In March, the rector of the UB, the Catalan Minister for Territory, the Catalan Minister for Research and Universities, and the Barcelona City Council Second Deputy Mayor signed the MIES protocol, by which the UB is to launch a strategic project to promote research and talent in the fields of mathematics, computer science, economics and health (MIES-UB). The project involves the construction of a new 10,000-m² building to extend the PCB. This new building will be home to the Institute for Bioengineering of Catalonia (IBEC), the Fraunhofer Institute and several research groups in the field of health sciences at the University of Barcelona.
Acknowledgements

The following laboratories opened up their facilities to us to make some of the images that illustrate this report possible: the National Centre for Genomic Analysis (CNAG); Pluripotency for Organ Regeneration (Dr Núria Montserrat), of the Institute for Bioengineering of Catalonia (IBEC); and Biomedical Genomics (Dr Núria López-Bigas) and Structural Characterization of Macromolecular Assemblies (Dr Maria Macias), of the Barcelona Institute for Research in Biomedicine (IRB Barcelona).

We would also like to thank the students and teachers of Institut Escola Projecte in Barcelona for their participation and for gracing the pages of this report.
The year 2023 will go down as the year in which the construction of the future of the Parc Científic de Barcelona (PCB) began, to serve as the cornerstone of the health research and transfer ecosystem led by the University of Barcelona in what is known as the "Diagonal Health Axis". Not surprisingly, we are at full capacity in terms of space and have managed to re-finance the matured debt with the Spanish Ministry of Science and Innovation for 25 years, an operation supported by the Generalitat de Catalunya. Now, with our finances stable and solid, it is time to take a step forward.

We are working hard so that the PCB – which today is already a key element of the life sciences ecosystem in our country, with a community of 3,500 professionals from the 118 organisations on the premises – may become a benchmark, a key player and a driving force in the health ecosystem.

As a result of sound management and joint strategic commitment, the PCB is now fully operational. The demand for laboratory space from organisations already established here and from organisations that are emerging, growing or hoping to set up in our country is enormous. The proof of the PCB’s consolidation and its commitment to growth is that, for the time being, these requests cannot be met. For this reason, already in 2022 – and in parallel to the work to consolidate the PCB as a perfectly sustainable space – the University of Barcelona (UB) started working on a number of projects that will enable the qualitative leap forward that the ecosystem requires. For example, in March, the UB, the Generalitat de Catalunya and Barcelona City Council signed a protocol to launch the MIES (mathematics, informatics, economics and health) project, which will involve the construction of a new 10,000-square-metre building to expand the PCB. This new space will be home to the Institute for Bioengineering of Catalonia (IBEC), the Fraunhofer Institute and several UB health sciences research groups. In short, it will be one more piece in the new configuration of the Diagonal Health Axis, which will culminate with the location of the new Clínic on Avinguda Diagonal.

Another example of the growth forecasts for the PCB as a benchmark in both the city and the country is the Cub building project, which should, in the medium term, help satisfy the strong demand for space. In October, Barcelona City Council approved a modification to the Special Development Plan for the Sud Pedralbes Campus, changing the use of this building, originally intended as an auditorium but currently in disuse. This municipal approval gives the green light to dividing the building into three floors of office or dry laboratory space for research organisations to work in.

I would also like to highlight that in 2023 we strengthened the Fundació Parc Científic de Barcelona Board of Trustees with the incorporation of the Secretary for Business and Competitiveness of the Generalitat de Catalunya, Albert Castellanos, and two leading trustees from companies in the health sector: Fina Lladós, CEO of Amgen, and Isabel Amat, Global Head of Innovation at Reig Jofre, representing the UB Social Council.

We are facing a horizon of growth in the health sector, with Avinguda Diagonal as its epicentre. The PCB is today, and will be in the future, a key infrastructure of this great ecosystem of research, knowledge generation and talent attraction. An ecosystem, in short, that reinforces the University of Barcelona’s firm commitment to continue advancing in our decisive role in building a Catalan system of teaching, research and transfer that is a world leader.
We bid farewell to 2023 proud of how far we have come. We are a vibrant community of 3,500 professionals who work in the 118 organisations on site, covering a wide range of research and innovation in life sciences: public research centres, spin-offs, start-ups, companies, non-profit organisations and UB groups, units and services.

We offer 23,311 square metres of laboratories, 10,942 square metres of offices and 4,803 square metres of scientific services. In 2023 we reached full capacity in terms of space, and we achieved this by offering a range of high-quality associated services that make us one of Europe’s leading ecosystems for scientific, technological and business innovation in life sciences and health.

During the year, we made an investment of almost one million euros in equipment renovation and improvement to maintain the excellence of the infrastructures and services that we make available to entities at the PCB. This ranges from new -80° freezers or CO2 incubators for cell cultures, to a 350 kW chilled water production plant for air conditioning, or the updating of the network equipment that serves the DPC to allow transmission at 10 gigabits per second. We opened a new multi-purpose room and a new meeting room equipped with the latest technology.

As the rector comments in these pages, in 2024 we have begun to work on the spaces of the future. In March, we signed a protocol for the construction of the new MIES laboratory building (covering 10,000 m²) and in October, we were given approval by Barcelona City Council to amend the Special Development Plan for the Sud Pedralbes Campus, which will allow the CUB building to be fitted out to house research offices or dry laboratories.

In this report you will find not only all the activity generated by the PCB in 2023, but also two compilations of the main milestones achieved by the public research centres and companies in the PCB over the previous year. This summary highlights the level of excellence of the organisations working in our ecosystem.

We set an example of collaboration to boost the innovation sector. We closed the second year of operation of the BCN Health Booster acceleration programme, launched with Barcelona City Council, Barcelona Activa and Biocat to strengthen the life sciences sector by accelerating 11 recently created innovative business projects. As you can read in this report, the year-end indicators for the first two years of the accelerator’s activity show its objectives are being met.

Another of the PCB’s areas of action is its commitment to popularising science to awaken vocations and a critical spirit among young people, who will be the scientists of tomorrow. Our RESSÒ (Recerca en Societat) programme came into being in 2002. The programme is now fully consolidated and grows year after year. In 2023, more than 7,400 students took part in its activities. For this reason, we wanted to dedicate this year’s report to the programme; as you can see, the report follows the programme’s graphic line and focuses on young people, the scientists of tomorrow.

On the economic front, in 2023 I would like to highlight the refinancing of the matured debt with the Spanish Ministry of Science and Innovation for 25 years and a robust income statement, with revenues of 25.2 million euros, an EBITDA of 7.6 million euros and a net result of 2.9 million euros.

I would like to end with a word of thanks to the people in the PCB team for their involvement, effort and good work during the year, and to all the members of the PCB community, whose excellence and proactivity make it a first-class ecosystem.

I therefore encourage you to read the 2023 report, which gives more detail on all of the above and much more.

Maria Terrades
Director of the Parc Científic de Barcelona
RESSÒ programme
(Recerca en Societat)

The RESSÒ programme was promoted by the Parc Científic de Barcelona (PCB) in 2002 as a pioneering programme in scientific dissemination to awaken vocations in children and young people, promoting real experiences in research and bringing it closer to society. RESSÒ reflects the PCB’s commitment to fostering a culture of sustainability and working towards Sustainable Development Goal 4, on quality education.

During its 21 years of existence, the programme has evolved to the point where it now organises around 100 activities annually, enabling more than 7,400 pupils in Catalonia to interact with science every year, awakening their scientific vocation and critical spirit. The programme, which focuses on students aged 10 to 18, also involves more than 15 research centres, more than 100 researchers, and other public and private organisations that promote science in Catalonia.

The main RESSÒ areas

RESSÒ differs from other major initiatives for popularising and communicating science in that its activities are defined in line with the following principles:

- **Involvement of active research personnel**
  - The RESSÒ activities are carried out by active research staff interested in promoting scientific careers and a critical spirit among young people. This scientific community is made up of both research staff in training (masters and doctoral students) and research staff working in research centres or companies throughout Catalonia.

- **Current research from research centres**
  - The scientific content of the activities is real and current research from Catalan centres. The aim is for students to relate scientific knowledge from the classroom with real examples of pioneering and current research being conducted in Catalonia. To this end, RESSÒ involves around 15 research centres and other scientific institutions in its activities every year.

- **At the PCB**
  - Priority is given to carrying out activities in PCB facilities, so they can be complemented with lab visits. This aims to make a greater impact on participants and help them discover both the centre’s infrastructure and its entire research and innovation ecosystem, which has around 3,500 professionals from the life sciences sector.
Partnerships

Exporecerca Jove. Organised by: MAGMA.
Science Festival. Organised by: Barcelona City Council.
European Researchers’ Night. Promoted by: European Commission, as part of the Marie Skłodowska-Curie Actions programme.

With the support of:

We would like to thank:

[Logos of Partner Institutions]
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<table>
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<tr>
<th>40</th>
<th>PCB COMMUNITY</th>
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<td></td>
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<td></td>
<td>Organisations</td>
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<td>Trends in the PCB community</td>
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<td>PCB community activity reports</td>
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<td></td>
<td>The PCB community in the media</td>
</tr>
<tr>
<td></td>
<td>Boosting the PCB community</td>
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<table>
<thead>
<tr>
<th>67</th>
<th>FINANCIAL INFORMATION</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>Budget</td>
</tr>
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</table>
The Fundación Parc Científic de Barcelona (PCB Foundation), part of the University of Barcelona (UB) Group, is an initiative promoted by the UB itself, which took shape in 1997. The PCB Foundation participates in research-related activities, in promoting its quality and, above all, in the task of streamlining the UB’s connection with the new demands and realities of society, in order to meet global university objectives.

The UB strengthens its public service role through the PCB Foundation and facilitates the return of its scientific and technical capabilities to society.

The objectives of the PCB Foundation:

→ Manage and develop a science park with the necessary spaces, personnel and material infrastructures for its users to carry out basic and applied research, innovation and the transfer of technology and knowledge.

→ Promote actions to improve the efficiency of the UB’s innovation and research work and its interaction with other research groups, companies and institutions.

→ Create an outstanding environment to promote innovation and technology transfer activities.

Mission

Promote research, knowledge transfer and innovation in the public and private sectors, through intelligent management of the spaces, the available technology and the relations and dialogue in the PCB community.

Vision

Become an international benchmark for public-private research communities to the benefit of Catalonia’s scientific leadership, economic growth and attraction of talent.

Values

COMMUNICATION

COMMITMENT

RESPONSIBILITY

TEAMWORK

PASSION

New alert and anti-fraud mailbox to report ethical malpractice and institutional integrity

In October, the PCB signed up to the regulation regarding the UB internal information system within the scope of Law 2/2023, of 20 February, regulating the protection of people who report regulatory infringements and the fight against corruption (the “Whistleblower Law”). This Law aims to protect people who report irregularities or fraud they detect in the organisations in which they work. To this end, a new whistleblower and anti-fraud mailbox has been provided, allowing whistleblowers to report actions or omissions that may be considered infringements, fully guaranteeing their anonymity and the confidentiality of their identity and of any third parties mentioned in the communication. The mailbox is accessible via the PCB transparency portal, as well as the UB website.
The PCB Foundation was set up in 1997 at the initiative of the University of Barcelona. The members of its Board of Trustees in 2023 were:

<table>
<thead>
<tr>
<th>Role</th>
<th>Name</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>President</td>
<td>Joan Guàrdia Olmos</td>
<td>Rector of the University of Barcelona</td>
</tr>
<tr>
<td>First Vice-President</td>
<td>Joan Corominas Guerin</td>
<td>President of the University of Barcelona Social Council</td>
</tr>
<tr>
<td>Secretary</td>
<td>Marina Solé Català</td>
<td>General Secretary of the University of Barcelona</td>
</tr>
<tr>
<td>Non-Trustee Vice-Secretary</td>
<td>Miquel Amorós March</td>
<td>Secretary of the University of Barcelona Social Council</td>
</tr>
<tr>
<td>President</td>
<td>Joan Guàrdia Olmos</td>
<td>Rector of the University of Barcelona</td>
</tr>
<tr>
<td>Members Representing the University of Barcelona</td>
<td>Giòria Matalí Costa</td>
<td>University of Barcelona Manager</td>
</tr>
<tr>
<td></td>
<td>Jordi Garcia Fernández</td>
<td>University of Barcelona Vice-rector for Research</td>
</tr>
<tr>
<td></td>
<td>Raúl Ramos Lobo</td>
<td>University of Barcelona Vice-Rector for Internationalisation Policy</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(from 11 December 2023)</td>
</tr>
<tr>
<td>Members Appointed by Barcelona City Council</td>
<td>Jordi Martí Grau</td>
<td>Deputy Mayor for Culture, Education, Science and Community</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(until 26 October 2023)</td>
</tr>
<tr>
<td></td>
<td>Jordi Valls Riera</td>
<td>Fourth Deputy Mayor Economy, Tax, Economic Promotion and Tourism</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(from 11 December 2023)</td>
</tr>
</tbody>
</table>
MEMBERS APPOINTED BY THE UNIVERSITY OF BARCELONA SOCIAL COUNCIL

Francesc Boada Pallerés
M. Carme Verdaguer Montanyà
Isabel Amat Riera
Maria Teresa Plo Cerdán

MEMBER DESIGNATED BY THE BOSCH I GIMPERA FOUNDATION

Fina Lladós Canela
(from 11 December 2023)

MEMBERS APPOINTED BY THE GENERALITAT DE CATALUNYA

Laia Arnal Arasa
Albert Castellanos Maduell

MEMBER DESIGNATED BY THE SPANISH NATIONAL RESEARCH COUNCIL (CSIC)

Joan Gómez Pallarès
Maria Eloísa del Pino Matute

Xavier Aldeguer Manté
(from 11 December 2023)

Director-General for Knowledge Transfer (until 14 March 2023)

Director-General for Knowledge Transfer and Society (from 20 June 2023)

Director-General for Enterprise and Competitiveness (from 11 December 2023)

Managing Director of the Bosch i Gimpera Foundation (until 20 June 2023)

Managing Director of the Bosch i Gimpera Foundation (from 20 June 2023)

Parc Científic de Barcelona
During 2023, the average number of staff members was 85, one per cent below the average for the previous year. The PCB has a stable workforce, with a low turnover and a larger proportion of women than men. The proportion of men has decreased compared to the previous year.

**Total 84**

<table>
<thead>
<tr>
<th></th>
<th>57 Women</th>
<th>27 Men</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>68%</strong></td>
<td></td>
<td>32%</td>
</tr>
</tbody>
</table>

**Training and development**

In the area of training, a self-learning space was set up in the intranet staff section, with the aim of providing PCB staff with a repository of useful and cross-departmental training content. In this space, they can access different materials and resources from various fields in self-study format (courses, podcasts, manuals, webinars, etc.) to help them in their work.

**Sustainability awareness-raising**

This year, the training plan includes an activity on sustainability to provide training and raise awareness in this field while fostering cohesion and interaction in the PCB team.

**Collective bargaining**

The text of the third PCB collective bargaining agreement was negotiated in 2023, with a total of 10 meetings between January and October. The third agreement will be valid for three years (2024-2026).

**Creation of the new Information and Telecommunications Systems (SIT) Directorate**

The new Information and Telecommunications Systems (SIT) Directorate has been incorporated into the PCB structure with the mission of guaranteeing technology is strategically aligned with business in the short, medium and long terms. The IT and Telecommunications Service has been integrated into this new directorate.
Kids Day: Science and Fun in the Park

Kids Day at the Park is a day to bring science closer to the boys and girls of the Park’s staff. 2023 has brought together 35 boys and girls, aged between 5 and 16, who have participated in various fun activities, all of them with one thing in common: science. The Park transformed some of its spaces into play areas and adventure spaces where experiments can be carried out with the aim of fostering scientific curiosity.

Management meeting

For the first time, one of the PCB management meetings (directors and managers) was organised outside the centre’s facilities and included a team-building activity. Given the good reception for the initiative, it will be continued for future meetings.

Training

<table>
<thead>
<tr>
<th>Vocational Training, Baccalaureate or Other</th>
<th>Undergraduate Degree, Bachelor’s Degree, Diploma or Engineering Degree</th>
<th>Doctorate</th>
</tr>
</thead>
<tbody>
<tr>
<td>46%</td>
<td>49%</td>
<td>5%</td>
</tr>
</tbody>
</table>

Age

<table>
<thead>
<tr>
<th>Undergraduate Degree, Bachelor’s Degree, Diploma or Engineering Degree</th>
<th>20 to 30</th>
<th>30 to 40</th>
<th>40 to 50</th>
<th>50 to 60</th>
<th>Over 60</th>
</tr>
</thead>
<tbody>
<tr>
<td>5%</td>
<td>17%</td>
<td>31%</td>
<td>39%</td>
<td>8%</td>
<td></td>
</tr>
</tbody>
</table>

AVERAGE AGE 48
The workshops aim to bring the scientific method to students from fifth year of primary school to second year of baccalaureate and from vocational training through experiments on different research topics in OpenLab, a laboratory in the PCB designed for science dissemination activities.

These workshops are led by active research staff from the PCB research centres. They last two hours and are attended by groups of between 25 and 35 students per session.

### ANNUAL FIGURES

<table>
<thead>
<tr>
<th>10</th>
<th>Topics</th>
</tr>
</thead>
<tbody>
<tr>
<td>94</td>
<td>Workshops</td>
</tr>
<tr>
<td>30</td>
<td>Researchers</td>
</tr>
<tr>
<td>87</td>
<td>Educational centres</td>
</tr>
<tr>
<td>2,417</td>
<td>Students</td>
</tr>
</tbody>
</table>

### WORKSHOPS

- How are medicines made?
- Research with cells and genes
- Discover nature’s patterns
- Building proteins
- Analysing DNA and investigating the perpetrators of crimes
- Transforming bacteria for atherosclerosis
- Sequencing with state-of-the-art technologies
- Researching the biomechanics of cancer
- Discovering biomedical research
- Discovering nanoscience research

### THE WORKSHOPS AT A GLANCE

- Scientific Instruments
- Experiment Protocols
- Work in Small Groups
- Scientific Method
In 2023, previously implemented sustainability actions were continued and new projects launched, in line with the Sustainability Plan 2022-2025.

From an institutional point of view, the strategic sustainability policy was approved as a public manifesto for the PCB’s strategic vision, focused on wealth creation without neglecting social welfare and respect for the environment.

In order to promote the sustainability policy, the Quality, Safety and Environment Area changed its name at the beginning of the year and adopted the concept of sustainability as its first area: it is now called the Sustainability, Quality and Occupational Safety Area.

Main actions in 2023 and alignment with the SDGs

**SDG 4. Quality education**

In the area of quality training, with the aim of ensuring staff are knowledgeable in sustainability and all its aspects, a group of seven staff members took part in specific training sessions: the master’s degree in Corporate Social Responsibility (CSR) and Leadership in Sustainability (OBS Business School - UB), “Calculating the Carbon Footprint” (Col·legi d’Enginyers Graduats i Enginyers Tècnics Industrials de Barcelona), a postgraduate course in Labour Relations and People Management, “CSR and Sustainability”, a training session on “How to measure and communicate sustainability” (Generalitat de Catalunya), and a training session on “Diagnosis of reuse in public procurement” (Generalitat de Catalunya).

**SDG 9. Industry, innovation and infrastructure**

Following approval of the PCB’s Sustainability Plan, a specific sustainability website was published which aims to integrate the SDGs and sustainability into its business culture. The page is accessible from the main menu of the PCB website and provides a showcase for actions being carried out and the projects already under way, as well as the projects that form part of the PCB’s commitment to sustainability.

<table>
<thead>
<tr>
<th>YEAR</th>
<th>NUMBER OF USERS</th>
<th>TOTAL WATER CONSUMPTION (m³)</th>
<th>WATER CONSUMPTION PER PERSON (m³)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2021</td>
<td>2.986</td>
<td>39.616</td>
<td>13,26</td>
</tr>
<tr>
<td>2022</td>
<td>3.447</td>
<td>34.488</td>
<td>10,0</td>
</tr>
<tr>
<td>2023</td>
<td>3.453</td>
<td>33.667</td>
<td>9,75</td>
</tr>
</tbody>
</table>

**SDG 12. Responsible consumption and production**

**WATER-SAVING MEASURES**

Actions implemented in recent years and the awareness of the PCB community, especially in a context of prolonged drought, resulted in a reduction in water consumption, despite the increase in the user population.

Relevant measures in 2023 included completing the installation of atomisers and aerators on taps started in 2022 and installing collection circuits for wastewater from deionised water in the Cluster I and II and Hèlix buildings to be fed to toilet flushes.

**Energy-saving measures**

Three new automatic doors were installed to reduce the intake of outside air and contain the climatically treated air inside.

A steam condensation recovery system was also installed in the animal facility. Fluorescent lighting systems were replaced by LED dimming lighting systems with presence sensors.

**Commitment to the circular economy and reduction in non-hazardous waste**

The positive trend in recent years of giving second life furniture in good condition instead of destroying it continued. In 2023, 98% of the furniture earmarked for disposal was given away. Removed scientific equipment has fewer out-
lets for reuse. However, despite the difficulties, 40% of the equipment had been put to use and was kept from becoming waste by 2023.

Recycling of HDPE pipette caps and boxes with an average of 20 bags a month and a total weight of 4 tonnes of HPDE.

Recirculating cold blocks to prevent their destruction, with an average of 40 m³ a month. More suppliers interested in receiving and reusing this material were found.

Old mobile phones were collected to reuse their valuable metals. In 2023, 33 mobiles were delivered to the Jane Goodall Institute.

Finally, in terms of waste reduction, it should be noted that progressive replacement of fluorescent lighting in recent years has led to a reduction of almost 50% in waste from these lights.

SDG 13. Climate action

The UB joined the promotion of carpooling by introducing the Hoop Carpool app to facilitate users’ access to the PCB in shared cars or motorbikes.

Purchase of liquid nitrogen produced with technology powered by 100% renewable energy sources (Eco-OriginR - Air Liquide). The volume consumed with this system by the PCB in 2022 produced a reduction of 60 tonnes in carbon dioxide equivalent.

SDG 17. Partnerships for the Goals

PCB participation in the UB Sustainability Commission as a guest member.

Member of the Sustainability Research Barcelona (SuRe-BCN) working group, made up of 11 institutes from the Barcelona area.
The PCB in the media

In 2023, the web traffic lost in 2021 due to the redesign of the website and intranet was recovered and more than 5,000 unique visitors were obtained. The number of news items published to disseminate the activity of the PCB and the organisations in it remained stable, if we consider year-on-year trends, which for years has exceeded 130 news items per year.

ANNUAL VISITS TO WWW.PCB.UB.EDU

<table>
<thead>
<tr>
<th></th>
<th>2019</th>
<th>2020</th>
<th>2021</th>
<th>2022</th>
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<tr>
<td></td>
<td>107,986</td>
<td>103,111</td>
<td>64,120</td>
<td>112,008</td>
<td>117,642</td>
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</table>

NEW STORIES PUBLISHED ON THE WEBSITE

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<th>2020</th>
<th>2021</th>
<th>2022</th>
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<td>148</td>
<td>134</td>
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</table>

IMPACTS IN THE GENERAL AND SPECIALISED PRESS AND SECTOR WEBSITES

<table>
<thead>
<tr>
<th></th>
<th>2019</th>
<th>2020</th>
<th>2021</th>
<th>2022</th>
<th>2023</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1,073</td>
<td>1,152</td>
<td>930</td>
<td>933</td>
<td>882</td>
</tr>
</tbody>
</table>

Social media

LinkedIn continued to show strong growth in its performance, which seems to have no ceiling, with 3,060 new followers. This exceeds the year-on-year growth between 2022 and 2021, which was just under 3,000 new followers. Twitter, renamed X in July 2023, experienced more moderate growth, with almost 500 new followers. This stagnation is in the context of its current situation, as it has undergone numerous changes, including new ownership since the end of 2022. No growth was observed on Instagram, which closed the year still below the 1,500 followers threshold. The time lag between activities and campaigns with few posts explains this stagnation.

Followers on social media

LinkedIn | Parc Científic de Barcelona

X PCB_UB

Instagram | pcb_ub

- | 978 | 1,262 | 1,421 | 1,495

2020 2021 2022 2023
La UB presenta un aparato de resonancia magnética nuclear único en Europa

La UB cree con 50 millones para edificios

La innovación catalana se sitúa por encima de la media europea

Las ‘start up’ de la aceleradora del PCB levantan 52 millones

Les empreses instal·lades al PCB capten finançament per 142 milions el 2022

Top 10 most viewed news posts

World’s first clinical trial of maternal spindle transfer shows efficacy in treating infertility

PCB refines €36.7 million of debt with the Spanish Ministry of Science and Innovation

Parc Científic de Barcelona houses an MRI infrastructure unique to Europe

Companies in the Parc Científic de Barcelona raise €142 million in 2022 and break an all-time record

A major boost for the UB’s science and research infrastructures

Ninth Instagram photo contest “A day at the PCB!”

Biotech company Gate2Brain wins the Senén Vilaró Award for most innovative company of 2023

IDP Pharma starts the clinical trial of its drug IDP-121 in haematological tumours and opens a €1 million funding round

Gisela Lorente, new CEO of biotech company Aptadel Therapeutics

Companies in the BCN Health Booster accelerator raise £51.8 million in the programme’s first year
The talks aim to promote reflection and generate opinion among students on scientific advances and their impact on today’s society through humour, irony and the performing arts.

Together with Novartis and Big Van Ciencia, performances and training are organised for teachers and students from primary school to high school, to reflect on the importance of clinical trials, debunk myths and highlight the need for society to participate in these trials to develop new medicines.

Once the students have participated in RESSÒ conference, they can create an artistic video representation and enter a final competition.

### ANNUAL FIGURES

<table>
<thead>
<tr>
<th></th>
<th>Students</th>
<th>Schools</th>
<th>Teachers</th>
<th>Videos received</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>2,274</strong></td>
<td></td>
<td><strong>74</strong></td>
<td><strong>119</strong></td>
<td><strong>97</strong></td>
</tr>
</tbody>
</table>

### THE TALKS AT A GLANCE

- **Subject of Clinical Trials**
- **Shows**
- **Humour**
- **Video Creation**
- **Teacher Training**
- **Awards**
Scientific services

Laboratories open to the community

Self-service laboratories, equipment and scientific infrastructure.

The PCB makes laboratories, equipment and scientific infrastructure available to users on a self-service basis. These laboratories are managed by PCB staff who provide support to users and ensure the smooth running and adaptation of the service to the research needs of both companies and research centres.

Users and researchers from the organisations based in the PCB have access to these scientific infrastructures, working autonomously and having at their disposal all the equipment owned by the PCB.

Book online

The users themselves book the equipment online. This optimises the time of both users and the technical support team.

Investment in equipment renewal

154 m€

IN INVESTMENT IN EQUIPMENT RENEWAL

Joint scientific services

7/24
365 days
1.630 m² of equipped self-service laboratories
1.308 users
Laboratories in Cluster I, Cluster II and Hèlix buildings

Infrastructure and equipment

7 clean rooms
2 bacterial culture rooms
2 yeast culture rooms
1 chemical analysis laboratory
9 rooms with centrifuges
11 rooms with standard equipment
6 rooms with shaking incubators
1 air-conditioned room at 37 °C with shaking platforms
10 cold rooms, 6 deep-freezer rooms and 2 rooms with cryotanks
7 rooms with spectroscopy equipment
1 microscope room

1 histology room
2 dark rooms
1 protein purification equipment laboratory
2 laboratory equipment washing service

154m€ in investment in equipment renewal

- Biological safety cabinets
- Refrigerated and non-refrigerated benchtop centrifuges
- −80°C freezers
- CO₂ incubators for cell cultures
- Thermodisinfector
- Freeze dryer for aqueous samples
- Ultrapure water production equipment
Radioactive facility

Users have at their disposal two highly equipped central radioisotope laboratories with qualified technical support for handling radioisotope-labelled molecules.

Optimal safety and radiation protection measures.

Authorisation from the Generalitat de Catalunya Radioactive Activities Coordination Service and the Nuclear Safety Council.

- Access restricted to authorised users
- 134 unique users over the year
- 180 m² of PCB shared-use laboratories
- 105 m² of authorised users’ exclusive laboratories

Infrastructure and equipment

- Cell culture area
- Experimental animal area
- Counter room: beta and gamma counters
- Laser-based digital imaging system for radioactive samples
- Waste storage
- X-ray irradiator for biological samples

Drosophila

Two equipped observation rooms (fly rooms) allow users to do research with Drosophila melanogaster as an experimental model. There are climatic chambers and cabinets for growth and a room for the preparation of fly growth medium.

Infrastructure and equipment

Episcopic magnifiers
CO₂ installation
Climatic rooms and cabinets (at 18 ºC and 25 ºC)
Rooms at 4 ºC for preserving prepared food
Kitchen for preparing growth medium and supplying trays

Special reactions service

- 43 m² of equipped laboratories
- Infrastructure and equipment
- Hydrogenation laboratory
- Laboratory for toxic products and dangerous reactions
- Specialised technical support

More than 30,000 feed tubes per month
Guarantee and quality

Signatory institution to the Agreement on Transparency in Animal Experimentation promoted by the Confederation of Spanish Scientific Societies, with the collaboration of the European Animal Research Association.

The Animal Experimentation Ethics Committee, a body authorised by the Generalitat de Catalunya to assess animal experimentation projects, assessing 69 projects and pilot tests in 2023.

Process for obtaining additional quality and animal welfare accreditations

Progress was made in the project to prepare for international accreditation by the Association for Assessment and Accreditation of Laboratory Animal Care (AAALAC), the highest existing quality standard for institutions working with laboratory animals.

This project is being carried out with the help of an external consultant. Progress was made in implementing the descriptive project to be presented to the AAALAC auditors. All changes and improvements required to obtain this international standard for maximum assurance of animal welfare and occupational safety in the field of pre-clinical in vivo research will be incorporated.

Transfer of the Experimental Toxicology and Ecotoxicology Platform to Creatio, the UB centre for the production and validation of advanced therapies

The PCB Platform for Experimental Toxicology and Ecotoxicology (UTOX) acted as a provider of innovation, research and development services. It assessed efficacy, ADME, experimental in vitro and in vivo toxicology, ecotoxicology and microbiology to ensure the safety of a wide range of products from organisations and companies in the pharmaceutical, biotechnological, cosmetic, veterinary, food, health, personal hygiene, chemical, nanomaterials and environmental fields.

On 20 June 2023, the PCB Foundation Board of Trustees agreed to approve the transfer of this platform to Creatio, the centre for the production and validation of advanced therapies at the UB, with the aim of integrating it into this centre, a leader in advanced therapies and a member of the TECNIO network.

Investment in equipment renewal

275 m€

IN INVESTMENT TO RENEW EQUIPMENT AND SOFTWARE

Animal facility

The PCB manages its zoological core as a benchmark platform for research with living models.

- 2.600 m²
- 2 SPF animal facilities for rodents (rat, mouse, hamster and guinea pig)
- 1 animal facility for models of *Xenopus laevis*
- 12,000 housed animals
- 435 accredited users

Animal facility

Ventilation units and vented racks with mini-isolators
Laminar flow cabinet
Binocular magnifier for surgeries
Liquid nitrogen tank

Investment in equipment renewal

275 m€

IN INVESTMENT TO RENEW EQUIPMENT AND SOFTWARE

Transfer of the Experimental Toxicology and Ecotoxicology Platform to Creatio, the UB centre for the production and validation of advanced therapies

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General services are managed from the PCB so that users can focus on their added value: innovation, research or training, among others.

### General services

- **Receptions and mail handling**
  - **8 am - 7 pm**
  - **4 Receptions**
    - CLUSTER I
    - CLUSTER II
    - TORRES
    - HÉLIX
  - **→** User and visitor service and information point
  - **→** Management of the meeting spaces
  - **→** Management of daily post and couriers

### Meeting and event rooms

- **12** Meeting rooms, for 4 to 40 persons
- **1** Antoni Caparrós auditorium, with a capacity for 146 people
- **1** Dolors Aleu multi-purpose hall, with a capacity for 120 people
- **1** Fèlix Serratosa classroom, with a capacity for 75 people
- **1** Silent room
- **1** Multi-purpose room in Tower R

- Equipped with audiovisual equipment: LCD screen or projector and computer
- Audiovisual technical support
- Flexible booking in two-hour time slots
- Catering management

### The work to remodel the reception in the Cluster I building was completed

Last year, the second phase of the Cluster I reception renovation was carried out, with the aim of modernising the appearance of the space. The new decoration enhances the light and makes the space more diaphanous. A new horizontal digital screen and two new TV screens were installed to display locations of organisations, events, videos and news for the PCB community. The furniture and decorative wall decals were also changed.

### Other rooms and equipment

- Breastfeeding room
- Nurse station
- OpenLab, a laboratory for hosting students
- Changing rooms

### Statistics

- **9,121 hours of bookings a year**
- **45%** average occupancy
New equipment for videoconferencing and webinars in meeting and event rooms

The new versatile room in Tower R was fitted out with audio-visual resources, including microphones, a public address system, projection and videoconferencing. This permits hybrid face-to-face and online events. The public address system in the rooms is integrated into the new system, so that people connected remotely can intervene as if they were attending the event in person.

24/7 security

- CCTV access control and perimeter surveillance
- Fire and intrusion detection
- Centralised alarms for general air-conditioning, freezers and cold rooms with preferential circuits and UPS

Delivery of goods

Daily goods reception and delivery service: 36,026 drop-offs a year.

36.026
Drop-offs a year

Waste management

- Door-to-door collection of laboratory waste
- User training
- Centralised management of office and other waste

69,8 tonnes of biowaste a year

92,4 tonnes of chemical waste a year
Cleaning

Daily cleaning of common areas and exclusive user areas

Laundry for laboratory clothing

Service includes rental of three personalised lab coats per user and weekly cleaning.

Supply and management of technical gases

Supply of standard technical gases: nitrogen, CO₂, oxygen, argon, helium, hydrogen, synthetic air, compressed air and vacuum.

Catering

Restaurants

Simultaneous diners

Zones with vending machines

Areas for self-service food consumption

Maintenance and works

→ Design and coordination of the renovations in user areas
→ Facility maintenance, upkeep, optimisation and operability
→ Electricity supplies, decalcified and demineralised water supplies
→ Supply of laboratory gases; liquid nitrogen and dry ice dispensing

Annual interventions

9.220 Preventive maintenance actions
9.473 Porrective maintenance actions
3.304 Maintenance actions on user request

Clúster I Cafeteria, outdoors
Hèlix Patio, outdoor. Multi-purpose room, indoors
Tower R Floor 1: multi-purpose room, indoors
Tower I Floor -1: indoors
Tower D Garden, outdoors
Clúster II Room 15, interior. PCBeach, outdoors
### Investment in renovation and new equipment

A 350-kW chilled water production plant for air-conditioning was replaced to supply the MRI and microscopy areas with cooling gas with low greenhouse gas emissions.

### Store

Laboratory and office consumables.

### Car park

- Subsidised monthly passes for PCB users
- Recharging for 11 electric cars and 2 electric motorbikes
- 24/7 surveillance

| 512 | Car spaces |
| 14  | Adapted car seats |
| 54  | Motorbike places |
| 21  | Bicycle places |
| 10  | Secure on-street bicycle parking places |

### General services

<table>
<thead>
<tr>
<th>31</th>
</tr>
</thead>
</table>

### Telephone system and IT network

Access to Anella Científica network for public bodies Internet access for businesses

Ibercom corporate telephone network with Telefónica and option of contracting other companies

### IP services

Wi-Fi network, VPN and shared printers

Server hosting service at the data processing centre

Security systems to minimise risks related to the use of communications networks

### Reinforced security for access to PCB online services

The rising number of serious security incidents in recent years shows that using a password to access resources is not enough. For this reason, an additional access control for the PCB online services has been implemented using two-factor authentication.

### Investment in renovation and new equipment

The network equipment serving the data processing centre has been upgraded to allow transmission at 10 gigabits per second. This will improve the speed of data transmission between servers.
RESSÒ BATX2LAB

BATX2LAB supervises 40 research projects in the field of life sciences by students in the first year of their baccalaureate. The activity allows them to conduct the practical part of their research work in the PCB laboratories, supervised by research staff from the research centres and companies in the PCB.

Three prizes are awarded each year to the best research papers, and the winning students can then present them at the related Fair.

In 2018, BATX2LAB received the Barcelona Education Innovation Award in the secondary education category from Barcelona City Council.

ANNUAL INDICATORS

<table>
<thead>
<tr>
<th></th>
<th>Research papers</th>
<th></th>
</tr>
</thead>
<tbody>
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<td>40</td>
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</tr>
<tr>
<td>45</td>
<td>Students</td>
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</tr>
<tr>
<td>19</td>
<td>Researchers</td>
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</tr>
</tbody>
</table>

BATX2LAB AT A GLANCE

LABORATORY PRACTICES

MENTORING

SCIENCE FACILITIES

AWARDS
**Spaces**

**Full occupancy of the PCB**

The PCB continues to be fully occupied, with a total of 31,406 square metres of serviceable office and laboratory space now in use, representing 97% of the equipped space and 94% of the total space available.

**Trend in office and laboratory space occupation (serviceable m²)**

**Office**

<table>
<thead>
<tr>
<th>Year</th>
<th>Occupied m²</th>
<th>Total Equipped m²</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>5.657</td>
<td>9.165</td>
</tr>
<tr>
<td>2014</td>
<td>7.109</td>
<td>9.165</td>
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<tr>
<td>2016</td>
<td>7.153</td>
<td>9.165</td>
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<tr>
<td>2017</td>
<td>8.536</td>
<td>9.165</td>
</tr>
<tr>
<td>2018</td>
<td>8.857</td>
<td>9.165</td>
</tr>
<tr>
<td>2019</td>
<td>8.857</td>
<td>9.165</td>
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<tr>
<td>2020</td>
<td>8.658</td>
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<tr>
<td>2021</td>
<td>9.058</td>
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</tr>
<tr>
<td>2022</td>
<td>8.864</td>
<td>9.165</td>
</tr>
<tr>
<td>2023</td>
<td>9.058</td>
<td>9.165</td>
</tr>
</tbody>
</table>

**Laboratory**

<table>
<thead>
<tr>
<th>Year</th>
<th>Occupied m²</th>
<th>Total Equipped m²</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>13.709</td>
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<td>2014</td>
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<tr>
<td>2022</td>
<td>21.564</td>
<td>21.689</td>
</tr>
<tr>
<td>2023</td>
<td>22.242</td>
<td>22.311</td>
</tr>
</tbody>
</table>

**Occupancy building**

- **Cluster I**
  - Total m²: 9,700
  - Occupied m²: 9,646 (99%)

- **Cluster II**
  - Total m²: 10,275
  - Occupied m²: 10,275 (100%)

- **Hèlix**
  - Total m²: 3,407
  - Occupied m²: 3,380 (99%)

- **Towers I, R and D**
  - Total m²: 7,090
  - Occupied m²: 6,257 (88%)

- **Cluster offices**
  - Total m²: 1,340
  - Occupied m²: 1,340 (100%)

- **Service building**
  - Total m²: 1,440
  - Occupied m²: 508 (35%)
The PCB will gain 10,000 square metres with the construction of the new MIES building

The UB is promoting the MIES-UB strategic project on the Diagonal Campus, to enhance research and talent in the UB’s key areas of mathematics, computer science, economics and health. The PCB will grow in the latter area, with the construction of a new 10,000-m² building to house the headquarters of the IBEC, the Fraunhofer Institute and several research groups in the field of health sciences at the UB. The construction of this new building strengthens the UB’s health field and aims to boost the PCB with a view to linking it with the new Clinic, which will be located in this area in the future. The building is expected to be completed in 2028.

Intervention in spaces

- Improved accessibility for people with reduced mobility.
- Equipping new laboratory spaces.
- Installation of three automatic doors and a folding door.
- Installation of screens in lifts.
- Replacement of the lighting in Hèlix corridors and reception with LED technology and presence and light sensors.
- Installation of stands for posting courses, seminars and activities in the Cluster I and Cluster II buildings.
- Refurbishment of the Cluster I building basement floors.

- Installation of solar filters in the Hèlix building.
- Installation of five new microwaves in the Hèlix garden.
- Painting of the Tower I and Tower R lobbies.
- Renovation of the floor of the Cluster I terrace, enabling access for people with reduced mobility and adding more furniture.
- More furniture in the Hèlix courtyard.
- Relocating vending machines to service the Cluster II building.
- Adapting all vending machines to the card payment system.

Opening of the new meeting room in Tower R

A new meeting room was also opened in May, next to the Tower R multi-purpose room, equipped with the latest technology and with a capacity for 27 people.

Opening of the new multi-purpose room in Tower R

The new multi-purpose room on the ground floor of Tower R was opened in May. The room can be used freely throughout the day without prior reservation or exclusivity for informal meetings or as a break space. It can also be used as a self-catering space. It is equipped with a microwave, tables and chairs, and has a soundproof booth for making calls.
The aim of the BCN Health Booster acceleration programme is to strengthen the life sciences sector by accelerating 11 recently created innovative business projects showing potential and financial viability. The three-year programme provides access to a partially subsidised laboratory at the PCB and a specialised acceleration programme run by Biocat. BCN Health Booster is an initiative of Barcelona City Council, the PCB, Barcelona Activa and Biocat.

Selected companies

<table>
<thead>
<tr>
<th>Aptadel Therapeutic</th>
<th>Artificial Nature</th>
<th>Bioliquid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gat Therapeutics</td>
<td>Mimark Diagnostics</td>
<td>Nuage Therapeutics</td>
</tr>
<tr>
<td>Deepull</td>
<td>Gat Biosciences</td>
<td>Zymvol</td>
</tr>
<tr>
<td>Ona Therapeutics</td>
<td>One Chain</td>
<td></td>
</tr>
</tbody>
</table>

*In 2023, Oncoheroes left the project and the company Zymvol entered to participate in the accelerator replacing the previous one, which is why the initial indicators have been readjusted by adapting the data to the Oncoheroes’s exit and Zymvol’s entry in the project.

Key indicators during the second year of acceleration

Number of employees

<table>
<thead>
<tr>
<th>START OF PROGRAMME</th>
<th>END OF THE SECOND YEAR</th>
<th>INCREASE</th>
</tr>
</thead>
<tbody>
<tr>
<td>PEOPLE</td>
<td>88</td>
<td></td>
</tr>
<tr>
<td>PEOPLE</td>
<td>164</td>
<td>86%</td>
</tr>
</tbody>
</table>

Presència femenina en l’equip fundador o directiu

<table>
<thead>
<tr>
<th>START OF PROGRAMME</th>
<th>END OF THE SECOND YEAR</th>
<th>INCREASE</th>
</tr>
</thead>
<tbody>
<tr>
<td>WOMEN</td>
<td>14</td>
<td></td>
</tr>
<tr>
<td>WOMEN</td>
<td>23</td>
<td>64%</td>
</tr>
</tbody>
</table>

International presence in the founding or management team

<table>
<thead>
<tr>
<th>START OF PROGRAMME</th>
<th>END OF THE SECOND YEAR</th>
</tr>
</thead>
<tbody>
<tr>
<td>FOREIGN NATIONALS</td>
<td>9</td>
</tr>
<tr>
<td>FOREIGN NATIONALS</td>
<td>14</td>
</tr>
</tbody>
</table>
Main RDI indications

The main research and innovation indications did not change during the second year. Thus, six are in the therapeutic product discovery phase, three in the development of diagnostic tools for different diseases, one in the design of biomaterials for the health sector and one in the design of enzymes. Fifty-five per cent of the companies work in the field of oncology, either in finding solutions for treatment or in early detection of cancer. The rest are developing products to detect infectious diseases, drug delivery systems for chronic diseases and drug discovery for different fibrotic diseases.

Funding secured for the first two years

By the end of the second year, the 11 companies had raised a total of 89.9 million euros, 80% more than they had already raised before joining the programme. Out of this total, 45.9 million euros were raised through investment rounds and 43.9 through competitive projects.

89,9 M€

Countries

- Germany
- Belgium
- Brazil
- Colombia
- United States
- France
- Greece
- Poland
- Cyprus

Patents

<table>
<thead>
<tr>
<th>START OF PROGRAMME</th>
<th>END OF THE SECOND YEAR</th>
<th>PENDING</th>
<th>INCREASE</th>
</tr>
</thead>
<tbody>
<tr>
<td>17 PATENTS</td>
<td>20 PATENTS</td>
<td>31 PATENTS</td>
<td>18%</td>
</tr>
</tbody>
</table>
The PCB community brings together almost 3,500 research, technical, entrepreneurial and business personnel working in a total of 118 organisations based in the PCB and operating mainly in the health sector: pharmaceuticals, biotechnology, medical devices, nutrition and cosmetics.

**118** ORGANISATIONS SET UP IN PCB

**93** COMPANIES: SPIN-OFFS, START-UPS, SMES, LARGE COMPANIES (BOTH NATIONAL AND MULTINATIONAL)

**11** NON-PROFIT ORGANISATIONS: FOUNDATIONS, BUSINESS ASSOCIATIONS, PATIENT ASSOCIATIONS AND TECHNOLOGY CENTRES

**7** UB GROUPS, UNITS AND SERVICES

**7** RESEARCH CENTRES

**Barcelona Institute for Research in Biomedicine (IRB Barcelona),** founded in 2005 and based at the PCB from the beginning. It has 28 research groups and 524 research staff.

**Institute for Bioengineering of Catalonia (IBEC),** founded in 2005 and based at the PCB from the beginning. It conducts multidisciplinary research of excellence at the frontier between engineering and life sciences to generate knowledge and contribute solutions to health problems. It has 21 groups and 395 research staff.

**Molecular Biology Institute of Barcelona (IBMB-CSIC),** founded in 1998 and based at the PCB since 2003. It has 34 research groups and more than 150 research staff.

**National Centre for Genomic Analysis (CNAG-CRG),** founded in 2009 and based at the PCB from the beginning. It has a sequencing unit and a bioinformatics unit, and eight research groups to carry out genomic analysis projects. In total, about 118 people work at the centre.

Research groups from the **UB** and the **UB Institute of Cosmos Sciences (ICCUB).**

**Clínic Foundation for Biomedical Research** HIV research group.

**Vall d’Hebron Research Institute (VHIR)** rheumatology research group.
New incorporations of established companies

New associated companies

Companies

Biotechnology: therapeutic and diagnostic
Medical technology

Pharmaceutics

Cosmetics

Food

Digital health

Biotechnology: R&D services
Consulting and professional services

Provider and engineering

Other business sectors

Research centres

Non-profit organisations

University of Barcelona services, units and groups
Trends in the PCB community

The PCB community has stabilised at almost 3,453 users (2,000 women, 1,446 men and 7 non-binary). The gender ratio has remained similarly balanced over the last 15 years, with 58% female, 42% male and less than 1% non-binary. The average age is 39 and the presence of foreign nationals has also remained stable, at 19% of the population representing 66 nationalities.

Gender distribution by age

The distribution of the number of users by age and sector is shown below. As the percentage of non-binary people is less than 1%, it could not be represented in this classification.

Public sector professionals

Private sector professionals
The following institutions are considered as public sector: IRB Barcelona, IBEC, IBMB-CSIC, CNAG-CRG, Vall d’Hebron, Hospital Clinic, UB research groups and the CCiTUB. The remaining organisations are included in the private sector graph.

The typical scissors-shaped graph can be seen in the distribution of the public sector. Most of the professionals under 30 are women. From the age of 30 onwards, the presence of women falls, equalling the number of men, after which numbers are reversed. In the 50+ age group, there are more men than women.

This trend is not as pronounced in the private sector distribution. The proportion of men and women remains constant up to the age of 50, with a higher female presence. From the age of 50 onwards, the graph is also inverted and there are more men than women.

A total of 66 nationalities are represented at the PCB. The biggest four have not changed: Italy, France, Germany and Portugal. The United Kingdom is now in fifth position, previously occupied by Argentina and India.
The Fair is a showcase for 11 scientific research projects currently in progress in Catalonia.

Research staff present their research to secondary school and high school students and the general public over five days. The winning BATX2LAB students also take part, with a sample of the research work they have carried out in the PCB laboratories.

The Fair also includes an educational activity, which this year provided a reflection on bioethical challenges. Salvador Macip got the students to discuss topics such as babies on demand, laboratory creation of living organisms and transhumanism, the improvement of human beings through new technologies.

ANNUAL INDICATORS

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participants</td>
<td>2,533</td>
</tr>
<tr>
<td>Research groups</td>
<td>11</td>
</tr>
<tr>
<td>Research staff members</td>
<td>100</td>
</tr>
<tr>
<td>Education centres</td>
<td>55</td>
</tr>
</tbody>
</table>

THE FAIR AT A GLANCE

CURRENT SEARCH
INTERACTION
EDUCATIONAL ACTIVITY
EXPERIMENTS
SCIENTIFIC STAFF
PCB community activity reports

In the next few pages, you will find two activity reports which bring together all the important milestones achieved by the public research centres and the companies located in the Park. The reports are compiled during 2023 and look retrospectively over the whole 2022 financial year.

The public centres of the Barcelona Science Park, at the forefront of frontier research and innovation

2022 was a year of progress for the centres, institutes and public research groups present at Barcelona Science Park (PCB) in terms of generation of knowledge, transfer of technology, management of innovation and financing. All R&D&i activity generated by these entities consolidate the PCB as one of the most powerful and most valuable European ecosystems related to the area of health.

In 2022, the institutes, centres and public research groups of Barcelona Science Park moved €50M between public (£40M) and private capital (£10M).

The Biomedical Research Institute of Barcelona (IRB Barcelona) - occupying 5,462 m² in the Park in 2022, with 28 research groups, 9 scientific platforms and over 400 people dedicated to research - executed a total of €17.5M (£11.1M of public funding and €6.4M of private financing).

The Bioengineering Institute of Catalonia (IBEC) - occupying 3,828 m² with 23 research groups and 286 researchers – achieved a total of €15.1M (£12.3M of public funding and £2.8M of private financing).

The National Centre of Genomic Analysis (CNAG) - occupying 1,401 m² with 16 groups, and a scientific team of 80 professionals obtained €10.6M (£10.1M of public funding and £0.5M of private financing).

The Institute of Molecular Biology of Barcelona (IBMB-CSIC) - occupying 2,032 m² with 35 research groups and 132 researchers raised a total of €0.9M (£0.6M of public funding and £0.4M of private financing).

Standing out within the institutes, laboratories and research units of the University of Barcelona (UB) present at the Park, is the Technological Unit of the Institute of Cosmos Sciences (ICCUB-Tech), which raised €4.2M and the group of the IBUB Molecular structure of nuclear receptors which raised €0.7M. Finally, the UB Biomolecular NMR Group (BioNMR Group) - recognised by Generalitat Government of Catalonia- raised €0.8M and the Laboratory of Metabolic Dynamics in Cancer of the UB obtained €0.2M.

“It is difficult to summarise in one document all the activity carried out in the research centres installed in the Science Park. The scientific production, transfer of technology and innovation generated in just one year in our installations pushes us to continue making the best installations available to our entities to continue promoting this eco-system of health and life sciences, which is already a reference in Europe”, highlights Maria Terrades, director of the Barcelona Science Park.
Scientific production and transfer of technology

The public groups and centres in the Park presented a total of 26 priority patent applications and expansions: IBEC (12), IBMB-CSIC (8), and IRB Barcelona (6).

Regarding the management of information arising from the patents, a key element of the innovation process, IRB Barcelona signed two licensing contracts for its patented technologies in 2022, and IBMB-CSIC signed one.

The research of all the centres also had a great impact on the scientific community, with a total of 587 publications in prestigious international magazines in their field of research: IBEC (239), IRB Barcelona (182), CNAG (77), IBMB-CSIC (56), ICCUB-Tech (21), the group of IBUB Molecular structure of nuclear receptors (5), the UB-Biomolecular NMR Group (4) and the UB-Metabolic Dynamics in Cancer Group (3).

New research groups and recruitment of talent

2022 saw the creation of two new research groups at IBEC: Biomaterials for neural regeneration, led by the Severo Ochoa Distinguished Professor Samuel I. Stupp, director of the Simpson Querrey Institute (Northwestern University, USA; and the group Bioinspired interactive materials and protocellular systems, led by ICREA Research Professor César Rodríguez-Emmenegger, junior group leader at the DWI-Leibniz Institute for Interactive Materials (Aquisgran, Germany).

For its part, IBMB-CSIC incorporated five new research groups, four of them led by Ramón y Cajal research personnel: Artificial Intelligence for protein design (Dr Noelia Cruz); Epigenetics and Metabolism (Dr Marcos F. Pérez Browne), Structural Systems Biology (Dr Héctor García-Seisdedos) and Synthetic Structural Biology (Dr Ulrich Eckhard); which are joined by the group Cell dynamics focusing on immunity, morphogenesis/regeneration and mechanobiology, led by the Serra Hunter Lecturer at the UB, Dr Esteban Hoijman.

Disruptive technologies, a strategic asset

At the Molecular Imaging for Precision Medicine laboratory at IBEC, led by Irene Marco, a HyperSense, dynamic nuclear polarisation equipment for nuclear magnetic resonance (NMR) was installed, the only one in Spain and one of the few throughout Europe. This equipment can improve the signal up to 10,000 times compared to a conventional NMR procedure and enables cellular metabolism to be studied in real time.

In 2022, the CNAG considerably increased the equipment at the centre, incorporating, among others, devices for the sequencing of individual cells, Chromium Connect and Chromium X (10X Genomics); a FACS flow cytometry system (Becton Dickinson) to isolate the cells; new technologies to carry out direct DNA/RNA sequencing experiments on tissue: CosMix (Nanostring) and Vutara (Bruker), as well as a large number of complementary laboratory apparatus. It also increased its data processing capacity with the incorporation of storage disks with a capacity of 4.8PB (3.5PB net) and 4,736 computing cores.

Finally, the UB-Biomolecular NMR group installed and started up the 1 GHz NMR group in 2022, thanks to an €8.9M grant awarded to the University of Barcelona by the Ministry of Science and Innovation and the NextGenerationEU fund in 2021. This is the first equipment in all of Europe and second in the world —after Japan— that uses high temperature superconductors to generate magnetic fields in a 1 GHz NMR instrument. With such high magnetic fields it achieves a very important increase in resolution and sensitivity, as well as a significant reduction in data acquisition times. This will be a big boost for the structural and dynamic study of complex biomolecules.

Scientific research of excellence

The public groups, centres and institutes at the Park once again made clear their commitment to their pioneering collaborative research and high global impact.

During 2022, as a whole they participated in a total of 1,414 national and international research projects and networks: IRB Barcelona (238), IBEC (137), IBMB-CSIC (53), CNAG (48), ICCUB-Tech (5), the UB-Biomolecular NMR Group (3); the UB-Metabolic Dynamics in Cancer Group (2) and the IBUB Molecular structure of nuclear receptors Group (2).

Each and every one of them worked extremely hard due to their commitment to developing projects that contribute to improving people’s health and quality of life.

In 2022, the CNAG achieved very significant advances, one highlighting being that achieved by a team led by Ivo Gut, leader of the Biomedical Genomics Group and Director of the CNAG, and Marta Gut, head of the Sequencing Unit, which developed, together with VHIR, a new method for sequencing the human mitochondrial genome which could be introduced in the future as a general test for the clinical diagnosis of patients who have mitochondrial diseases. In 2022, the GPAP platform, created at the CNAG, enabled the re-analysis and re-assessment of genomic and clinical
data of people with rare neurological pathologies and for these to be shared with the research and medical community all over Catalonia; the research, led by Sergi Beltran, head of the Bioinformatics Unit, within the framework of the URD-Cat initiative, constitutes an important milestone to putting an end to “the odyssey of diagnosis” of people affected by rare diseases. The CNAG also continued to participate in it is a key part of consortiums such as the European Reference Genome Atlas (ERGA), which is carrying out the sequencing and assembly of the genome of many species around Europe, and it also actively participates in the Catalan Initiative for the Earth Biogenome Project (CBP), the aim of which is to create a detailed catalogue of the genomes of various endogenous species. The Unicellular Genomics team took part in a study coordinated by IDIBAPS-Clinic Barcelona-UB researchers, which reveals that the cells responsible for the progression of leukaemia are already present at the time of diagnosis, offering new strategies for their treatment. The CNAG also contributed to an international study, led by the UAB, which describes how the three-dimensional structure of the genome and its function in the diversification of mammals has evolved, providing high performance sequencing data.

→ During 2022, the IBEC continued merging science and engineering to promote active ageing, the medicine of the future and regenerative therapies, in a very special year marked by its 15th anniversary. A team led by Juan M. Fernández-Costa and Javier Ramon-Azcon, from the Biosensors for Bioengineering laboratory, developed a “multi-organ-on-a-chip” to study the communication between the cells of the pancreas that produce insulin and those of the muscles, a powerful tool to develop and test new diabetes drugs. A project led by Elena Martínez, leader of the Biomimetic Systems for Cell Engineering group, in collaboration with the Bacterial Infections: Antimicrobial Therapies group, led by Eduard Torrents, developed a 3D model of the human intestine that mimics the characteristics of the intestinal mucous and its surface. An international team, co-led by ICREA Research Professor Samuel Sánchez, leader of the Smart Nano-Bio Devices group, and by César de la Fuente-Núñez, from the University of Pennsylvania (USA), created nanobots to fight against bacterial infections able to autonomously carry bactericidal peptides (small proteins) to the infection site. Another international team, led by the ICREA Research Professor Pau Gorostiza, leader of the Nanoprobes and Nanoswitches group, and Tobias Moser, Director of the Institute for Auditory Neuroscience of the University Medical Center Göttingen (UMG), developed the first light-controlled drug (photodrug) that could improve the hearing of people with cochlear implants. A research project led by Elisabeth Engel, leader of the Biomaterials for Regenerative Therapies group, developed a revolutionary biomaterial called bioink to generate a human breast tumour through 3D bioprinting, opening the doors to the development of more personalised therapies.

→ IBMB-CSIC continued promoting research of excellence during 2022 in a broad spectrum of life sciences, specifically in structural biology, genomic regulation, cellular biology and cellular development. A project led by researcher F. Xavier Gomis-Rüth, head of the Proteolysis laboratory, identified a molecule, neprosin -which is found naturally in the digestive fluid of the carnivorous plant Nepenthes ventrata- as a promising channel for the treatment of coeliac disease, as it could counteract the effect of the toxic peptides that cause the disease. Another project, led by Enrique Martín Blanco, describes a predictive model of the mechanics of the morphogenesis of the nervous system of Drosophila which could help understand equivalent events in the human nervous system. A team led by Dr Martí Aldea, leader of the Spatial control of cell cycle entry group, revealed the relationship between the Mad3 protein and the control of the size of cells, on which the scale and effectiveness of most molecular processes that take place there depend. A research project into Drosophila, led by ICREA Research Professor Gerardo Jiménez, head of the Gene expression and signalling group, revealed the functions of the shortest variant (Cic-L) of the Capicua (Cic) proteins -involved in human neurological syndromes and cancer- which have been a mystery for years. Finally, an international project must be mentioned, led by Dr Isabel Usón, head of the Crystallographic methods laboratory, which provides new structural and genetic data to characterise isoforms from natural sources, using its amino acids assessment tool, Sequence Slider.

→ During 2022, the IRB Barcelona made significant progress in the research into cancer and metastasis and disorders related to metabolism and ageing, and in the fundamental understanding of the mechanisms underlying health and disease. A team led by ICREA Researcher Dr Eduard Batlle, head of the Colorectal Cancer laboratory, identified the population of residual tumour cells responsible for the reappearance of colorectal cancer in other organs; Scientists from the Cellular Plasticity and Disease laboratory, led by ICREA Researcher Dr Manuel Serrano, showed that inducing senescence in cancer cells improves the effectiveness of the anti-tumour immune response, to a greater degree that the dead cells that are commonly used. An international consortium, co-directed by Dr Eduard Batlle, revealed the pre-clinical data of MCLA-158, aimed at cancerous stem cells of solid tumours, establishing the bases for incorporating the use of organoids in the drug discovery process. The Structural Bioinformatics and Network Biology laboratory, led by ICREA Researcher Dr Patrick Aloy, developed a computational tool to integrate and harmonise the large quantity of available biological data, which provides information on how the different biological
entities relate to each other, including over 30 million functional interactions. As an approach to personalised medicine, the study of the Genome Data Science laboratory, led by ICREA Researcher Dr Fran Supek, proposed that the “mutational footprints” of the repair of DNA are a promising predictive genetic marker to specify which tumours will respond to certain therapies.

Within the IBUB, Dr Eva Estébanez’s team, leader of the Molecular structure of nuclear receptors group, made important advances in the study of the superfamily of nuclear receptors through various biochemical and biophysical techniques such as X-ray crystallography and surface plasmon resonance (SPR). Among them, a project stands out which revealed the great plasticity of the glucocorticoid receptor, its great potential to design more selective drugs and with less side effects than those generated by classic corticosteroids. In another study, this team showed that oleic acid is an endogenous metabolic ligand of TLX - a key regulator of transcription relating to cervical, breast and prostate cancer and leukaemia-, a discovery that opens unexplored drug paths to counteract cognitive and mental deterioration in ageing and diseases associated with the reduction of neurogenesis. A research project of the group on the connection of the human androgens receptor and AR-NTD - the incorrect folding of which is involved in prostate cancer and Kennedy’s disease- opened an innovative channel for drug discovery applications. In 2022, Dr Estébanez’s team also made important discoveries related to the aetiology of spinal muscular atrophy and the genes SMN1 and SMN2, with great potential for the design of new therapies. And in another project, the group showed that the study of the interaction between the mineralocorticoids receptor and the glucocorticoids receptor could be of clinical interest for the treatment of inflammatory diseases and related to auto-immune diseases of the skin.

The ICCUB Technology Unit (ICCUB-Tech), focussed on the development of instrumentation for high energy physics, astrophysics and space projects, and big data processing systems, continues working in a very prominent role on international projects as relevant as the Gaia and Solar Orbiter missions of the European Space Agency; the Large Hadron Collider beauty (LHCb) experiment of the Large Hadron Collider (LHC), at CERN; as well as in other multi-national scientific collaborations, such as the Cherenkov Telescope Array Observatory (CTAO) and VIRGO, and national ones, such as the NewSpace Strategy of Catalonia programme, of the Generalitat Government of Catalonia. Among its main advances during 2022, highlights include obtaining the European PetVision project for the creation of a PET scanner (Positron Emission Tomography); the participation in technological developments in the format of application specific integrated circuits (ASICs) for future experiments at LHCb and for gamma ray telescopes (CTA); the development of an integrated circuit (BETA ASIC) for space applications that will be installed on the China Space Station (CSS); and the publication of the third catalogue of the Gaia mission, with high precision astrometry of 1800 million stars in the Galaxy.

In 2022, the UB Biomolecular NMR Group (BioNMR Group)- affiliated to the Inorganic and Organic Chemistry Department of the UB- which studies the formation and remodelling of protein-protein interactions, and their crucial function in regulation processes, created the interinstitu- tional consolidated group between Alba-CSIC-UB of Integrative Structural Biology; and the Integrative Structural Biology network. Among its most relevant publications, a study stands out in which they showed that a disordered region of the Src protein regulates its oncogenic capacity. The team discovered this region, called ULBR, thanks to the tools provided by nuclear magnetic resonance (NMR), a technique in which the UB is at the forefront. The project was carried out with experts in colorectal cancer from the University of Montpellier (France).
Barcelona Science Park companies break record after raising €142M in 2022

2022 has been a historic year in economic and innovation indicators for the entrepreneurial ecosystem of the Barcelona Science Park (PCB). The funding raised by the companies that form part of the PCB Community, in transactions identified in 2022, reached €142M, an absolute record, of which €85M (58%) came from private capital. This figure, which reflects the consolidation of the life science sector in Catalonia, comes in the year the University of Barcelona celebrates the 25th Anniversary of the PCB Foundation.

These data imply a four-fold growth in the funding achieved in transactions identified in 2021, the year in which the companies installed in the Park carried out transactions for the value of €39M. Just one year later, individual transactions have closed that already exceed this accumulated amount in 2021. This is the case with SpliceBio, a biotechnology company for gene therapy based on technology developed at the University of Princeton, which leads the Park ranking in the amount raised in rounds.

Private funding

The ‘deep tech’ SpliceBio raised €50M, the highest third round in 2022 registered in the BioRegion, the largest series A raised by a biotechnology company in Spain and the highest round ever for a company based at the Science Park. It was recognised as “Series A of the year” at the European Lifestars Awards. The transaction was co-led by UCB Ventures (Belgium) and Ysiós Capital (Spain) with the participation of New Enterprise Associates (NEA, United States), Gilde Healthcare (the Netherlands), Novartis Venture Fund (Switzerland) and Asabys Partners (Spain).

The sum of investment raising operations of less than one million euros involved seven other companies from the Park, which have altogether achieved about two million euros, thus reaching the total figure of 39 million euros, as indicated earlier.

The second round in amount was closed by DeepUll which continues its gradual growth combining public and private financing. The company which specialises in the development of affordable culture-free diagnostic solutions for the early identification of sepsis and other acute infections, raised €13M in a Series B round to progress in the early detection platform for sepsis. The transaction was led by Invierte (Ministry for Science and Innovation of Spain – CDTI), and a strategic investor that has not been made public, as well as the pre-existing participation of Kurma Partners, Alta Life Sciences, UI Investissement (advised by Mérieux Equity Partners) and Axis Participaciones Empresariales. In 2022 DeepUll also received a €20M loan from the European Investment Bank (EIB).

In 2022 Pangaea Oncology, connected to Barcelona Science Park as an associate company, has carried out one of the most relevant transactions this year in the Spanish stock market BME Growth. The company, leader in precision oncology medical services, has secured €12M through two capital increases. The new shareholders have been led by relevant institutional investors.

Standing out within the group of companies that raised between €1M and €3M in private funding are: Newborn Solutions (€2.7M); CIRCE Scientific (€1.71M), GAT Biosciences (€1.33M) and GAT Therapeutics (€1.5M). Other companies in the Park that achieved an investment of less than €1M are Bioliquid and IDP Pharma.

“The Park continues positioning itself, with the activity it generates, as a fundamental part of the Diagonal Health Hub. The figures of strong growth in financing and investment carried out by our entities are a sign of the trust and commitment to these projects, most of which portend a very hopeful future for the whole health ecosystem, starting with...
industry and ending with the patient. I also want to highlight the success of SpliceBio, a company that is strongly connected to the Park, which has become the highest third round in a territory as competitive on a European scale as the Bio-Region”, explains Maria Terrades, director of the Barcelona Science Park.

Public funding

Various companies in the Park turned to public funding in 2022 through regional, national and European tenders for aid, to considerably expand their financing capacity.

This is the case with INBRAIN Neuroelectronics, a spin-off of the Catalan Institute of Nanoscience and Nanotechnology (ICN2) and ICREA, which was chosen to receive funding from the EIC Accelerator programme of €17.5M for its role as a strategic company for Europe’s Healthcare Innovation. The investment will support the development and marketing of its graphene neural interface.

Aptadel Therapeutics, a pre-clinical company co-funded by IDIBELL developing the first therapy based on RNA nanoparticles against the childhood cancer, Ewing’s Sarcoma, raised €3.65M in public funds in 2022: €2.5M from the EIC Accelerator programme, and other contributions from the Bill & Melinda Gates Foundation, and the Listen2Future project, a KDT JU (Key Digital Technologies Joint Undertaking) within the Horizon Europe programme.

For its part, Gate2Brain, a spin-off of the University of Barcelona (UB), the Institute for Research in Biomedicine (IRB Barcelona) and the Sant Joan de Déu Research Institute (IRSSJD)- Sant Joan de Déu Hospital (SJD)– received a total of €3.12M in public funding in 2022 to boost the preclinical regulatory stage of its drug G2B-002, targeted at brain tumours with intact barriers: €2.5M from the EIC Accelerator programme; and other aid from the CaixaResearch Consolidate call of “la Caixa” Foundation and the Neotec programme of the Centre for the Development of Technology and Innovation (CDTI). Other outstanding transactions of companies installed at PCB involved Newborn Solutions—focused on the development of a first-in-class device for the non-invasive detection and monitoring of childhood meningitis and other infections in serous body fluids— which obtained €3.48M: €2.5M from the EIC Accelerator programme, and other contributions from the Bill & Melinda Gates Foundation, and the Listen2Future project, a KDT JU (Key Digital Technologies Joint Undertaking) within the Horizon Europe programme.

For its part, the consultancy firm GENESIS Biomed contributed to the creation of 2 new startups and spin-offs (Anais Medical and RetinaReadRisk) and helped close two rounds of funding for another two that were already incorporated (Mowoot and Thytech) for €1.6M. Also, in 2022 with FI Group and Crowd4Ventures, to continue GENESIS Ventures funds, currently in a divestment phase, the company incorporated its second vehicle, GENESIS Tech Transfer Boost, with €1M for the next 4 years and aimed at early stage projects in the field of healthcare research. In 2022 it was recognised with the Best Biomedical Consultancy Firm Award at the 11th edition of the “El Suplemento National Awards” and closed the year with a turnover growth of 28% compared to the previous year.

Consultants and venture building

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Finally, in 2022 Arian Internacional, a strategic consultancy firm in internationalisation and European funding for innovation, specialising in technology startups, advised 23 startups and SMEs, 75% of which led by women, working on the development of their strategy of international growth and access to European funding (EIC Accelerator, EIT Health, Eurostars, Innowide and WomenTech EU). The results of the advised companies in the biotech sector, 11 in total, have been very positive, obtaining more than €5M in public grants and €16M in venture capital.

Success stories

US biotech company VeriSIM Life, a global benchmark in next-generation computational platforms for drug development, acquired the start-up Molomics Biotech, owner of a patented deep technology that combines human collective intelligence with artificial intelligence (AI) to design new therapeutic molecules. Created in 2015 by Jascha Blobel (CEO), Giovanni Cincilla (CSO) and Simone Masoni (CTO), the majority of its capital was held by the founding team, which ensured agile execution of its business plan and maximised return for investors.

For its part, the Schülke Group, a world leader in infection prevention for more than 130 years, acquired Vesismin Health. The company was founded in 2004 by entrepreneur Víctor Vallés, fruit of a project incubated at IQS (Institut Químic de Sarrià). Since then, its main objective has been to collaborate with hospitals and health centres in the fight against healthcare-associated infections (HCAI).

From the lab...to the market

Endor Technologies, a biotech company dedicated to biomedical research in oncology and dermatology, expanded its skin care line of more than 20 products in 2022 with the launch of Lasergen. This revolutionary treatment is formulated with the maximum concentration of its Active Hyaluronic molecule, a patented active ingredient of gold nanoparticles with hyaluronic acid (HA) oligomers that activate the CD44 gene receptors (triggering the production of collagen, elastin and HA). Lasergen helps prevent post-inflammatory hyperpigmentation in patients treated with ablative lasers.

In 2022, Roka Furadada, which joined the PCB that same year, launched its first smart molecule on the market, ROKA Smart UV® PVB 360, which offers tailored photoprotection by adapting to the intensity of the solar radiation it receives. It is the first product with ROKA Smart UV® technology, designed to reinforce protection in the UVA spectrum.

This technology has developed compounds that are able to transform themselves into new structures that provide high, long-lasting and adaptive photoprotection in the face of environmental conditions. In addition to its use in cosmetic formulas and for sun protection, researchers are exploring its use in the photoprotection of materials.

In terms of licensing, Syna Therapeutics, a joint venture between Reig Jofre and Leanbio, signed a worldwide licensing agreement with Intas Pharmaceuticals to commercialise its biosimilar drug LB-0702 for the treatment of pathologies in the field of haematology. LB-0702 was developed using the technological platforms of the CDMO Leanbio, located in the PCB. One of this organisation’s major breakthroughs during 2022 was its capability to produce up to hundreds of grams of biotherapeutic products.

IDP Pharma licensed IDP-602, a first-in-class drug for ophthalmic diseases, to a US biotech. The compound was developed thanks to the INTRAMETICS platform, a unique technology that makes it possible, for the first time, to design drugs aimed at a new class of therapeutic targets: IDPs (intrinsically disordered proteins).

In 2022, SOM Biotech signed a licensing agreement with the University of Minnesota following the completion of a sponsored research agreement (SRA) signed in 2019, in which the University of Minnesota conducted a series of in vitro studies on potential preclinical product candidates for Duchenne and Becker muscular dystrophy, identified through its proprietary technology platform SOMAIPRO.

Pharmacelera, which specialises in the development and application of disruptive computational chemistry solutions for drug discovery based on quantum mechanics (QM), machine learning (ML) and high-performance computing (HPC), signed an agreement with a Silicon Valley investor for the launch of its brand in the United States. The aim in this strategic area of the globe is to increase its turnover, which in 2022 had already increased by 70% over the previous year, by five over the next three years.
Clinical trials

In the field of new therapies and diagnostic devices, the 2022 pipeline featured the ongoing clinical trials of a large number of companies with ties to the PCB.

**Aelix Therapeutics** published an article in Nature on the positive results from the AELIX-002 trial, a phase I clinical trial of its therapeutic HIV vaccine. It is currently conducting a second phase II clinical trial, AELIX-003, in collaboration with Gilead to assess the HTI vaccine in combination with Gilead’s experimental Toll-Like 7 (TLR7) receptor agonist, vesatolimod, in people with HIV receiving antiretroviral therapy.

During 2022, the pharmaceutical company **Hipra** was working to obtain the registration of Bimervax, the first Spanish vaccine against SARS-CoV-2, and the first one developed 100% in the European Union using recombinant protein technology. In 2022 the company was awarded the Creu de Sant Jordi for this project, which involved the team at its R&D centre at the PCB, as well as for its commitment to global health and more than 50 years’ experience in the fight against communicable diseases through the development of vaccines. As of April, Bimervax can now be marketed in the European Union, after having received a favourable opinion from the European Medicines Agency and having obtained authorisation from the European Commission. It is the first bivalent, adjuvanted recombinant protein vaccine licensed in the EU against the virus.

In 2022, **Newborn Solutions** completed phase I (proof of concept) for Neosonics, a first-in-class medical device for the non-invasive detection and monitoring of infant meningitis and other infections in serous fluids. Neosonics was validated in an international clinical trial involving three hospitals in Spain and two centres in Mozambique. The results showed 100% sensitivity, 90% specificity and 92% accuracy in vitro. In 2023, the Hôpital de Enfants de Rabat (HER) joined the project for the phase II trial to assess its efficacy after receiving authorisation from the Moroccan Ministry of Health. 2022 also saw major advances in the development of applications of the device for **uveitis (clinical phase)** and peritoneal dialysis (preclinical).

The biopharmaceutical company **SOM Biotech**, specialised in the identification, development (in preclinical and clinical phases) and commercialisation of drugs for the treatment of orphan diseases mainly related to the central nervous system, continued to advance in the clinical development of the compounds SOM3355 (Huntington’s disease), SOM1311 (phenylketonuria) and SOM0061 (COVID-19), in phase II, and of SOM3366 (dyskinesia) and SOM0777 (glioblastoma), in phase I.
**OneChain Immunotherapeutics (OCI)** obtained authorisation from the Spanish Agency for Medicines and Medical Devices (AEMPS) to conduct the CARxALL clinical trial, unique in the world, to assess a new CAR-T therapy in patients with a subtype of T-cell leukaemia with no therapeutic alternatives.

One year after the start of its international phase Ila clinical trial, OXOART-2, to assess the efficacy of the drug OXO-001, which acts on embryo implantation to increase pregnancy success rate, in September 2022 Oxolife achieved the first nine births in the three countries participating in the study.

**Cutting-edge R&D&I**

In earlier stages of R&D, the companies in the PCB community made very relevant advances in the preclinical phases of products and solutions in the development, validation, proof-of-concept or regulatory stage, where they have not yet begun to be tested in humans.

In 2022, **CIRCE Scientific**, specialising in the use of co-crystallisation technology to develop optimised nutraceutical ingredients focused on longevity and healthy ageing, began the industrial scale-up of Pterovita. This proprietary co-crystal of picolinic acid and pterostilbene combines two or more distinct molecules to create a structure with enhanced physicochemical properties compared to the individual components. It is both an ingredient and a science-based solution for the dietary supplement, food and beverage, animal health, cosmetics and pharmaceutical industries.

**Gate2Brain** continued to advance preclinical development – with intratumoural pharmacokinetics characterisation in in vivo experimental models – of its drug G2B-002, targeting barrier-intact paediatric brain tumours, such as diffuse intrinsic pontine glioma (DIPG). The company, a spin-off of IRB Barcelona, the University of Barcelona and Hospital Sant Joan de Déu, has designed an innovative patented technology based on peptides with the ability to cross the blood-brain barrier to combat this devastating condition, the most aggressive paediatric CNS tumour.

In 2022, **Endor Technologies** started the regulatory phase prior to the phase II clinical trial for a revolutionary immunotherapy for pancreatic and colon cancer. Its radical innovation is that it does not act on the biological qualities of the tumour cells, but on the way in which the tumour grows, so it is not able to generate resistance and enters a state of cell death.

**IDP Pharma** partnered with a European pharmaceutical company to jointly develop **IDP-601**, a first-in-class drug targeting intrinsically disordered proteins (IDP) that cause respiratory diseases. The partner is responsible for developing IDP-601 in the preclinical and formulation stage prior to entering into a licensing agreement. The company also published a study, in collaboration with the Instituto de Salud Carlos III (ISCIII) and Hospital 12 de Octubre in Madrid, in the journal Neurotherapeutics, which revealed that its new experimental drug **IDP-410** directly interacts with the N-Myc oncoprotein and reduces the growth of glioblastomas in animal subjects.

**MiMARK**, a femtech that wants to revolutionise the diagnosis of endometrial cancer with a minimally invasive in vitro molecular diagnostic test, WomEC, has already reached the prototype development phase, and expects to initiate clinical validation studies of the product in 2023. WomEC is being developed as an immunoassay test to facilitate its implementation in clinical laboratories. Its major breakthrough in 2022 was the transfer of technology from mass spectrometry to immunoassay technology.

The deep-tech company **NIVD**, which focuses its activity on nanotechnology applied to the field of diagnostics, is one of the start-ups that in 2022 chose the PCB as a strategic point to centralise its RDI activity. The company has developed and patented a disruptive technology that allows it to design nanosensors trained to detect diseases in real time before the first symptoms appear.

Finally, **Pharmacelera**, a deep-tech company specialised in the development and application of disruptive computational chemistry solutions based on quantum mechanics (QM), machine learning (ML) and high-performance computing (HPC) for drug discovery, developed a new product, exaScreen, to explore libraries of billions of molecules. The tool has unmatched accuracy in screening ultra-large synthesizable chemical libraries with innovative virtual screening software, which fuses AI and QM technologies to discover new and multiple hits in unknown chemical spaces. The company expects to launch the software on the market in 2023.
In 2023, the PCB’s public companies and centres continued to grow in turnover and facilities, achieving prestigious awards. Important scientific discoveries were also made, important new national and international projects launched, and promising new start-ups and spin-offs set up at the PCB. This visual compilation illustrates the main impacts in the printed media. The complete list of news stories and press releases generated by the PCB and its community can be found in the news section and the press room (respectively) on the PCB website.
Las biotecnológicas captan 445 millones, un 87% más

La inversión exterior creó 870 empleos en el 2022 en la industria biomédica

"No curem les metàstasis perquè no les entenen"

El doctor en biologia Rosa Salvador

"El principal motor de la inversión extranjera en el sector farmacéutico está en la investigación clínica. Ha habido un 87% más de inversiones en 2022, lo que supone un gasto de 260 millones de euros en premios. La Agencia Española del Medicamento (Aemps) ha autorizado al inicio del año a un nuevo fármaco que se ha presentado para el ensayo clínico de su activación, que ha liderado la investigación de Joven. Ha ganado la mejor licencia del año, con un 87% más de inversión.

IDP inicia el ensayos de un fármaco contra el cáncer y abre ronda

La empresa IDP Pharma, con sede en el Parc Científic de Barcelona, ha abierto una ronda de financiación a través de la plataforma de inversión (CrowdInvest), que incluye a varios inversores del sector. El objetivo de esta ampliación de capital es dirigir recursos para el ensayo clínico de un fármaco contra tumores oncológicos que ha liderado la investigación de Laura Nevola, la directora científica de IDP. "Nuestro fármaco actúa de formas diversas sobre la enfermedad, en lugar de intervenir sobre una molécula o en un acto, pero que hasta ahora no se había conseguido", explica Laura Nevo, directora científica de IDP.
OCI capta 6,7 millones para culminar su ensayo clínico

En la ronda han participado Inversores del Club (CIV), la Sociedad General de Fomento (SGF) y la Fundación Joan Ramón Lucena.

La empresa de neuromodulación (CIV) y la Fundación Joan Ramón Lucena.

La empresa de neuromodulación (CIV) y la Fundación Joan Ramón Lucena.

Clave Capital invierte un millón en la ‘spin off’ D-Sight

La empresa de textiles (Clave Capital) ha invertido un millón euros en la ‘spin off’ D-Sight, que ha desarrollado una aplicación para diagnosticar la retinopatía diabética, una de las enfermedades que afectan a los nervios de la retina y que la retinopatía diabética, una de las enfermedades que afectan a los nervios de la retina y que la retinopatía diabética, una de las enfermedades que afectan a los nervios de la retina y que la retinopatía diabética, una de las enfermedades que afectan a los nervios de la retina y que la retinopatía diabética, una de las enfermedades que afectan a los nervios de la retina y que la retinopatía diabética, una de las enfermedades que afectan a los nervios de la retina y que la retinopatía diabética, una de las enfermedades que afectan a los nervios de la retina y que la retinopatía diabética, una de las enfermedades que afectan a los nervios de la retina y que la retinopatía diabética, una de las enfermedades que afectan a los nervios de la retina y que la retinopatía diabética, una de las enfermedades que afectan a los nervios de la retina y que la retinopatía diabética, una de las enfermedades que afectan a los nervios de la retina y que la retinopatía diabética, una de las enfermedades que afectan a los nervios de la retina y que la retinopatía diabética, una de las enfermedades que afectan a los nervios de la retina y que la retinopatía diabética, una de las enfermedades que afectan a los nervios de la retina y que la retinopatía diabética, una de las enfermedades que afectan a los nervios de la retina y que la retinopatía diabética, una de las enfermedades que afectan a los nervios de la retina y que la retinopatía diabética, una de las enfermedades que afectan a los nervios de la retina y que la retinopatía diabética, una de las enfermedades que afectan a los nervios de la retina y que la retinopatía diabética, una de las enfermedades que afecta

Asabys lidera una ronda de 17 millones en DeepUll

Dos multinacionales, Werfen y BioMérieux, en el proyecto

Inbrain consigue 20 millones del BPI para I+D en neurotecnología

La empresa de neurotecnología (Inbrain) ha conseguido 20 millones del BPI para I+D en neurotecnología.

La biotecnología completa

La biotecnología completa

otro círculo virtuoso

La nueva aventura del diagnóstico de DeepUll

Connecta capta 3,3 millones para su nuevo fármaco

La terapia antiinflamatoria (Connecta) ha captado 3,3 millones para su nuevo fármaco.

Gate2Brain recibe 2,5 millones para luchar contra los tumores

La empresa de biotecnología (Gate2Brain) ha recibido 2,5 millones para luchar contra los tumores.

Estudia los primates de entre 17 meses y 7 años y se centra en la biotecnología.

expertos en el estudio de la patología del adulto. Los tumores que afectan a los cerebros, y en zonas y células, como la sangre, la retina, el pulmón, el hígado, el páncreas o el bazo, son tratados con esta terapia animada.

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La biotecnología completa

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Gate2Brain, wins the Senén Vilaró Prize for the best innovative company 2023

Leanbio invests additional €20M in Barcelona GMP biologics plant

AELIX presents promising top-line results from therapeutic HIV vaccine clinical trial AELIX-003

Biocat presents action plan for Advanced and Emerging Therapies Hub of Catalonia

The Catalan startup ecosystem breaks away from the global downward cycle and increases investments by 87%

MeteoSim wins World Bank competition to implement a numerical weather forecasting model in Malawi

More than a hundred experts in magnetic resonance participate in the BIR Symposium

Clave Capital opens a delegation at the Barcelona Science Park

CNAG strengthens Spatial Genomics Unit with the incorporation of immunologist Anna Pascual

The most complete catalogue of primate DNA ever produced opens new lines of study of human disease

Connecta Therapeutics starts clinical trials for its Fragile X syndrome drug

Sabadell Asabys invests in DeepUll extending its Series B to €17M

The most complete catalogue of primate DNA ever produced opens new lines of study of human disease
First baby born as a result of a new reproduction technique that activates sperm

Izabel Alfany, appointed new managing director of EIT Health Spain

The world’s first clinical trial of Maternal Spindle Transfer shows its efficacy to treat infertility

The analytical services CRO, Dekapenta Labs, obtains the GMP certification from AEMPS

Hoffmann Eitle Madrid & Barcelona celebrates 10 years as a benchmark in biotech and health ecosystem

Stefanie Wculek and Xavier Rovira receive an ERC Starting Grant

Samuel Sánchez and Salvador Aznar receive an ERC Proof of Concept grant

Javier Ramón Azcón has been granted an ERC Proof of Concept Grant

Izabel Alfany, appointed new managing director of EIT Health Spain

The GAEM Foundation signs a collaboration agreement with the Catalan Immunology Society

IBEC researcher Benedetta Bolognesi awarded an ERC Consolidator Grant

GENESIS Biomed consolidates its growth in the biomedical sector

BeAble Capital invests 500,000 euros in the deep tech company Kumux
IBEC researchers Elisabeth Engel and Gabriel Gomila receive the ICREA Acadèmia grant

IDP Pharma starts clinical trials of its first-in-class IDP-121 drug in hematological cancers and opens a financing round of €1M

The University of Barcelona licenses an innovative technology to IMIDomics

InBrain achieves FDA Breakthrough Device Designation for its smart graphene-neural platform

Scientists decipher how the bacteria that causes 30% of community-acquired pneumonia is able to survive

Researchers decipher the mechanism by which the MAF protein promotes breast cancer metastasis

The International Astronomical Union names an asteroid after researcher Jordi Portell

An artificial muscle to study Duchenne muscular dystrophy is developed

An innovative therapeutic strategy against chronic wound infections

IBEC researcher Pere Roca-Cusachs awarded a prestigious ERC Advanced Grant

Study describes the effects of several mutations on the androgen receptor

The climate crisis could trigger the outbreak of new and lethal infectious diseases
The Colorectal Cancer laboratory of IRB Barcelona receives the Gold Medal from the Red Cross

Núria López-Bigas wins the Lilly Foundation Award for Preclinical Biomedical Research 2023

ICREA researcher Fran Supek receives an ERC Consolidator grant

Researchers at IRB Barcelona reveal the pivotal role of iron in the development of fibrotic diseases

The femtech company MiMARK Diagnostics raises €4.2M in seed round

IRB Barcelona unveils the key role of Mitofusin-2 in guaranteeing vital cell functions in ‘Science’

Newborn Solutions expands the international clinical trial of Neosonics device to Morocco

Nuage Therapeutics gains €12 million in seed funding

The Galician biopharmaceutical Oncostellae opens an office at the Barcelona Science Park

OneChain Immunotherapeutics secures €6.7M in pre-series A funding round

SpliceBio receives the CataloniaBio & HealthTech’s Bioèxit Award 2023

The biotechnological company Zymvol raises €1.3M and joins the Barcelona Science Park
Boosting the PCB community

Once again in 2023, a record number of 27 events were held at the PCB on a variety of topics and with more than a thousand people attending. The aim is always to be of interest to our community, a heterogeneous ecosystem with various audiences and professional profiles.

Events, conferences and training workshops

The aim is to offer the community the opportunity to listen, learn and discuss topics of interest to them and to encourage networking.

- Legal considerations for a successful research project.
- EUROSTARS: Collaborative funding programme for R&D performing companies.
- System training on Odyssey® CLx and Fc near-infrared and ECL imagers.
- Accelerating drug discovery using advanced protein and antibody development platforms.
- Webinars: How to use the HoopCarpool app for carpooling.
- De-risking small molecule early drug development with leading technology.
- ICEX support instruments for the internationalisation of biotechnology.
- Cell line development solutions by molecular devices.
- Safety course on the use of pressurised gases and cryogenic liquids.
- Bioethics for disseminating and communicating research (two sessions).
- Paralab Bio seminar: real-time intravital microscopy (IVIM).
- Western Blot imaging goes digital. System training on the Odyssey® Fc ECL i.
- Find your ideal job in the industry.
- Branding. The importance of what you call yourself and how you dress.
- Ninth “A day at the PCB!” photo contest.

Total activities hosted in and organised by the PCB

<table>
<thead>
<tr>
<th>Year</th>
<th>Events</th>
<th>Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>2020</td>
<td>11</td>
<td>575</td>
</tr>
<tr>
<td>2021</td>
<td>21</td>
<td>844</td>
</tr>
<tr>
<td>2022</td>
<td>23</td>
<td>1,276</td>
</tr>
<tr>
<td>2023</td>
<td>27</td>
<td>1,035</td>
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Total activities hosted in the PCB and organised by other bodies

<table>
<thead>
<tr>
<th>Year</th>
<th>Events</th>
<th>Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>2020</td>
<td>154</td>
<td>9,385</td>
</tr>
<tr>
<td>2021</td>
<td>316</td>
<td>16,850</td>
</tr>
<tr>
<td>2022</td>
<td>381</td>
<td>24,500</td>
</tr>
<tr>
<td>2023</td>
<td>317</td>
<td>20,700</td>
</tr>
</tbody>
</table>

Networking

- Coffee Connection: spring, summer and autumn editions.
- Three meetings of the Influencers group.
- Two PCBeers events.
**New organisation finder on the PCB website**

In 2023, the PCB launched a new organisation search engine on its public website. The new search engine significantly improves the way in which users can explore and discover information on and activity carried out by more than 118 organisations in the PCB community, thanks to various levels of search depth. The search engine is easily accessible from the main menu on the PCB home page. It can be accessed by clicking on the “Community” tab.

The search engine maintains the initial filter, which differentiates organisations by whether they are companies, research centres, non-profit organisations or UB services, units and groups. In addition to this initial filter, a new sector search option has been added, which includes 11 categories and several associated sub-sectors, totalling more than 130 options. Finally, the third major search block focuses on the specific therapeutic area that each organisation works in, from a total of 26.

The new search engine is an excellent way to identify potential partners and explore and establish synergies between organisations in the PCB that share common interests, providing a clearer view of what other organisations in the PCB are doing. It will also help the PCB to design events better focused on the interests and areas of expertise present in the community.

**The T’interessa newsletter has a new design and a new job offers section**

The T’interessa newsletter is the PCB’s main communication channel with its community, and is sent out every Thursday in two editions: Catalan and English. In June, the publication launched a revamped design with a much cleaner and more visual template, renewing the masthead, structure, colour coding, icons and design of certain sections. Also in 2023, a new section was added to the newsletter, in which companies in the PCB can publish their job offers.

**New website to publicise the sustainability strategy**

At the end of 2023, the PCB opened a new website to publicise its sustainability strategy. The new website includes the Sustainability Plan 2022-2025, a document that identifies the SDGs on which the PCB has the greatest impact and which are the basis for action in sustainability over the 3 years, through 20 projects involving 51 actions and with an impact across the entire organisation. It also includes the *Notes de sostenibilitat* blog, with reflections and tips on sustainability, which will be updated with weekly content. And lastly, you can also view the PCB strategic sustainability policy.

**Health and wellness**

During 2023, the PCB community continued to benefit from the range of health and wellness activities that contribute to physical and emotional improvement on offer during the working day. A total of 70 people regularly attended the yoga classes, held with a qualified trainer one day a week in two shifts. The physiotherapy service, which was launched in 2022, increased in frequency and is now available two days a week, with a qualified therapist visiting an average of seven patients per week.
Solidarity actions

The PCBakers organise 14 charity lunches

The PCBakers, the informal association that arose out of the PCB community in 2022 to organise charity lunches, closed 2023 with record figures. They raised €11,301.97, which were allocated to 14 different causes: Cure Alzheimer’s Fund (January), Turkey and Syria Disaster Relief (February), Noelia Foundation (February), AFANOC (March), the AfroVaca project (April), NEN Association (May), SICOES (June), Italy Flood Relief Fund (June), Malaria 40 (July), Josep Carreras Leukaemia Foundation (September), Disaster Relief in Morocco & Libya (October), Gats Lliures de Poblenou (October), Malaika Association (November) and AUEVEA (December). In total, donations were made to 16 NGOs, including lunches organised in the aftermath of various natural disasters. The community has now exceeded 100 members and incorporated new organisations in the PCB.

Campaign to collect basic necessities to help the victims of the earthquake in Morocco

In September, following the earthquake in the Marrakech-Safi region which devastated different parts of the country, a solidarity campaign was launched for the entire PCB community to collect basic necessities. In just a few days, a pallet of clothes, blankets, tents and shoes was filled and sent to the affected area. Once again, the PCB community showed its solidarity.

Ninth “A day at the PCB!” photo contest

Once again, the PCB held the “A day at the PCB!” photo competition, now in its ninth year. The photos, reflecting the life of users in the PCB, are posted on Instagram with the hashtag #UndiaalPCB. Juan Sebastián Ramírez Larrota, from the company IBMB-CSIC, won first prize with the photo "PBC researchers bring back Gaudi with artificial intelligence", which illustrated the Christmas card. IBEC’s Margarita Bulatova received the runner-up prize for her photograph "Science can be frustrating."
The PCB refinances its debt of 36.7 million euros with the Spanish Ministry of Science and Innovation

In 2023, the PCB refinanced its matured debt of 36.7 million euros with the Spanish Ministry of Science and Innovation for 25 years. The new schedule allows the PCB to stabilise its financial situation, in both the short and long terms, and consolidate its self-sustainable financial viability. The Generalitat de Catalunya and the University of Barcelona (UB) have supported the refinancing: the former as a guarantor for the Spanish Ministry and the latter providing a guarantee for the Generalitat. The rapid growth in occupancy of PCB space has allowed it to bring forward the forecast results in the feasibility plan by two years.

The PCB was founded on the initiative of the UB in 1997 and, in order to build its eight buildings, providing 100,000 square metres, it accumulated a debt of 113 million euros. The PCB closed its first financial year in the black in 2017, with a profit of 340,000 euros and an EBITDA of 5.5 million euros, 20 years after its creation. Over the last years, its financial results have improved, obtaining an EBITDA of 7.6 million euros and a profit of 2.9 million euros on closing 2023.

Thanks to the positive EBITDA in recent years, it was able to pay the debt back, leaving the amount at 75 million euros: 36 million with the Generalitat de Catalunya and 39 million with the Spanish Ministry, of which 36.7 had matured.

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Refunding the matured debt with the Spanish Ministry of Science and Innovation

Economic solvency and compliance with the viability plan in recent years allowed the PCB to request the refinancing of the matured debt with the Spanish Ministry of Science and Innovation for 25 years, with an initial 5-year grace period, under the protection of the 15th additional provision on financial support for actions in science and technology parks of Law 11/2020, of 30 December 2020, on general State budgets for 2021, and Order CIN/822/2021, of 29 July, of the Spanish Ministry of Science and Innovation, which implements it. The approval of the Spanish Ministry and a favourable report from the Spanish Ministry of Finance means the refinancing of the 36.7 million euros, in line with the PCB viability plan, has now come into effect.

Support from the Generalitat de Catalunya and the UB

For the refinancing with the Spanish Ministry of Science and Innovation, in addition to demonstrating its economic viability, the PCB had the guarantee of the Generalitat de Catalunya, which also readjusted the schedule for the return of the PCB loan to the Generalitat: the term has been extended by three years and the instalments reduced for the most immediate period (2022-2027), shifting the amount to the last years of loan repayment. Both the payment guarantee and the readjustment of the loan have enabled the PCB to continue with its viability plan and match the return of the matured debt to the Spanish Ministry’s new schedule.

The UB, which has made the PCB one of its key players in the field of research, innovation and transfer during its 25 years of existence, was instrumental in obtaining the refinancing, presented as a counter-guarantee of payment to the Generalitat should the PCB be unable to meet the new loan schedule.
<table>
<thead>
<tr>
<th>Description of income</th>
<th>Budget of the amounts</th>
<th>Closing of amounts</th>
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</thead>
<tbody>
<tr>
<td>RENTALS</td>
<td>13.170</td>
<td>13.141</td>
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<tr>
<td>PROVISION OF SERVICES</td>
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<td>12.009</td>
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<tr>
<td>GRANTS/DONATIONS</td>
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<td>91</td>
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<tr>
<td>ORDINARY INCOME</td>
<td><strong>26.705</strong></td>
<td><strong>25.241</strong></td>
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<table>
<thead>
<tr>
<th>Description of expenditure</th>
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</thead>
<tbody>
<tr>
<td>-4.326</td>
<td>-4.246</td>
<td></td>
</tr>
<tr>
<td>STAFF</td>
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<td>-13.399</td>
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<tr>
<td>MAINTENANCE AND SERVICES</td>
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<td><strong>-17.645</strong></td>
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<td>ORDINARY EXPENDITURE</td>
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<tr>
<td>EBITDA</td>
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<td>FINANCIAL COSTS</td>
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<td>DEPRECIATION</td>
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<td>-4.381</td>
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<tr>
<td>CAPITAL GRANTS IMPLEMENTED</td>
<td>1.360</td>
<td>1.324</td>
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Results

**2.554**

**2.932**

.Amounts in thousands of euros
Year-end 31 December 2023
BARCELONA
SCIENCE PARK
Where Science Becomes Business

Parc Científic de Barcelona
UNIVERSITAT DE BARCELONA

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