London*



Institute for bioengineering of Catalonia

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Editor: Vienna Leigh. Please send contributions to [leigh@ibecbarcelona.eu](mailto:leigh@ibecbarcelona.eu).

## IBEC in pictures

"IBEC is more than science – it's also football!" says Ricard Rius from the HR department. "Inspired by the magic happening at Camp Nou, the IBEC football team plays every week against other teams from the PCB on the football field next to the Cluster and Hèlix buildings. It's another way to work as a team for IBEC and to enjoy our leisure time. We're doing well, too, as we're now in third place of 10 teams." The first match of the new year will be on 11 January at 13:00, so come along and support your team!

