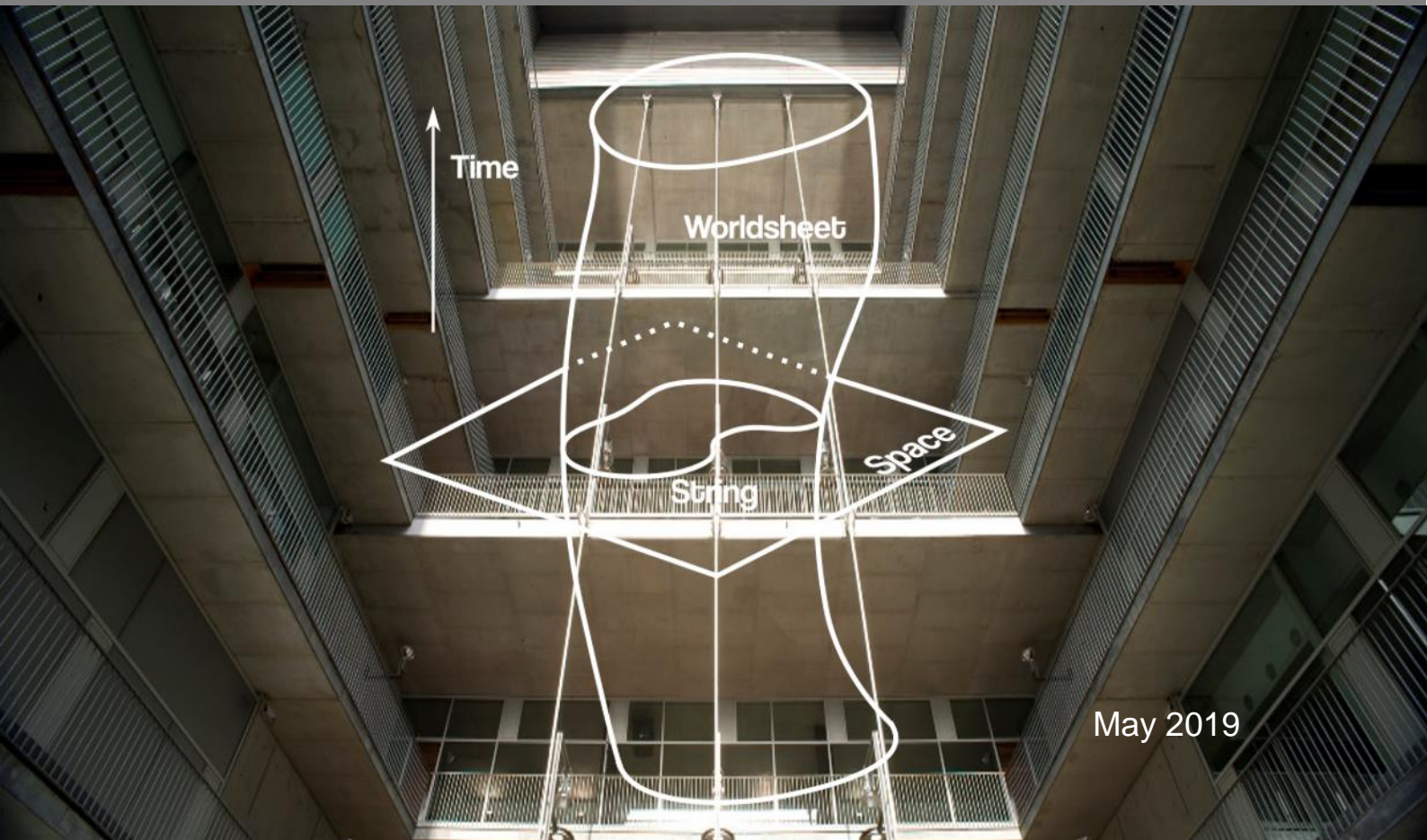




Barcelona
Biomedical
Research
Park

PRBB

Performance
Report
2018



May 2019

PRBB PERFORMANCE REPORT 2018

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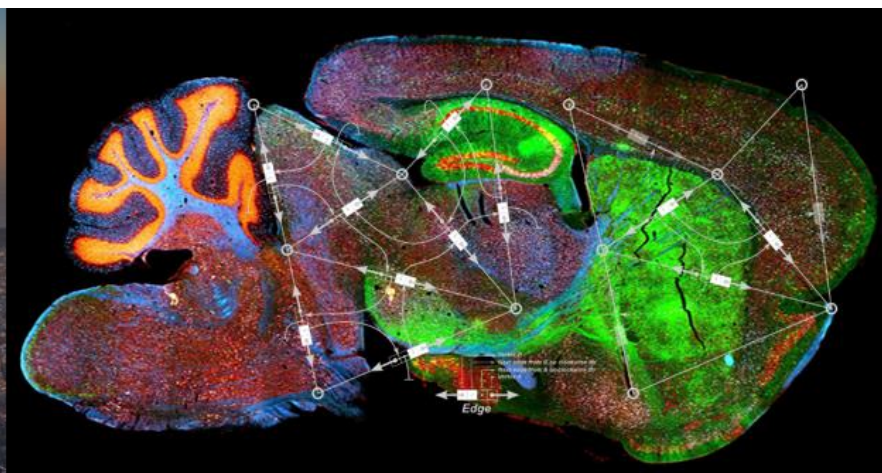
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From southern Europe we lead life sciences and biomedical research in 2018 and beyond

“We connect science and diversity in one creative space”. This slogan from early 2006 is still valid and aims to explain, that the research community of the PRBB is especially successful in multi-, trans- and cross-disciplinary science projects.

The Barcelona Biomedical Research Park (www.prbb.org) stays amongst the top international research locations and is still the **largest biomedical research hub** in Southern Europe. The PRBB, an initiative of the Government of Catalonia, the City Council of Barcelona and the Pompeu Fabra University (UPF), is physically connected to the ‘Hospital del Mar’ and offers **space, services and infrastructures to seven independent research institutions** that are closely coordinated amongst them.

A critical mass of **1,400 people from 45 different countries** work at the PRBB. It is a multidisciplinary park where experts from very different disciplines get cross-fertilized. They share a fully **open research space** and are highly successful in capturing competitive funding, especially for large scale projects. The aggregated **research spending has reached 100 million € per year** and the scope of research goes from bytes, molecules, cells and tissues to epidemiology and public health.



Research institutions

Hospital del Mar Medical Research Institute ([IMIM](#))

Department of Experimental and Health Sciences of the Pompeu Fabra University ([DCEXS-UPF](#))

Centre for Genomic Regulation ([CRG](#))

Barcelona Institute of Global Health ([ISGlobal](#), Mar Campus)

Institute of Evolutionary Biology ([IBE](#) / CSIC-UPF)

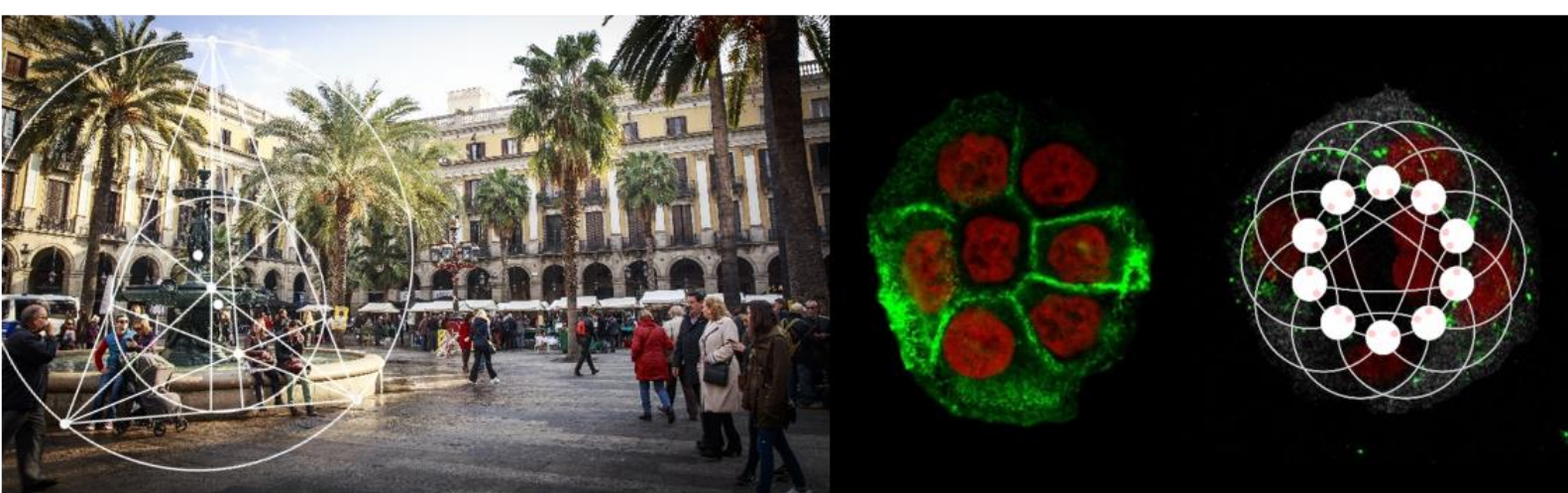
European Molecular Biology Laboratory ([EMBL Barcelona](#))

Barcelona Institute of Applied Radiopharmacy ([IRAB](#))

PRBB Vision

We provide the best environment for biomedical research of excellence

“We are committed to promote research that is useful for the health of citizens and producing a new generation of knowledge, created through interdisciplinarity.” Jordi Camí, General Director of the PRBB



Adding value

Professional development: The programme PRBB Intervals provides residents with a range of free education and training opportunities in areas that complement their professional experience. PRBB Intervals offers about 46 courses grouped into the following themes: leadership, management and career development; communication; biomedicine, society and good scientific practice.

Social activities: The PRBB community is young, dynamic and social. Every year more than 500 people participate in the beach volleyball tournament, with games every day over four months. This event, along with an orchestra, choir, yoga classes and charity breakfasts organised by the Incubakers – all activities set up by the residents themselves - help create connections and synergies and unite the park’s incredibly diverse community.

Outreach: The excellent research that takes place at the PRBB does not stay hidden inside its walls. The Open Day is an annual event for the citizens of Barcelona, where more than 2,000 citizen get first-hand experience of the research that takes place within the PRBB centres. Over the rest of the year, nearly 12,000 people visit the park’s facilities and more than 200 high school students participate in the PRBB Award. But people can also find out about activities at the park through the EIlipse portal at ellipse.prbb.org, or by following the PRBB on social media, just like more than 20,000 people already do.

INSTITUTIONAL HIGHLIGHTS

UPF, the 11th best young university

Times Higher Education (THE) has positioned the UPF as the 11th best young university in the world, the first university in Spain and 5th in Europe. [08.06.2018]

CRG in the top 5 at the Mapping Scientific Excellence ranking

The CRG appears as the second European institution in this ranking and is only preceded by the Whitehead Institute, the Broad Institute of MIT and Harvard, the Howard Hughes Medical Institute, and the Sanger Institute in the UK.

[24.07.2018]

ISGlobal ranked one of the 10 most important global Health Think Tanks in the world

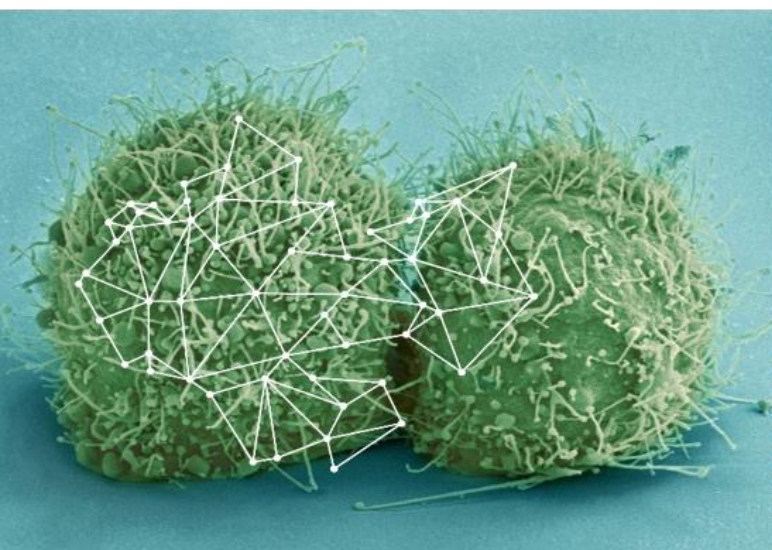
This year, ISGlobal was once again ranked as one of the world's most influential global health think tanks, climbing from the 16th place in 2016 to the 9th in the University of Pennsylvania's 2017 ranking. In Europe, ISGlobal is the third most important global health think tank and the only outside the United Kingdom. [06.02.2018]

EMBL Barcelona celebrates its arrival

On October 15th, EMBL Barcelona held its inaugural symposium in the PRBB Auditorium. This new research unit will focus on tissue biology and disease modelling. EMBL is Europe's flagship laboratory for the life sciences. [20.10.2018]

Scientists from PRBB centres among the most cited in the world

The *Highly Cited Researchers* list recognises world-class researchers and has incorporated Jordi Alonso (IMIM), Montse Fitó (IMIM), Toni Gabaldón (CRG), Roderic Guigó (CRG), Marc Nieuwenhuijsen (ISGlobal), Jordi Sunyer (ISGlobal, IMIM) and Martine Vrijheid (ISGlobal). [30.11.2018]

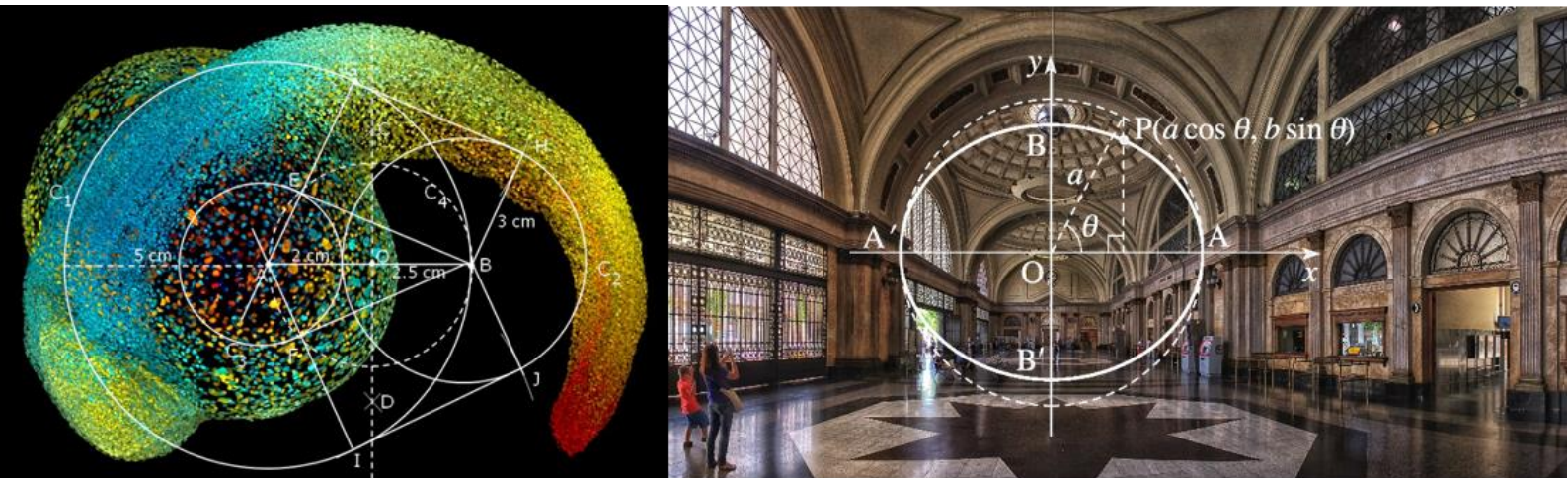


Summary of the numbers of 2018

>80,000,000	€	Competitive funding
13,149,755	kWh	Electricity consumed
256,496	Kg	Waste produced
125,429		Visits to the website
55,000	m ²	Constructed surface
20,529	Kg	CO ₂ consumed (incubators)
~12,000		Visitors to the building
11,900		Twitter followers
3,478	m	Linear lab bench
1,312		Residents
1,164		Scientific publications
554		Intervals participants
277		Scientific conferences
272		Postdocs
237		PhD students
162		Senior researchers
80		Volleyball teams
65		Nature group publications
46		Intervals courses
45		Countries of residents
41		PRBB CRG Conferences
28		ERC funded projects
10		<i>Nature</i> articles
7		Research institutions
2		<i>Science</i> articles



SELECTION OF 20 RESEARCH HIGHLIGHTS from MICRO to MACRO



COMPUTATIONAL BIOLOGY

Ten genes involved in cancer discovered thanks to Open Data

Three **CRG** researchers, led by ICREA Research Professor B. Lehner, have identified ten new candidate cancer-predisposition genes, using only publicly available data. The study, published in *Nature Communications*, analysed the genome sequences of more than 10,000 cancer patients with 30 different tumour types using a new statistical method called ALFRED, based on an old idea that oncogenes often require ‘two hits’ before they cause cancer. “Our results show that the newly identified cancer predisposition genes may play an important role in many types of cancer”, explains Lehner.

GENE REGULATION

New mechanism governing protein expression discovered

Switching genes from “on” to “off” states is a crucial and constant process in any cell. Transcription factors are key in this, activating gene expression after binding to gene regions called promoters. A new study published in *Cell Reports* shows now that all the regions of the target gene contribute to the response of the transcription factor and not only the promoter. “Gene expression does not only depend on transcription factor activity; it is constrained by the amount of other factors required in the protein-building process”, concludes L. Carey, one of the authors and group leader of the Systems Bioengineering Programme at the **DCEXS-UPF**.

A chemical tag changes gene expression and genome architecture

Some genes that are essential for embryonic development, called bivalent genes, need to be turned on or off very quickly. This is controlled by the balance between the MLL2 protein, which adds a ‘tag’ (histone modification) that makes the gene very active, and Polycomb proteins, which add another ‘tag’ to silence them. Removing MLL2 from mice inhibits development and affects the three-dimensional organisation of DNA. The study, led by ICREA professors L. Di Croce from **CRG** and MA. Marti-Renom from **CNAG-CRG**, was published in *Nature Genetics*.

The surprising role of genome architecture in cell fate decisions

Findings from the “4D Genome” EU project add a new layer of complexity to gene regulation. “Our paper shows that transcription factors may play a hitherto unknown role in cell reprogramming: they do not only switch genes on and off, but also promote the architectural changes necessary to modify gene expression”, states T. Graf from the **CRG** and coordinator of this study published in *Nature Genetics*.

mTOR protein: a key element in the immune response

Researchers from A. Cerutti's lab at the **IMIM**, in collaboration with scientists from the US, explain in *Nature Communications* that mTOR proteins activate B lymphocytes in the marginal zone during the immune system's rapid response to microbial agents. A test has been initiated with the Hospital del Mar Nephrology Service to avoid antibody-mediated rejection in kidney transplants by inhibiting mTor.

Ion channels could be key for cancer cells reaching the brain

A key element that could enable metastasis in the brain has been discovered by a team of researchers led by MA. Valverde, from **DCEXS-UPF**. Using breast cancer cell cultures, they have shown that high levels of a specific type of ion channel, called Piezo2, favour tumour invasion and brain metastasis. This discovery, published in *PNAS*, could turn these channels into new drug targets that reduce the risk of metastasis.

Skin ages when the main cells in the dermis lose their identity and function

With age, our tissues lose their function and capacity to regenerate after being damaged. A study published in *Cell* with the participation of Juan Martín Caballero, director of the **PRBB Animal Facility**, as well as researchers from IRB and CNAG-CRG, explains how dermal fibroblasts age. The main conclusion is that the skin cells lose their identity, as if they had “forgotten” what they are, and consequently their activity is altered, thus affecting the tissue.

A new mechanism for encoding information in cells

It has been discovered how the pulses of protein activity that allow cells to encode and process information in a similar way to computers are generated. The study, led by J. Garcia-Ojalvo from the **DCEXS-UPF**, has been published in *Cell Systems*. “The study leads the way to a better understanding of cell function and could contribute to the design of new synthetic biology applications. It might also help us understand why cells do not respond appropriately to external signals, as happens in cancer”, concludes Garcia-Ojalvo.

Turing's theory of morphogenesis expanded

Alan Turing's theory on how patterns are created in biological systems has been expanded by former **CRG** researchers X. Diego and J. Sharpe, now at **EMBL** Barcelona. The work, published in the journal *Physical Review X*, could answer the question of whether nature's patterns are governed by Turing's mathematical model and if this could have applications in tissue engineering. Turing's theory on morphogenesis explains already many biological patterns, such as a zebra's stripes, the arrangement of fingers, and the radial whorls in the head of a sunflower.

DEVELOPMENTAL BIOLOGY

Scientists discover the origin of a key mechanism in brain development

Over 200 million years ago, the chromosome rearrangement in a large family of freshwater fish resulted in the appearance of new functions in pre-existent genes (*rac3b/rfng/sgca*) to control the segmentation of the rhombencephalon. The latter is composed of seven segments which are kept separated by protein structures, the actin cables, and give rise to structures of our central nervous system. The results of the study, co-led by C. Pujades from **DCEXS-UPF**, were published in *PNAS*.

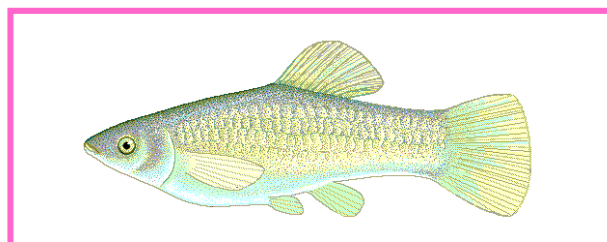
EVOLUTION

The genomic keys to vertebrate origins

For many years, scientists have discussed which changes in the genome of our ancestors contributed to the evolutionary success of the vertebrates. Now, the processes that allowed the complexity of vertebrates has been discovered and published in *Nature*. Researchers from twelve countries compared the genomes of several vertebrate species with that of the Amfiox, also called the European lancelet. Genome regulation in vertebrates is more complex than in invertebrates, and duplications are very important in the origin of vertebrates. "We have copies of genes that originally had general functions, but in vertebrates these copies now have really specific functions, especially in the brain", says M. Irimia, principal investigator at the **CRG** and one of the leaders of this study.

Amazon fish species thriving without males

The Amazon molly is an all-female fish species, and yet it has been an evolutionary success. An international group of researchers, including R. García and T. Marquès-Bonet from the **IBE (CSIC-UPF)**, has analysed its genome. Although it needs a male fish from a related species to start its reproduction, it does not incorporate the male DNA into its offspring. Instead, it 'clones' its own, somehow managing to avoid the accumulation of harmful mutations. The results were published in *Nature Ecology & Evolution*.



Protein Galectin-1 could be the key for treating the pancreatic cancer

The pancreatic ductal carcinoma (PDA) is an incurable and the most common type of pancreatic cancer. Usually the affected cells show a mutation in the oncogenes KRas. Galectin-1 (Gal1) has showed previously its potential as a therapeutic target for PDA, which has now been confirmed by P. Navarro's lab from **IMIM** using a transgenic mouse model. Gal1 inhibition may become the first effective treatment for slowing down this type of cancer. The results were published in *PNAS*.

Key protein in tumour metastasis discovered

USP27X is a key enzyme in cancer development. The enzyme, discovered thanks to genomic analysis, increases the stability of Snail1, an important inducer of tumour invasion. In normal cells, Snail1 is degraded, but in cancer cells USP27X prevents its degradation, allowing Snail1 to accumulate in the cell and initiate the invasion and metastasis mechanism. Researchers from IMIM's Cancer Programme, led by VM. Díaz from the UPF and A. de Herreros from the **IMIM**, have published the results in the journal *Cancer Research*.

Growing up surrounded by green is good for the brain

Primary school children raised in homes surrounded by more greenspace tend to have greater white and grey matter volumes in certain areas of the brain. These anatomical differences are associated with better cognitive function, including increased working memory and less inattentiveness. This is the main conclusion of a study published in *Environmental Health Perspectives* and led by the researchers MJ Nieuwenhuijsen and J. Sunyer from **ISGlobal**, in collaboration with the Hospital del Mar and UCLA.

Occupational exposure linked to increased COPD risk

Exposure to biological dust, gases, fumes and pesticides has been linked to a higher incidence of chronic obstructive pulmonary disease (COPD). In the study, published in *Thorax*, 3,343 participants from 12 countries were analysed between 1991 and 1993, and then again 20 years later. The results showed that participants exposed to biological dust had a 60% higher risk of COPD, while for gases and fumes the risk was 50% higher. "To our knowledge, this is the first study to prospectively demonstrate the effect of these in a cohort from the general population", says JP. Zock, **ISGlobal** researcher and lead author of the study.

Living in greener neighbourhoods is associated with slower cognitive decline

A 10-year follow up of 6,500 people aged 45 to 68 from the United Kingdom examined their verbal and mathematical reasoning, verbal fluency and short-term memory. The decline in a cognitive score was 4.6% less in participants living in greener neighbourhoods. Neighbourhood greenspace was estimated using satellite images. "Our data shows that the association was stronger among women", says C. de Keijzer, **ISGlobal** researcher and first author of the study published in *Environmental Health Perspectives*.

Bioengineering to save the biosphere

Genetically engineered species to destroy plastic or prevent desertification are examples of how bioengineering could help ecosystems at-risk. An article in the journal *Royal Society Open Science* proposes mathematical models for developing these strategies. Restoring ecosystems by modifying organisms has an important advantage: the organisms' ability to replicate and disseminate, allowing them to work on a large scale. "We cannot leave everything in the hands of technology, but it will have to be employed in order to preserve the biosphere and us as part of it", says leader of the study R. Solé, an ICREA professor at UPF and **IBE (CSIC-UPF)** researcher.

CLINICAL RESEARCH

Approval of the IRABGLU radiopharmaceutical and first use in patients

On March 13, 2018, the Institute of Applied Radiopharmacy of Barcelona (**IRAB**) obtained the commercialization authorization of the injectable solution IRABGLU 370 MBq/ml by the Spanish Agency of Medicines and Sanitary Products (AEMPS). On June 20, 2018, the first batch of this glucose radiopharmaceutical that emits positrons was injected into patients. It is used for the diagnosis of cancer.

INNOVATION

Spin-off company

Microomics, a biotechnological spin-off from the CRG and ICREA specialising in microbiome analysis has been launched. It uses genomic microbiome analysis to create solutions in health, agriculture and livestock farming, like reducing the use of antibiotics on animals raised for human consumption or exploring the relationship between pre- and probiotics and obesity, colon cancer and other pathologies.



DATA AND FACTS 2018

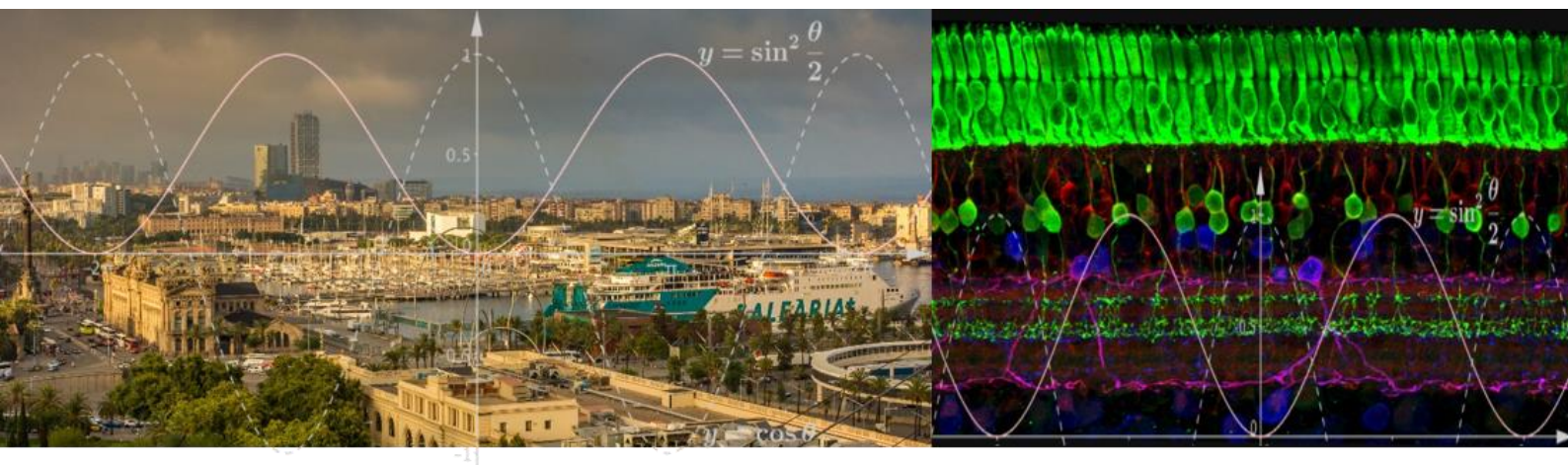
Scientific publications from researchers at the park

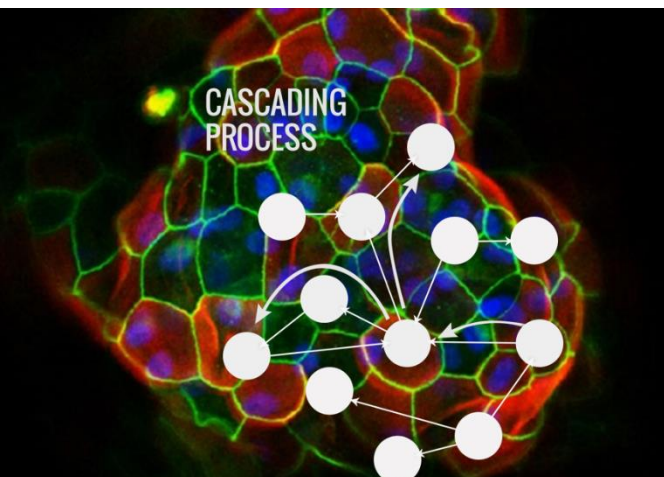
	2018	2017*	2016*
Total	1,164	1,216	1,212
<i>Nature</i>	10	6	11
<i>Science</i>	2	6	4
<i>The Lancet</i>	-	4	-
<i>The New Engl J Med</i>	2	2	-
Other Nature group journals	55	40	30
Other Lancet group journals	5	4	2

(*) There are fluctuations during the year in the total number of publications that are in press at the end of the year. For this reason, the numbers do not coincide with the reports of 2017 and 2016.

Scientific conferences

	2018	2017	2016
Total (internal and external)	277	322	268
“PRBB CRG Conferences”	41	54	55
Female speakers	5 (12%)	11 (20%)	19 (35%)





The demography of the residents

	2018	% of the total	2017
Personnel / Centres			
Total	1,312		1,366
IMIM	359	27	370
UPF (DCEXS + IBE)	384	29	371
CRG	409	31	423
ISGlobal (Mar Campus)	89	7	134
EMBL Barcelona	28	2	-
IRAB	10	1	7
PRBB Consortium	33	3	35

	2018	% of the total	% women	2017
Categories				
Senior researchers	162	12	33	196
Postdocs	272	21	56	282
PhD students	237	18	56	265
Research technicians *1	444	34	68	326
Administrative staff *1	197	15	69	282
Foreign residents	299	23		316
Men	537	41		551
Women	775	59		800

*1) In previous years, technicians in scientific service units were counted as administrative and support staff.

Web: [Demography of the residents of the PRBB](#)

PRBB Intervals: Continued professional training

	2018	2017
Courses	46	36
Places	597	462
Attendees	554	443
Participants		
Sci/Med PhD students	291	181
Sci/Med Postdocs	116	117
Sci/Med Senior researchers	23	31
Technical staff	47	27
Administration & services	27	16
Management	39	30
Others	10	27

Number of courses per topic

	#
Leadership and career development	16
Oral and writing presentation skills	20
Good scientific practice	6
10 th anniversary workshops	4

Website: [Annual Report PRBB Intervals 2018](#)

General budget

	2018	2017
Total budget	>15 M€	>15 M€
Income		
Rent	55.8%	62.8%
Animal facility	12.7%	11.2%
General services	9.2%	10.4%
Others	22.3%	15.6%

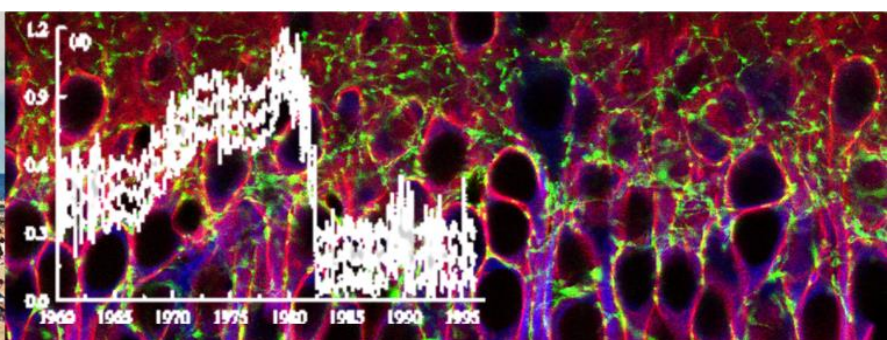
Outreach, visits and external relations

	2018	2017
PRBB Open Day		
Visitors	>2,000	>1,500
Overall evaluation (1-10)	8.70	-
Volunteers	255	256
Outreach		
Activities for schools	17	35
Participants	1,609	2,472
General visitors and groups	600	272
External relations		
Delegations	34	44
Delegates	574	668
Total visitors*	4,800	5,192

*12,000 including activities and visits to the centres

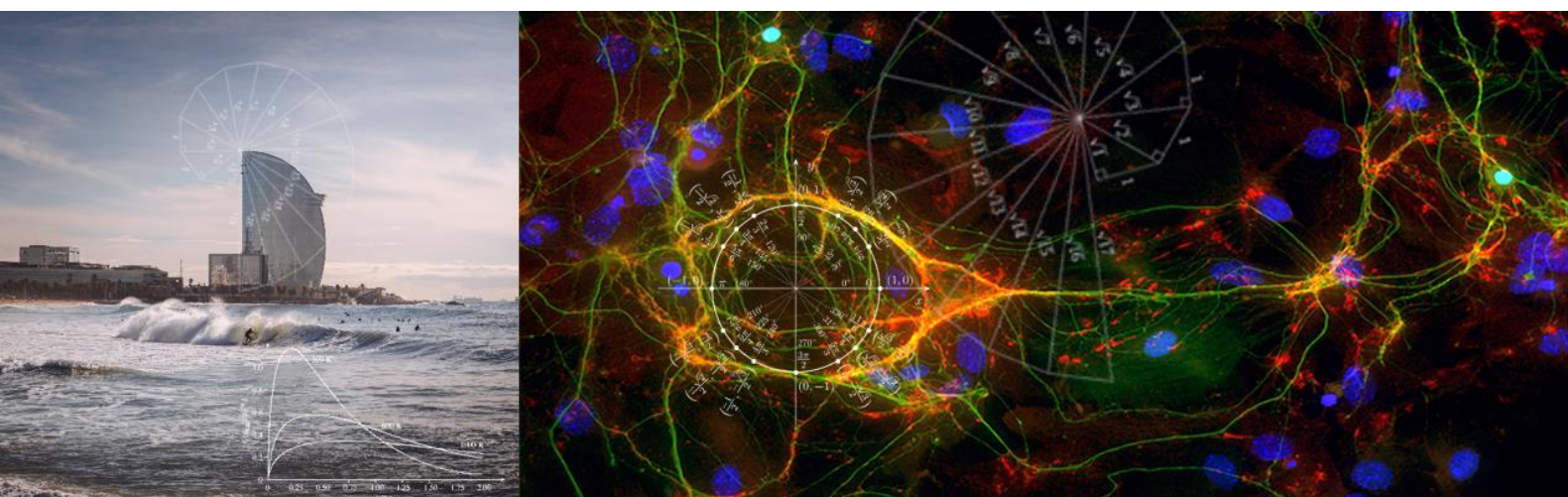
Websites and social media

	2018	2017	2016
Social media			
Twitter @the_prbb	11,900	9,145	7,692
Facebook	3,541	3,277	3,085
Linkedin	5,977	4,870	5,151
Website www.prbb.org			
Visits	125,429	81,861	82,067
Users	39,269	49,897	47,479
PRBB Inside Portal			
Visits	56,031	37,658	39,403
Users	12,337	13,792	13,672



Data for consumption and maintenance

	2018	2017
Electricity	13,149,755 kWh	13,248,720 kWh
Natural gas	4,782,343 kWh	4,865,371 kWh
Water	29,723,00 m ³	28,342 m ³
Liquid nitrogen	259,847.17 litres	257,580.05 litres
Nitrogen gas	90,048.42 litres	108,182.63 litres
Carbon dioxide	20,529 Kg	20,653 kg
Residues/waste	256,496.50 kg	261,065.30 kg



Space occupancy

	2018	2017
Auditorium		
Occupied days	102	110
Events	99	103
External	14%	9%
Internal	86%	91%
Rooms Marie Curie, Charles Darwin, Ramón y Cajal		
Hours of occupation	3,355	4,225

Income from renting the auditorium and other rooms has increased from 30,000€ in 2013 to more than 72.000€ in 2018.

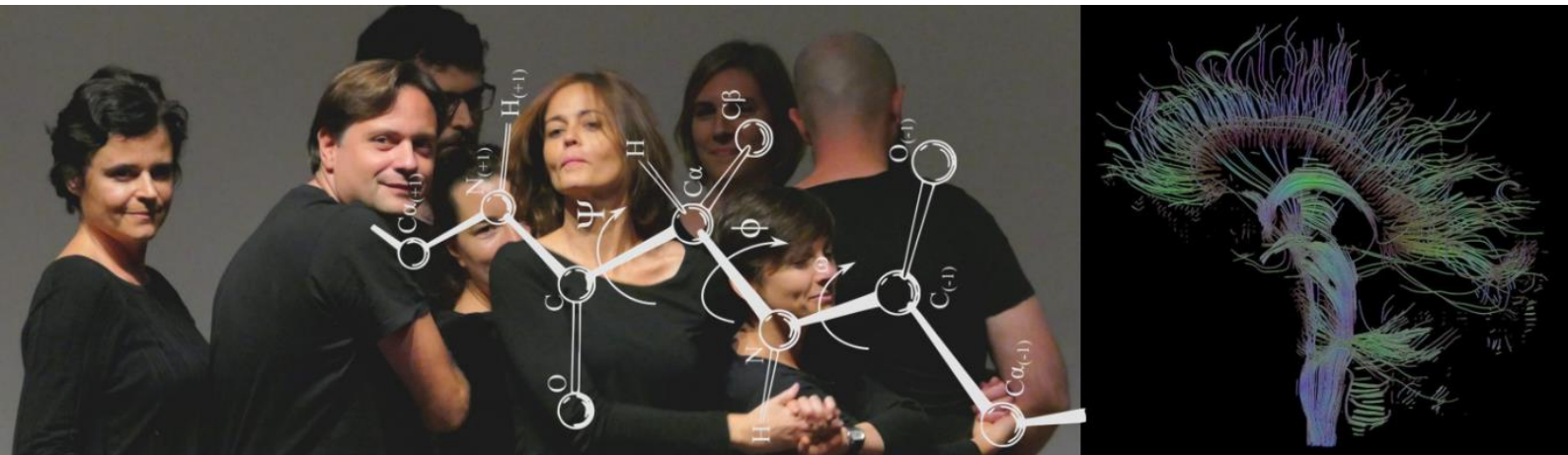
HIGHLIGHT

Celebrating 10 years of PRBB Intervals

332 courses, 3,988 places and 97 trainers ... in 2018 the PRBB Intervals programme celebrated 10 years – lots of learning, lots of relating, lots of fun!

On December 4, everyone assembled at the PRBB Auditorium for the birthday celebration, with two teams of researchers facing each other in a fierce “Dance your science” competition. After a presentation by the directors of the PRBB and the Intervals program, a video was projected with pictures of the best moments lived during these 10 years. After finishing, the coordinator of the program presented the two dance groups: **Pomberos**, a mixed team with the Oxidative stress lab from DCEXS-UPF and staff from ISGlobal and **Proteomics**, formed by the members of the CRG/UPF proteomics core facility.

Finally, it was the Pomberos team with **Let's dance with Chaperones** who won, leaving the Proteomics group in second place with **The Flying Peptides**. Both teams did a great job, though, and they both went home with a huge gift basket of goods to share in good company!



The pedagogic content of the Intervals programme aims to expand mindsets, skills and knowledge in the 4 ‘C’s: Communication, Collaboration, Critical thinking and Creativity. In 2018 the focus was particularly on collaboration and creativity.

As the Intervals programme moves into its second decade, the world looks increasingly unpredictable. Whereas in the past, strategy and long-term planning were part of everyday life, now the term VUCA has entered our vocabulary – Volatile, Uncertain, Complex and Ambiguous. Long term planning looks increasingly redundant in the continually shifting, complex environments we live in.

Young scientists today can look forward to few opportunities for life-long contracts or stable work. To get ahead and stay ahead in a complex world, they will need to be agile, adaptable and above all self-aware. Resilience and flexibility will count more than technical prowess, emotional intelligence and relationship skills are essential foundation stones.

NEWS SELECTION OF THE PRBB

The Spanish Secretary of State for Research visits the PRBB

On February 8th, Carmen Vela, the Spanish Secretary of State for Research, Development and Innovation, visited the PRBB. She wanted to get a first-hand impression of the work ongoing for the new EMBL Barcelona laboratories on Floor 4. She also visited the completed installations of the CRG's Advanced Microscopy Unit and the EMBL Mesoscopic Imaging Facility on Floor -1.

This was the first official visit after the signing of the agreement between the Ministry of Economy and Competitiveness (MINECO) and the European Molecular Biology Laboratory, in April 2017, to open the EMBL Barcelona satellite at the park. Vela was accompanied by James Sharpe, director of EMBL Barcelona, Luis Serrano, director of the CRG, and Arcadi Navarro, Secretary of Universities and Research of the Catalan Government, as well as Jordi Camí and Marga Sala from the PRBB.

Official visit from South Korea's Science Minister



On February 28th, Yoo Young-Min, Minister for Science and ICT, together with a large delegation from South Korea visited the PRBB. The minister presented a bundle of measures for the further transformation of the country's industrial

structure, called iKorea. Its cornerstones are the growth of income and innovation, and a fair economy.

The South Korean delegation was welcomed by representatives from the Catalan government, Acció, Biocat, and the PRBB Consortium. During the visit, the Korean Minister met with several researchers from Korea currently working at the CRG and UPF.

The PRBB at the Youth Mobile Festival (YoMo)



All the PRBB centres participated in the second edition of the Youth Mobile Festival: YoMo, the GSMA Mobile World Congress event for students aged 10 to 16. The festival aims to promote vocations in the areas related to scientific and technological careers, also known as STEAM. This year, from February 27th to March 1st, more than 11,000 students from Catalonia participated in the event.

The PRBB joined YoMo through BioJunior, an interactive space where visitors could see chick and zebrafish embryos, convert a Smartphone into a microscope, discover the applications of synthetic biology, or learn about the evolution of insect metamorphism.

"Spice as a disinfectant" wins the XIII PRBB Prize

Ivan Molina Garcia, a student from the Carles Vallbona Institute in Granollers, has won the 13th PRBB Prize for his research work "Spice as a disinfectant. Preparing an antimicrobial product with capsaicin as an active ingredient." This student has come to the conclusion that capsaicin, the substance that gives peppers their kick, can be used as an active ingredient for eliminating microorganisms, as well as being a possible antiseptic for wounds, as it combines antimicrobial and analgesic action. Even though the process of extracting capsaicin is costly and it is an irritant, he concludes that it could be the seed for future research, which should first check how this substance affects wounds and human skin.

Since 2005, the UPF Faculty of Health and Life Sciences and the PRBB have been holding the PRBB Prize for research work in the field of biomedicine and life sciences. In this edition, 288 high school students from all over Catalonia presented 257 research works. The other four finalists were from Igualada, Bescanó, Barcelona, and Badalona, and presented works on deodorants, transgenics, the microbiota of breast milk,

and resistance to antibiotics. On April 27th, the same day as the PRBB Prize was awarded, 263 other young students and their teachers, from 9 high schools, also came to the PRBB to participate in the fourth edition of BioJúnior, organised by the PRBB centres.

A healthy week

April 11th to 19th saw the second edition of the PRBB's Healthy Week. In coordination with the UPF and with the collaboration of the IMIM-Hospital Mar, CEM Claror Marítim, and CLECE Restauració, residents were offered 11 activities and suggestions promoting healthy habits and behaviour.

More than 150 participants from the PRBB centres participated in the cardiovascular Body Combat, Body Vive, and Nordic walking activities with the sports coaches from Claror Marítim; the postural and back-health workshops with UPF health and safety technicians; and a cooking workshop with the chef from CLECE Restauració. There was also a talk on nutrition and healthy lifestyles with Montse Fitó from the IMIM-Hospital del Mar, and yoga and meditations sessions on the beach with Tibetan singing bowls.



Prevention is everyone's business

To commemorate World Day for Health and Safety at Work, on April 28th, the PRBB's Inter-centre Commission on Occupational Hazard Prevention (CIPRL-PRBB) has set up a new awareness campaign, "Prevention is everyone's concern. Start with yourself!"



Each month a different topic was addressed: regulations and processes were reviewed, and ergonomics and healthy habits in the workplace will be discussed. The campaign will end with a social media photo contest on preventative habits in our daily lives, both inside and outside the workplace. The CIPRL-PRBB is made up of health and safety experts from each of the park's research centres, to coordinate the

activities necessary for preventing occupational risks.

From science to music

In May, the park's musicians and singers showed off their talents beyond the walls of the PRBB. On Saturday, May 13th, the PRBB orchestra took part in the show "Gosar Poder", as part of the 2018 Barcelona Poetry festival, held in the market square in Barceloneta. Along with two young poets, Blanca Llum Vidal and Guim Valls, the Riborquestra —a kid's orchestra from the Raval district— and the "Barris en dansa" initiative, where non-professionals from different neighbourhoods in Barcelona create a dance show directed by the choreographer Álvaro de la Peña, the PRBB staff swapped science for music, poetry and dance.

In addition, on May 10th, the PRBB choir were involved in the moving ceremony held to bid farewell and thanks to the fifty PSMAR workers who retired in 2017, including Antonia Domingo from the IMIM. The choir closed the event with a medley of hits from the best-known Broadway and West End musicals, as well as numbers from Mar i Cel.



Science and smashes

Once again, the park community has celebrated what it is known in these corridors as the "volleyball party". After 518 matches played by the 80 teams in the championship, between April 3rd and July 25th, the grand finals of the "cracks" category in the 6x6, 4x4, and 2x2 leagues were contested on Thursday July 26th, on Somorrostro beach. After the awards ceremony, held in the inner square of the building like every year, music, heat, sandwiches, and beer provided the perfect ending to a day that reaches increasing heights in the world of the park and beach volleyball.



6x6	Cracks	Casi-Cracks	Casi Que No
1	Volycomb	Los buenos, los feos y nosotros	xIBEca
2	The Flying Penguins	ZeClinics	Medtech Volley Cracks
3	Green TeaM	Animal Fucktory	Proteo-som

4x4	Cracks	Casi-Cracks	Casi Que No	Disaster
1	PIGS_ZeClinics	Block Mirror	Killball	Madagascar
2	Cal Brut	Vollywood	Western Block	Animal Fucktory Beach
3	Rikki-tikki-tavi	Such a disappointment	Sand Biters	Bye bye

2x2	Gold	Silver	Bronze
1	Breaking Rat	Ball Damm	Polakos
2	Tabula Rasa	Cheeseheads	Optimistas
3	Los Mafiosos	This is us	Ghost Team

**PRBB Open Day:
Throwing the doors open**



Just like every first Saturday of October for the last eleven years, on October 6th the PRBB opened its doors to the public to show off the research done by the scientists working here.

In less time than normal (only 9 am to 3 pm, instead of the whole day as in previous years), some 2,000 people did experiments in the square, listened to scientific talks, participated in workshops, and entered the building and visited the laboratories, where researchers gave entertaining explanations of their daily work. This year, as a novelty, there was a Science

Slam, a competition with five 5-minute talks. All this was only made possible thanks to the 255 people who, voluntarily, participated in the organisation both beforehand and during the day.

**Together for
gender balance in science**

In order to share resources, ideas and good practice in gender balance among the PRBB centres, the PRBB Gender Equality Committee has been set up. The group comprises members from all six institutes and the PRBB itself, including both researchers and admin staff.

One aim of the group is to catalyse cross-institute initiatives to promote a real equal-opportunities environment. The group's first joint activity was the creation of a Who's Who game highlighting women scientists past and present, which was played at the PRBB Open Day. The game is now being used at schools and events.



Be Healthy!

Exercising, eating a balanced diet and getting enough rest are key to a healthy lifestyle. However, most of us spend lots of hours away from home and, sometimes, staying healthy becomes quite a challenge.

With the aim of promoting healthy habits in the workplace, the PRBB has initiated a series of actions. The first, Healthy Week, held last April, aimed to promote physical activity. Now the time has come for the second step: the Be Healthy campaign, in which fresh fruit will be offered monthly, to encourage a healthy diet. As of November 21st, once a month all PRBB residents will find free seasonal fresh fruit on the tables in the lobbies on each floor at the PRBB.

Christmas Concert at the PRBB

Many residents and friends of the PRBB enjoyed the traditional Christmas Concert of the park last Tuesday, December 18, at the auditorium. The PRBB Choir, dressed with whitecoats and colourful scarfs, sang several Gospels to set the mood and they did a great performance.

Coming up next, the PRBB Orchestra presented well-arranged pieces by Dvorak, Grieg and the catchy melody of the Mackie Messer song by Kurt Weill. The concert ended with the peaceful Amazing Grace played by both the choir and the orchestra and also “La Bohème” as a final tribute to Charles Aznavour. Singers, musicians and the directors Borja Mascaró and Oscar Salvador received a well-deserved applause.



OTHER ACTIONS AND MILESTONES OF THE PRBB

Infrastructure

The **construction works** for the new spaces of the UPF on floors 7 and 8 were finished in January and in June EMBL Barcelona occupied their re-constructed spaces on floor 4. For this task, the PRBB had received a financial aid of 687,500€ of the European Regional Development Fund of the European Union under the ERDF Operational Program of Catalonia 2014-2020.

Several actions took place to upgrade existing infrastructure. Two new equipments for **water purification** were installed on floors 6 and 7, and the quarantine area of the animal facility received a new **air conditioning**. Also the signposting of the building was renewed in the main reception and the elevator halls.

Between May and June, the **17 cold chambers** of 4°C and -20°C of the PRBB building were renovated. After the works, the chambers are now independent and a localized damage will no longer affect the entire installation. Three refrigerated trucks parked at the loading dock behind the building were at the disposal of the centres to deposit most of the reagents and samples during the works.

Throughout the year more than 1,000 analogue **telephones were replaced** by IP technology with new features. Also, the analogue phone-central was upgraded by a computer. This measure led to the elimination of thousands of special phone cables, since the IP phones are directly connected to the data network.

On floors 7, 4 and -1, a new **access control system** was implemented and a new website for the control of this system was programmed. During 2019, the whole building will be equipped with this access system and all residents will receive new personal access cards.

An **evacuation drill** of the building was performed successfully end of October.

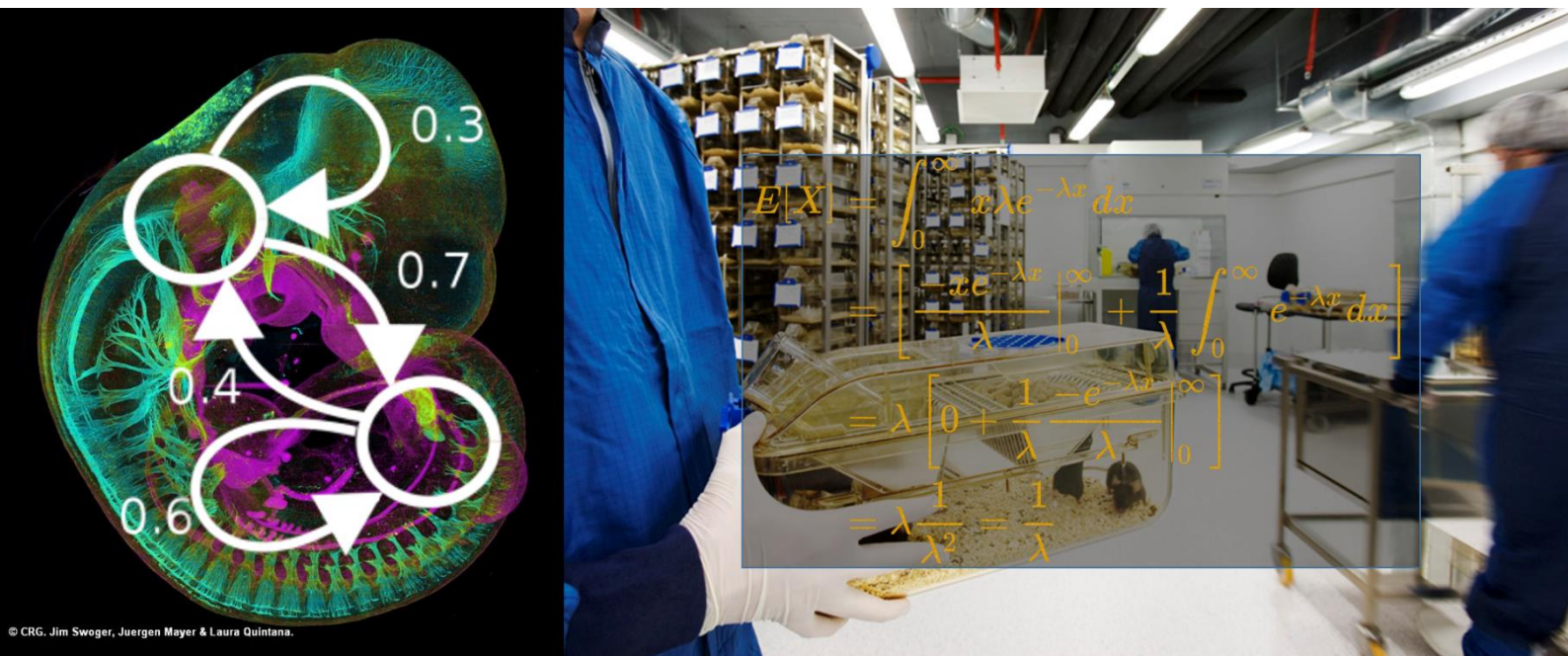


Animal facility

Two **scientific sessions** were organized by the PRBB animal facility in 2018 about the importance of the genetic background of animal models. In March, the talk “Strategies to Minimize Genetic Drift and Maximize Experimental Reproducibility in Mouse Research” took place at the PCB and in collaboration with Charles River. In May, Fernando Benavides from the University of Texas talked at the PRBB about: “Inbred mice, similar but different (the devil is in the details.)”

As each year, also in 2018, the animal facility organized **3 courses** to certify for the **use of laboratory animals**. A total of 50 technicians and researchers of the centres at the PRBB participated.

The director of the facility, Juan Martín Caballero, has been co-author of **two scientific publications**: “Identity Noise and Adipogenic Traits Characterize Dermal Fibroblast Aging”, *Cell*. 2018, and “Macrophage-specific MHCII expression is regulated by a remote Ciita enhancer controlled by NFAT5”, *J Exp Med*. 2018

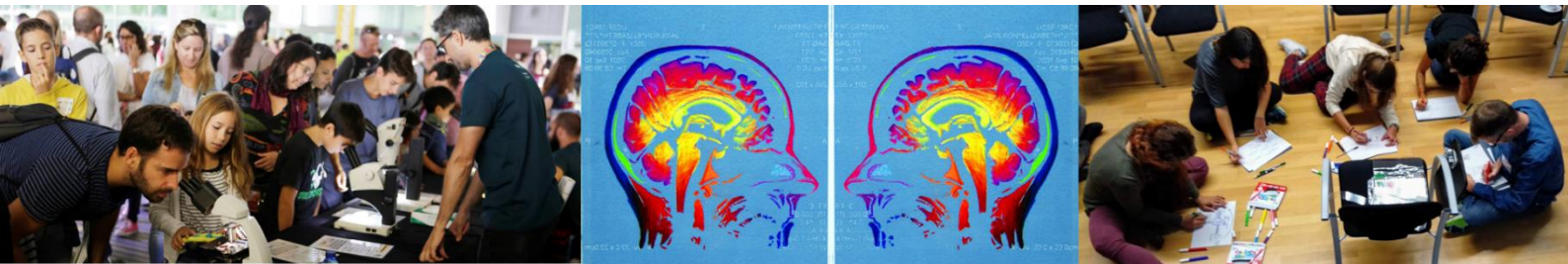


Communications and Community

The PRBB Intervals programme had presence in several international conferences in 2018. Elinor Thompson delivered a talk at the **Developing Leadership Capacity Conference** in Bristol, UK, on “Leadership development in the gaps – the PRBB Intervals Programme Barcelona”, describing the key learning from the decade of experience of Intervals developing effective leaders and facilitating opportunities for community building and collaborative working between the PRBB centres.

At the **Vitae Researcher Development International Conference**, the poster “Never too late to learn” was presented about how the involvement of senior scientists creates an environment for change. The poster described how Intervals encourages the participation of senior researchers in the programme, either as trainers and consultants, or as attendees to courses.

The **PRBB Good Scientific Practice** working group attended the B-Debate on “Open Science: from values to practice” in October in Barcelona. The group presented the poster “Six for one, one for fifteen hundred – fostering a culture of integrity in the PRBB” showing the activities of the working group and its role promoting a culture of research integrity at the PRBB.



The PRBB also participated with a talk at the 15th international conference “**Hands-on Science, HSCI2018**”, held in July in Barcelona. An overview of PRBB’s contribution to science education was given by presenting the PRBB Open Day, E-lipse and other initiatives to international experts in public engagement in science.

In 2018 the PRBB said bye to the paper version of E-lipse. After more than 10 years and 100 editions of the E-lipse newspaper, we have created ellipse.prbb.org, to continue telling you about everything taking place at the PRBB in a fresher, more dynamic way; offering a 360 degree look at the latest biomedical news; from the local to the global, in three languages; reaching more people, quicker.

The digital transformation of this main communication product was accompanied by 5 **courses on digital journalism** given by Silvia Llombart and in which representatives from the communication departments of the centres participated. The courses covered digital news, images, Facebook and Twitter, live streaming in social media, and infographics.

Promoting **scientific vocations in young people** is an important task at the PRBB. Eleven sessions of “Interview a scientist” took place with more than 376 elementary students. Six scientific talks were offered for secondary and bachelor students in which 1,233 students and secondary school teachers participated. Dozens of other activities, presentations and visits to the building have been carried out for more than 2,200 students, teachers and interest groups.

The PRBB consortium organized **3 teambuilding sessions** throughout the year for its employees.

A SELECTION OF PRESS CLIPPINGS

La UPF organiza actividades para el Día de la Mujer y la Niña en la Ciencia
Organització Viquimarató pel Dia de la Nena i la Dona a la Ciència 2018 al PRBB

La Vanguardia, 6 de febrer de 2018

La UPF se suma al Día Internacional de la Mujer y la Niña en la Ciencia
El Economista, 7 de febrer de 2018

Festival YOMO Barcelona 2018: Ciencia y Tecnologia para jóvenes
NP enviada per la UPF
El Economista, 21 de febrer de 2018

Un estudio sobre las propiedades desinfectantes del picante gana el premio PRBB
NP enviada per la UPF
La Vanguardia, 1 de maig de 2018

Un estudio sobre las propiedades desinfectantes del picante gana el premio PRBB
Diario ABC, 1 de maig 2018

Un estudi que tracta les propietats desinfectants del picant guanya un premi
Diari de Girona, 2 de maig de 2018

250 estudiantes de 5º y 6º de primaria exponen sus proyectos de investigación en el II Congreso Recerkids
Nota de premsa enviada per la UPF i Gencat.
El Economista, 1 de juny de 2018

Èxit del congrés recerkids de la UDG
El Punt Avui (Ed. Girona), 1 de juny de 2018

Recerkids: els millors projectes de recerca de Primària
Info K de Betevé, 4 de juny de 2018

Uns 150 escolars presenten a girona diferents projectes d'investigació sobre la salut
Diari de Girona, 5 de juny de 2018

Recerkids, una aposta per la ciència
Diari ARA, 8 de juny de 2018

LIST OF PRBB CRG CONFERENCES

In 2018, a total of **41 PRBB CRG Conferences** took place at the PRBB (54 in 2017).

Most representative locations of the research centres of the speakers were the USA (16), Spain (7), UK (6) and France (3).

In 2018, only 5 (12%) of the invited speakers of the PRBB CRG Conferences were women. In 2017 there were 11 (20%) and in 2016 we invited 19 (35%) female speakers.

These conferences are included in the total of **277 scientific sessions** that were celebrated at the park during 2018.

08/01/2018	Amy Berrington de González	Trends in premature mortality rates and progress towards the UN Development Goals Radiation Epidemiology Branch, Department of Cancer Epidemiology and Genetics, National Cancer Institute. Bethesda, USA
15/01/2018	Andrés Aguilera	Understanding RNA-mediated genome instability Centro Andaluz de Biología Molecular y Medicina Regenerativa, Universidad de Sevilla-CSIC-Universidad Pablo de Olavide. Seville, Spain
05/02/2018	Alfonso Martínez-Arias	The cellular basis of axial elongation in mammalian embryos: An in vitro approach Department of Genetics, University of Cambridge. Cambridge, UK
09/02/2018	Manel Esteller	Epigenomics and epitranscriptomics in human disease: From knowledge to applications Cancer Epigenetics and Biology Program, Bellvitge Biomedical Research Institute. L'Hospitalet de Llobregat, Barcelona
19/02/2018	Bruce Futcher	Attenuation of viruses and genes by a hidden translational code Department of Molecular Genetics and Microbiology, Stony Brook University. New York, USA
19/03/2018	Oliver Ryder	Planning for the future of conservation Section of Ecology, Behavior and Evolution, Division of Biological Sciences, University of California San Diego. San Diego Institute for Conservation Research, San Diego Zoo Global. Escondido, California

23/03/2018	Jernej Ule	Regulatory RNPs: assembly, evolution and function Department of Molecular Neuroscience, The Francis Crick Institute, Institute of Neurology, University College London. London, UK
26/03/2018	Michael C. Mackey	Understanding, treating and avoiding hematological disease: Better medicine through mathematics? Mathematical Physiology Laboratory, Centre for Applied Mathematics in Bioscience and Medicine, Department of Physiology, McGill University. Montreal, Canada
09/04/2018	Rui Benedito	Using multispectral and combinatorial genetic mosaics to understand development and disease Molecular Genetics of Angiogenesis Group, Centro Nacional de Investigaciones Cardiovasculares Carlos III. Madrid, Spain
23/04/2018	Lorenzo Galluzzi	Stress, death and immunity in cancer therapy Department of Radiation Oncology, Weill Cornell Medical College. New York, USA
27/04/2018	John Isaac Murray	Decoding embryonic development at single cell resolution Department of Genetics, Perelman School of Medicine, University of Pennsylvania. Philadelphia, USA
04/05/2018	Steve Wilson	Breaking symmetry in the brain: from genes to circuits and behaviour Zebrafish Research, Division of Biosciences, Department of Cell and Developmental Biology, University College London. London, UK
07/05/2018	Pere Roca-Cusachs	Sensing matrix rigidity: transducing mechanical signals from integrins to the nucleus Institute for Bioengineering of Catalonia (IBEC), The Barcelona Institute for Science and Technology. Barcelona, Spain
11/05/2018	Abderrahman Khila	Development, selection, and species diversification: a perspective from water striders Institut de Génomique Fonctionnelle de Lyon, Université de Lyon. Lyon, France

14/05/2018	Etienne Meylan	<p>From unbiased immune profiling to neutrophil functional characterization in non-small cell lung cancer</p> <p>Molecular Mechanisms of Lung Cancer Development Lab, ISREC Institute, School of Life Sciences, École Polytechnique Fédérale de Lausanne. Lausanne, Switzerland</p>
18/05/2018	Robert Kingston	<p>Nucleosome compaction, phase separation, and Polycomb-Group repressive function during development</p> <p>Department of Molecular Biology, Massachusetts General Hospital. Department of Genetics, Harvard Medical School. Boston, USA</p>
25/05/2018	Thierry Mora	<p>Diversity, specificity, and expansion of immune repertoires</p> <p>Lab. Physique Statistique, CNRS, Sorbonne University, Paris-Diderot University, École Normale Supérieure. Paris, France</p>
28/05/2018	Fernando Benavides	<p>Inbred mice, similar but different (the devil is in the details)</p> <p>Laboratory Animal Genetic Services, MD Anderson Cancer Center, The University of Texas. Smithville, USA</p>
11/06/2018	Jaume Casademunt	<p>Understanding epithelial tissues as active polar fluids: waves, turbulence and wetting</p> <p>Department of Condensed Matter Physics, University of Barcelona. Barcelona, Spain</p>
12/06/2018	Amaya Moro Martín	<p>¿Por qué un pacto cívico por la ciencia?</p> <p>Asociación Española para el Avance de la Ciencia</p>
15/06/2018	Ana Losada	<p>Specific contributions of variant cohesin complexes to genome organization and gene regulation</p> <p>Chromosome Dynamics Group, Centro Nacional de Investigaciones Oncológicas. Madrid, Spain</p>
22/06/2018	Erez Lieberman	<p>A 3D code in the human genome</p> <p>Department of Molecular and Human Genetics, Baylor College of Medicine. Houston, USA</p>
29/06/2018	Martin Weigt	<p>Protein sequence landscapes: From genomic data via statistical inference to structure prediction and de novo design</p> <p>Laboratory of Computational and Quantitative Biology, Institut de Biologie, Sorbonne Université, CNRS. Paris, France</p>

02/07/2018	Antonio Gasparrini	Temperature, climate and health: results from the MCC Project Department of Social and Environmental Health Research, London School of Hygiene and Tropical Medicine. London, UK
09/07/2018	Alain S. Comtois	Acute cardiorespiratory responses during exercise on water stationary bikes and implications for exercise prescription Department of Physical Activity Sciences, University of Quebec. Institute for Rehabilitation Gingras-Lindsay. Montreal, Canada
13/07/2018	Steven E. Brenner	Interpreting newborn genomes Department of Plant and Microbial Biology, University of California. Berkeley, USA
03/09/2018	Oleg Igoshin	Mechanisms of emergent self-organization behaviors in Myxococcus xanthus biofilms Cellular Systems Dynamics Lab, Department of Bioengineering, Center for Theoretical and Biological Physics. Houston, Texas
07/09/2018	Stefan Kubicek	Targeting chromatin alterations in cancer Chemical Epigenetics Research, Research Center for Molecular Medicine of the Austrian Academy of Sciences. Vienna, Austria
21/09/2018	Johannes Söding	New algorithms and tools for large-scale sequence analysis of metagenomics data Quantitative and Computational Biology Group, Max-Planck Institute for Biophysical Chemistry. Göttingen, Germany
25/09/2018	Xiang-Dong Fu	Repairing damaged brain by replenishing lost neurons via in situ trans-differentiation Department of Cellular and Molecular Medicine, University of California, San Diego. George Palade Laboratories. La Jolla, USA
05/10/2018	Shobha Vasudevan	A specialized post-transcriptional program in chemoresistant, quiescent cancer cells Massachusetts General Hospital Cancer Center. Department of Medicine, Harvard Medical School. Boston, USA
08/10/2018	Bert Brunekreef	Quantifying the air pollution burden of disease Institute for Risk Assessment Sciences, Utrecht University. Utrecht, the Netherlands

19/10/2018	Maya Schuldiner	Systematic approaches to study the many ways to target proteins to the secretory pathway Department of Molecular Genetics, Weizmann Institute of Sciences. Rehovot, Israel
22/10/2018	Claudio Stern	Two for the price of one: Twinning, the ultimate regeneration Cell Diversity and Pattern in the Early Embryo Research, Department of Cell and Developmental Biology, University College London. London, UK
26/10/2018	Andrea Pauli	Small proteins with big roles: from coordinating cell migration to mediating species-specific fertilization Investigating New Regulators of Embryogenesis Lab, Research Institute of Molecular Pathology, Vienna Biocenter. Vienna, Austria
05/11/2018	Salah El Mestikawy	Regulation of the striatum by cholinergic interneurons: implication of addiction and eating disorders Douglas Mental Health University Institute, Department of Psychiatry, McGill University. Verdun, Canada
16/11/2018	Ken Zaret	Overcoming chromatin barriers to change cell fate Department of Cell and Developmental Biology, Smilow Center for Translational Research, Perelman School of Medicine, University of Pennsylvania. Philadelphia, USA
23/11/2018	Eugene Yeo	RNA binding proteins: Engineers of Human Health Computational and Experimental RNA, Neurobiology, and Pluripotency Lab, University of California. La Jolla, USA
10/12/2018	Mark L. Siegal	Mechanisms controlling variation in yeast growth Center for Genomics and Systems Biology, Department of Biology, New York University. New York, USA
14/12/2018	Juan Antonio Vizcaino	"Big data" approaches in proteomics: Big challenges give the best rewards Proteomics Group, European Bioinformatics Institute, European Molecular Biology Laboratory. Hinxton, UK
17/12/2018	Lluís Morey	Role of polycomb complexes in breast cancer Sylvester Comprehensive Cancer Center, Department of Human Genetics, University of Miami Miller School of Medicine. Miami, USA

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