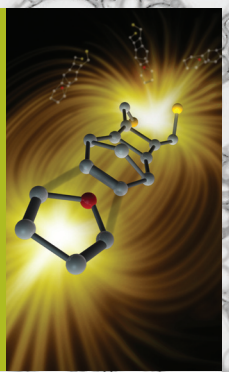
Spring 2016 / Issue 10

INSIDEIBEC

The newsletter of the Institute for Bioengineering of Catalonia

Introducing the BioSpace lab and the new 3D bioprinter: page 2

INSIDE this issue...



A new space for cell work

IBEC has a new facility, the BioSpace Lab, that offers cell culture and other biological facilities to all in-house researchers.

Overseen by the Core Facilities Unit, the BioSpace Lab is a shared space located in the Hélix building. It provides cell culture capabilities for primary and cell line cultures, as well as a 3D bioprinter (see right).

"We wanted to create an in-house facility, similar to the PCB's Cell Culture Facilities, that offers added value by being more accessible and readily available for IBEC researchers. It also offers some defining technology for IBEC that can really transform the way our scientists work," says Isabel Oliveira, Head of Core Facilities. "We hope that the BioSpace Lab has something for everyone, with the exception of infectious materials or microorganisms!"

The BioSpace Lab is a Biosafety Level 2 laboratory (BSL2), so all work must be done following BSL2 guidelines. To access the facility, new users must read the Policies and Practices document and complete the User Registration Request and the Cell Notification Form. All are available from the Core Facilities section of the IBEC website. //

Bioprinting the future

One of the most exciting pieces of equipment in the BioSpace Lab is the new RegenHU 3D-Discovery bioprinter. This can be used to fabricate spatially controlled cellular structures, using biomaterials combined with cells or thermopolymers, in which cell function is preserved.

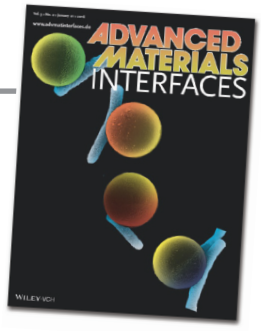
"Bioprinting represents a huge improvement on traditional methods, as it is flexible, automated and high-throughput," explains Mateu Pla-Roca, Nanotechnology Platform Coordinator (left, with the bioprinter). "3D cultures are more resistant, offer more realistic environments for cell function, and provide more reliable data."

IBEC's bioprinter is equipped with three printing heads – so different media can be used in the same job – and offers contact (single strand) or jetting (droplet) modes. "You need to start with a design for your structure, for which we have software such as Biocad or MM Converter available," says Mateu. "You also need bioinks, which can be made from various substances including cellulose, fibrin, collagen or spider silk, and which can be made in-house or purchased. The bioprinter can be programmed with different parameters – temperature, pressure, speed, and so on – and after printing, your structure needs time for maturation."

Institutes in the USA with bioprinters have already achieved advances such as human-scale tissue constructs with structural integrity (Wake Forest University) and thick vascularised tissues (Wyss Institute), and it's hoped that IBEC will quickly follow suit. "With this technology, IBEC is uniquely placed in Catalonia as a specialist in the field. We look forward to being at the forefront of the exciting advances assured by bioprinting and its techniques," says IBEC director Josep Samitier. //

LATEST RESEARCH NEWS

Micromotors left, right and centre



In the year since he started at IBEC Smart Nano-bio-devices group leader and ICREA professor Samuel Sánchez has been producing papers on micromotors like there's no tomorrow. Publications in *Nanoletters*, *Advanced Materials Interfaces* and *ACS Nano* described micromotors powered by glucose, *E.coli*, and urea respectively, and a *Nature Communications* article revealed that micromotors can be guided using tiny topographical patterns on the surfaces over which they swim. Most recently, a Focus article in *Lab on a Chip* summarized recent observations of artificial swimmers in chemical gradients, shear flows and other simulated environments.

DID YOU KNOW...

...a device created by Samuel made it into the *Guinness Book of Records* as the "world's smallest micromotor"?

While some of Samuel's research into self-propelling micro-nanorobots are with health-related applications in mind, some of his areas of interest have environmental objectives. Two recent papers in *NanoLetters* and *Advanced Functional Materials* focus on water treatment and reuse, as heavy metal and other contamination in water is a serious risk to the public and wildlife. The *Nanoletters* paper describes graphene oxide-based microbots as active self-propelled systems for the capture, transfer and removal of lead, and its subsequent recovery for recycling purposes. The *Advanced Functional Materials* paper outlines reusable iron platinum multi-functional active microcleaners that are capable of degrading organic pollutants. They can swim for more than 24 hours and can be stored for over a month. //

LATEST RESEARCH NEWS cont.

Problem solved

IBEC scientists nail long-standing enigma in chemistry

Researchers at IBEC, the University of Barcelona and two universities in Australia introduced a new way of catalysing chemical reactions by applying an electric field between the reacting molecules. This opens the door for the fabrication of chemical compounds, used in drugs and materials, in a faster and cheaper way.

The reaction studied was a classical Diels-Alder reaction that was promoted by applying an oriented electric field between two nano-electrodes containing the reacting molecules.

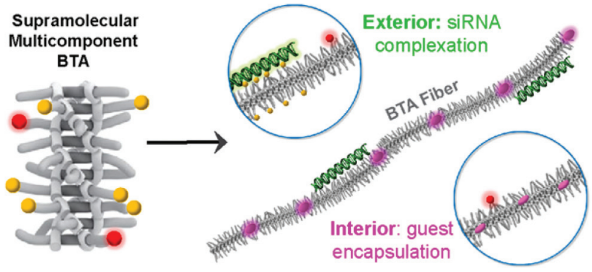
"Theory suggested that many chemical reactions – and not just redox (electron transferring) reactions, as is often thought – might be catalysed by applying an electric field," says Ismael Díez-Pérez, assistant professor at the UB and senior researcher at IBEC, who led the study published in *Nature* in March. "We've provided experimental evidence for this for the first time."

Being able to catalyse chemical reactions is essential, as it speeds up the reaction and thus makes it more proliferate – and therefore cheaper to use – in its many applications.

For more on this story, please see the Research News section of the IBEC website at www.ibecbarcelona.eu. //

Playing with molecular Lego

New IBEC junior group leader Lorenzo Albertazzi and his former colleagues at the Eindhoven University of Technology, working together with industry partner Novartis, made a leap in drug delivery vectors by developing a new type of carrier with some groundbreaking improvements.



"We focused on supramolecular polymers, an emerging family of nanosized structures," says Lorenzo. "Usually, the nanoparticles that are being developed for drug delivery are spherical, but our particles are fiber-shaped."

One such polymer, BTA, is a versatile building block able to self-assemble in water into one-dimensional aggregates. Exploiting the unique modular approach of supramolecular chemistry, the researchers could co-assemble neutral and positively charged BTAs and control the overall properties of the polymer by simple mixing of monomers – molecules that bind chemically (or supramolecularly) to others. "This unique modularity means that we essentially have a library of building blocks – a bit like a big bucket of Lego bricks in different colours – and we can combine them simply mixing the ones we like in a vial," explains Lorenzo. "This is possible because the bricks self-assemble, means they spontaneously get together to form the fiber. For instance, if we throw in 50% "red" and 50% "green" bricks, we will find them in the fiber without any effort, as the material builds itself. The different bricks can have different chemical properties or functionalities. In this way, we can try a lots of combinations, and check which is the best for delivery."

The two compartments of BTA polymers also mean that they can carry more than one type of drug: small hydrophobic compounds in the lipophilic core while siRNA is condensed on the outside.

The study represents an important step in the quest to develop non-toxic, tailored, effective drug carriers, and paves the way for further research. //

Signalling some big advances

IBEC's Biomedical signal processing and interpretation group have two papers in the IEEE Journal of Biomedical Health Informatics in March, one of which is the result of an ongoing clinical collaboration with the Hospital Universitari Germans Trias i Pujol. This work presents a new way of automatically differentiating normal respiratory sounds from continuous adventitious ones, which can reflect the severity of certain diseases. The researchers and clinicians used a dataset of 870 inspiratory cycles recorded from 30 patients with asthma to test their sound classifier, which is based on the multiscale analysis of instantaneous frequency sequences, which markedly decrease when continuous additional sounds appear in respiratory cycles.

The other article, highlighted as a featured article, looked at diaphragm electromyography, a valuable technique for the recording of electrical activity of the diaphragm. Using this technique, though, the signal tends to be corrupted by electrocardiographic activity. The group improved the estimation of neural respiratory drive and the analysis of diaphragm electromyography signals by using the fixed sample entropy algorithm, which quantifies the amplitude of the complex components of the myographic signals while being less affected by changes in amplitude due to fewer complex components such as heartbeat. //

A year to remember

A glance at IBEC's new Annual Report for 2015 shows what a successful year we had – but 2016 has started well, too

2015 will be memorable as the year in which IBEC received the Severo Ochoa Excellence Award, becoming the nineteenth Spanish centre to do so. In fact, this was only one of many awards in 2015. We received the 'Human Resources Excellence in Research' stamp from the European Commission in recognition of continuously improving our HR policies in line with The European Charter and Code. One of the first measures of the HR Action Plan was to set up a Gender and Diversity Committee, whcih had very busy year that resulted in the fulfilment of several actions.

On an individual level, ICREA research professor Xavier Trepat was named winner of the year's Banc Sabadell Award for Biomedical Research, Gabriel Gomila received an ICREA Academia Prize for excellence in research and capacity for leadership, and ICREA research professor Samuel Sánchez was the winner of the Premio Fundación Princesa de Girona Investigación Científica, as well as receiving a Proof of Concept grant from the ERC. Other ERC grants went to Nuria Montserrat (Starting) and Elena Martínez (Consolidated). A research project involving IBEC group leader and ICREA research professor Pau Gorostiza was chosen for funding under a Call for Expressions of Interest (CEol) on Systems and Cognitive Neuroscience by the Human Brain Project (HBP) FET Flagship; a programme on Healthy Living and Active Ageing with the Obra Social "La Caixa" was launched; and two projects were funded under the first CaixaImpulse call.

> **"These achievements represent huge milestones in the evolution and consolidation of IBEC"**

With all this going on in 2015, the new year has big shoes to fill, but already 2016 has started well. Xavier Trepat came third in the *La Vanguardia* Science Award, and Samuel was the winner of this year's edition of the Círculo Ecuestre's Premio Joven Relevante. IBEC now collaborates on a project, coordinated by clinicians from Sant Joan de Déu/Hospital Clínic, with the Cellex Foundation (see opposite). We were delighted to open our first call for applicants under IBEC's International PhD Programme; and later this year the Bioengineering Excellence Scientific Training (BEST) programme for postdocs will open. Finally, with our responsibilities to society in mind, we've made a big effort regarding transparency and the abundant information included in our webpage to satisfy the growing demand.

"The achievements that we've made in the last 18 months push us a long way up the rankings of the research centres in Catalonia, not only among those of comparable size but also alongside several that are much larger or older," says Josep Samitier. "They represent milestones in the evolution and consolidation of IBEC, confirming a success story that started only a few years ago." //

Cystic fibrosis – the fight continues


Nuria Sanz (ACFQ), Josep Samitier, Eduard Torrents, Celestino Raya (ACFQ) and Jordi Portabella (Obra Social "La Caixa")

Representatives from the Associació Catalana de Fibrosi Quística came to IBEC on 22nd March to meet researchers and discuss the focus of their continuing support of investigation into the disease. The visit took place in the framework of some exploratory groundwork in preparation for a potential new initiative involving the Obra Social "La Caixa" to focus on support for rare disorders.

Eduard Torrent's Bacterial Infections: Antimicrobial Therapies group's projects researching the enzyme that promotes the growth of the bacteria linked to this disease, and possible therapeutic targets, has been supported by ACFQ since 2009. The clinical data for the project is provided via the group's close collaboration with the Hospital Universitari Vall d'Hebron. This co-operation triangle of researchers, clinicians and the patients' association, with the support of "La Caixa", has the potential to make huge advances in the fight against this inherited condition which affects the lungs and digestive system.

On April 27th IBEC and ACFQ will organise an outreach event for National Cystic Fibrosis day, "El present i el futur de la Fibrosi Quística", comprising an activity for high school students and a round table. //

PhD programme hopefuls at IBEC

In April, the candidates for the International PhD Programme positions visited IBEC for their interviews. The hopefuls, who represented 12 countries, were selected from the more than 150 applicants who applied for the programme's nine positions, which are supported by Severo Ochoa and La Caixa. The PhD programme forms part of the institute's Strategy 2014-2017 in the area of attracting the best talent from all over the world via a transparent, open and international selection process.

As well as discussing the projects with IBEC's group leaders, the candidates also had to undergo a grilling each by the selection panel – Nuria Montserrat, Xavier Trepat, Raimon Jané, Josep Samitier, Teresa Sanchis and Carol Mari. The successful candidates will be selected and informed by the end of May. //

A revolution in fetal surgery

IBEC is to be part of a revolution in fetal surgery and the research of prenatal diseases thanks to support by the Obra Social "la Caixa" and Cellex foundations.

Coordinated by the Fetal Medicine Research Centre, Fetal i+D, the research comprises four sub-projects to develop a system of sealing and fixing membranes through the use of new materials; an optical biosensor system; a robotic assistance system; and a surgical planning and navigation system for fetal surgery.

Cellex and "la Caixa" become the main promoters of Catalan research in fetal medicine

"IBEC's Nanobioengineering group will contribute by developing biosensors specifically designed to be applied in the field of fetal medicine, and will seek to develop and apply them in cases where possible infectious diseases in the fetus, tissue ischemia during interventions, or metabolic activity need to be evaluated," says IBEC Director and Nanobioengineering group leader Josep Samitier. "The challenge is to fit the technology to the dimensions and requirements of fetal endoscopic surgery, and the variations in metabolic activity found in the fetus."

"Our part will be to develop a guidance system support for prenatal surgery," adds Alícia Casals, head of the Robotics group at the UPC and associate researcher at IBEC. "This robotic assistant will help the surgeon guiding the endoscope and other surgical instruments in a specific anatomical area, allowing him or her to perform high precision operations which are not possible today, such as those requiring access to fetal vessels."

IBEC's involvement is a forward step in fulfilling its mission to forge links with clinicians and bring its health-related research results closer to patients. With more than €6million at their disposal, the projects – which as well as IBEC will involve three other institutions of excellence in Barcelona, the UPF, ICFO and IQS – together represent a revolution in fetal surgery and the improvement of diseases that start at the prenatal stage but have repercussions throughout life. //

Ex-SOSTing!

Javier Selva was the second of IBEC's project managers to benefit from a few months in the thick of the EC machinery as part of the CDTI's INNVOLUCRA initiative. Javier spent January to March in the Oficina Española de Ciencia y Tecnología (SOST in English) in Brussels getting a heads-up on the strategies and protocols of H2020.

"The weather was a bit of a shock after Barcelona, and it was a very intensive programme of activities, but it was great to be supported by the CDTI to build upon my specialisation in EU funding so that I can better support IBEC's research groups involved in H2020 proposals and parallel initiatives," says Javier, who returned to Barcelona on March 18th.

The first of IBEC's project managers to benefit from the scheme was Javier Adrián, now Head of the Projects Office, who spent time in Brussels during 2013. //

NanoMedSpain delivers the goods on Nano World Cancer Day

The Spanish Nanomedicine Platform (NanomedSpain), which is coordinated by IBEC Director Josep Samitier, organised the Spain-based event of the pan-European initiative Nano World Cancer Day on February 2nd.

More than 50 people, including students, scientists and journalists, attended the event that took place at the Faculty of Medicine of the University of Barcelona. Speakers represented the research and clinical points of view on nanomedicine and its range of applications against cancer, as well as organisations such as the Asociación Española Contra el Cáncer (AECC) and companies (Genomica S.A.U.).

Josep Samitier (second from right) with speakers Teresa López-Fando (AECC), Mª Jesús Vicent (CIPF), Mª Luisa Villahermosa (Genomica S.A.U.), Francesc Cardellach (UB) and Aleix Prat (VHIO).

Nano World Cancer Day 2016 is a pan-European event organized in the framework of World Cancer Day (February 4th this year). It aims to amplify awareness about nanomedicine and its ability to introduce new opportunities and game changers in the fight against cancer. At a European level is it is organized by the European Technology Platform on Nanomedicine together with the European Project ENATRANS (Enabling NAnomedicine TRANSlation).

For this third edition, twelve simultaneous conferences took place in Austria, France, Germany, Greece, Ireland, Italy, Portugal, Netherlands, Spain, Switzerland, Turkey and the United Kingdom. //

"The cure for everything"

Some IBEC staff and scientists have unusual ways of shaking off the stresses of the day...

Project Manager Ester Rodríguez is probably best known by the groups she looks after for her efficient handling of their funded projects. But what they may not know is that when she's not writing proposals, justifying expenditures or hunting for competitive calls, she's most likely to be found at the bottom of a swimming pool.

Main pic: UWH in action. Inset: Ester (second from right) and her team

For four years Ester has been a member of the Intrèpids Seitons del Barcelonès (ISB), an underwater hockey team. "Apart from synchronised swimming and water polo, there aren't many aquatic sports that you play in a team," she explains. "This non-Olympic sport is fairly big internationally, but in Spain there aren't many clubs as yet."

Based in Sant Adrià de Besos, Ester's team practises twice a week. "There's a puck like in ice hockey, and you use a short stick to propel it across the bottom of the pool," she explains. "Each team consists of six players, and they are distributed in defence, attack and goal keeper positions just like on a normal hockey field."

InsideIBEC's first question, of course, is how do the players not drown? "Breathing techniques are a very important part of the sport," says Ester. "The goalkeeper – known as the fullback – in particular needs to be very skilful, because they need to carefully estimate at what point they will need to be defending the goal, and manage their breathing accordingly."

The mixed team competes in the Catalan and Spanish League, and skilled individuals get selected to play at national or international level. "I'll try out next year in the master womens' selection in Hungary," says Ester. "There'll be about 20 others, so fingers crossed!"

For Ester, underwater hockey represents the ideal escape from her desk. "The water is so soothing, and it helps me disconnect," says Ester. "It's just you, your team – which is like a family – and the water. There's an meme about underwater hockey that says it's 'the cure for everything', and for me that really says it all."

If you'd like to find out more about the team or underwater hockey in general, check out their Facebook page at Hoqueisubaquatic.barcelona or contact Ester at erodriguez@ibecbarcelona.eu. //

OUTREACH NEWS

Talking science

Vanessa Gil guiding visitors from the Escola Natzaret in February

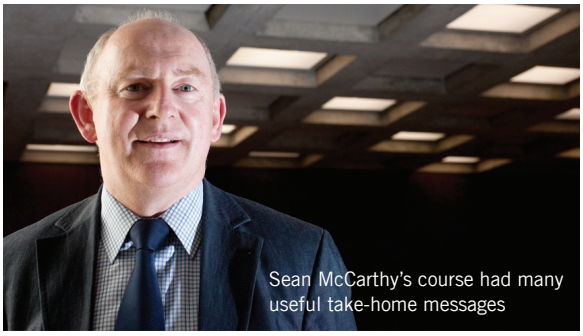
Outreach events at IBEC and elsewhere since the start of the year included a new initiative for teachers organised with CESIRE, the Generalitat's education department, for which Nuria Montserrat gave a talk. There were two visits from primary school age students in February as part of a new scheme for younger visitors, Happy Lab. Miguel Angel Mateos gave a talk in Sant Feliu, "Biomaterials: ajudem al nostre organisme a regenerar-se", one Saturday in March, and IBEC was present at the Fira de Barcelona's Saló de l'Ensenyament careers fair the following week.

In mid-March a group of students from Cambridge University came for a tour of IBEC and a talk by the Smart nano-bio-devices group. In April, Samuel Sánchez and the Nanomalaria group both contributed to the Festival de la Nanotecnología, an initiative of the CCiTUB, and volunteers from the Biomaterials for Regenerative Therapies, Cellular and Respiratory Biomechanics, Cellular and Molecular Mechanobiology and Nanomalaria groups all helped out at the annual Fira Recerca en Directe. With all this on top of the regular school visits and mentoring sessions, it's been a busy few months!

Coming up soon are a "Focus On..." day at IBEC in April, this first one devoted to cystic fibrosis and involving Eduard Torrents' group; and the 2016 edition of the reSearch4Talent open day for students and the Festa de la Ciència, both in May.

For more information about IBEC's outreach programme, or if you'd like to volunteer, check out the blog at divulga.ibecbarcelona.eu or contact ibeccommunications@ibecbarcelona.eu. //

Top tips for H2020 proposal writing


Sean McCarthy's course had many useful take-home messages

A packed room of project managers, scientists and other professionals from the various entities of the PCB enjoyed Dr. Sean McCarthy's course, "How to Write a Competitive Proposal for Horizon 2020", on 23rd February. Dr. McCarthy has been involved in all aspects of European Research since 1980 as a researcher, research manager, group leader and company director. In 2011 the EC published a list of the top 100 research organisations participating in FP7, and Dr. McCarthy had provided training courses in 48 of them; his excellent course here was further testament to his expertise.

After explaining the context of Horizon 2020 and the process by which EU policies become projects, Dr. McCarthy delivered a comprehensive and exhaustive list of tips and pointers to help scientists and project managers alike ensure that their prosposals stand the best chance to be selected. Some sound advice included writing proposals backwards (abstract last), familiarising oneself with the evaluators' checklist before starting to write, becoming an evaulator oneself, and making sure the 'impact' part is written by the actual users. Participants learned to 'sell, not tell' their ideas and to imagine themselves in the evaulators' shoes; with a pile of proposals reaching to the ceiling, how can they ensure that theirs is not one that is immediately cast aside?

Dr. McCarthy also had some sterling advice for scientists going throught the ERC selection process. The interview panel will want the answers to five blunt questions: Why bother? Why you? Why now? Will your project establish Europe as an international leader? and Is the knowledge already available?

"I enjoyed the course and found it terrifically useful," commented new IBEC junior group leader Vito Conte afterwards. "The idea of writing your proposal so as to directly answer the points against which the evaluators themselves will have to assess it is something I had never considered before." //

NEWS from the PhD COMMITTEE


Photo © Claudia Navarro

Sunday lunch, Catalan style

The activities of IBEC's PhD committee at the end of last year included a visit to the "Humans+" exhibition at the CCCB (Centre de Cultura Contemporània de Barcelona) on December 13th. Since the beginning of this year we've organised a Labs Tour on 5th February, giving students and other interested parties a chance to visit the other laboratories at IBEC and find out more what they're doing. Most recently, many of us enjoyed the third annual *calçotada* in Merendero Font Les Planes on Sunday 6th March (left).

Coming up next, on 21st April: be ready to change your labcoat for a laser gun and fight with your team towards victory at our Laser tag Combat Night!

If you'd like to join the PhD Students Committee or nominate one of your students, please email phdcommittee@ibecbarcelona.eu. We'd especially like to encourage group leaders to volunteer a member of their groups to join, as we'd like all the IBEC groups to be represented by at least one committee member.

– IBEC PhD Committee

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// The **IBEC-La Caixa Joint Programme on Healthy Ageing Research** has granted four projects to José Antonio del Rio, Raimon Jané, Elisabeth Engel and Eduard Torrents, based on EIT Health objectives. For more information, consult the IBEC Annual Report 2015 at www.ibecbarcelona.eu/about-us/documents/.

// The **AXA Research Fund**, the scientific philanthropy initiative of global insurer AXA, officially announced that it will devote €15.6m to 44 new research projects with leading academic institutions in 16 countries. IBEC's project, "Novel approaches for Pandemic Virus Targeting Using Adaptive Polymers", is led by new Lorenzo Albertazzi and aims to harness nanotechnology to introduce a new class of tools to fight viruses.

// Towards the end of 2015, the Generalitat published their health and safety indices, which showed IBEC's **accident rate is around 30% lower** than the mean of the other research institutes in Catalonia.

IBEC PEOPLE

New junior group leader **Vito Conte** has come from Xavier Trepat's Integrative Cell and Tissue Dynamics group and is now a Ramon y Cajal fellow. He leads IBEC's new Mechanics of Development and Disease group, which will take a new direction as he develops new biophysical tools to quantify the mechanics of cell and tissues in 3D environments.

Xavier Rubies is the new Head of Technology Transfer at IBEC. He holds a PhD in Veterinary Medicine and an Executive MBA and has experience in strategy definition, IP licensing, business development, turnaround management, contract research, start-up and regulatory affairs in pharmaceutical and medical device companies.

IBEC's new Technology Transfer Manager is **Diana González**. She holds a PhD in biomedicine and performed research at IDIBELL, Uppsala University and Innsbruck Medical University. She has experience in clinical trials, technology transfer and as a business development manager, and last year took a postgraduate degree in medical devices, business and innovation.

Sergio González joins IBEC as Strategic Initiatives Project Manager. He studied electronic engineering at the University of Oviedo, including a year in the UK, and completed a masters degree in biomedical engineering in Valencia. Before IBEC he worked at Gijón's Hospital and as a project manager at the European Technology Platform for Nanomedicine.

AWARDS AND HONOURS

IBEC group leader and ICREA research professor **Samuel Sánchez** was the winner of this year's edition of the Círculo Ecuestre's Premio Joven Relevante (right). The prize recognizes and rewards people younger than 38 who have developed a project that brings significant change for the benefit of Catalan and Spanish society. With the prize, Samuel receives membership of the club, incorporation in Barcelona Activa, an IESE Business School scholarship and a 60,000€ credit from Google.

IBEC group leader and ICREA research professor **Xavier Trepat** came third in the recent *La Vanguardia* Science Award. Xavier was nominated, alongside the UPC's Marino Arroyo, for their groups' research into what happens at a cellular level when the body's tissues are broken. They gained 15.3% of the votes in a poll that was open throughout February for readers to nominate the scientists who did the most important research during 2015.

Biomaterials for Regenerative Therapies PhD student **Claudia Navarro** won the Best Oral prize for her talk "Vasculogenesis by a maleimide cross-linked PEG hydrogel containing calcium phosphate glass particles" at the 27th European Conference on Biomaterials (ESB2015) in Krakow, Poland in September last year.

UPCOMING EVENTS

Friday, April 29
PhD Discussions Complementary Skills Session: Xavier Rubies (left)
"Technology Transfer: how to bring science to the market"
Torre I, planta 11, IBEC

Thursday, May 5
"**reSearch4talent"** Open Day 2016
Torre I and Helix, IBEC

Friday, May 6, 12:00
PhD Thesis Defence: Anita Kosmalska, Cellular and molecular mechanobiology. "Physical principles of membrane remodeling during cell mechanoadaptation"
UB Fac. of Medicine (Aula 15, 5th floor)

Wednesday, June 29
9th IBEC Symposium:
Bioengineering for Active Ageing
AXA Auditorium, Barcelona

More events at www.ibecbarcelona.eu

Articles or ideas, please!

Is your group starting a new project? Perhaps something interesting has happened in your research area, or you've had an interesting visitor. Is there an important change that people should know about, or a deadline? Maybe you'd just like to find out what the IBEC community thinks about something, or you have a request. If you have an idea for *InsideIBEC* or would like to write an article yourself, contact vleigh@ibecbarcelona.eu.

IBEC in pictures

Xavier Fernàndez-Busquets and Marc Cirera's amazing cryo-transmission electron microscope image of liposomes has been scooping the top prize in image competitions lately. First came the PCB's Instagram photo award 'Un dia al PCB', and in April it won the Spanish Society for Biochemistry and Molecular Biology (SEBBM)'s Art Gallery competition, sponsored by Eppendorf.

IBEC Institute for Bioengineering of Catalonia
EXCELENCIA SEVERO OCHOA

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