“We help UB research to have an impact on society through companies and institutions”
I am pleased to present hereby the activity report of the Bosch i Gimpera Foundation for the year 2022.

In 2022, we made available to the teaching and research staff of the University the Bosch i Gimpera Foundation Service Portfolio, a high-quality tool that reflects our way of working and is at the same time one of the actions carried out to improve the services we offer.

The University of Barcelona’s Regulations on Industrial and Intellectual Property have also been updated to ensure legal certainty in the communication and protection of research results. Likewise, both the distribution of the benefits resulting from the exploitation of research results and the attribution of ownership of these results have been revised and the regulations have been adapted to current legislation.

As a new 2022 initiative, I would like to highlight the First Meeting of spin-offs of the University of Barcelona: Cockroaches vs Unicorns, a work session in which companies based on UB research results (spin-offs) got together to learn about each other, share experiences and create synergies. This event is designed to become an annual gathering.

Among the activities that you will find in this report, I would like to draw your attention to the eighth edition of Science + Partners and the seventh edition of the Fund for the Promotion of Innovation (F2I).

I should not like to conclude this presentation without mentioning the new organisation of the FBG. In March 2023, the FBG embarked on a reorganisation project aimed at improving management processes, promoting university-business/institution collaboration, improving the generation and management of patents and licences, and fostering the creation of companies. The purpose of this reorganisation is for the FBG to become part of the integrated researcher service unit that is currently under development at the Diagonal Campus to attend to any need or initiative that researchers may have in relation to the management of R&D&I projects and the valorisation of research.

Finally, I would like to acknowledge the work carried out by M. Carme Verdaguer at the head of the FBG and thank the team of the Bosch i Gimpera Foundation for the commitment and enthusiasm with which they have undertaken the new project that begins in 2023.

Mercè Segarra
Vice-Rector for Entrepreneurship, Innovation and Transfer of the University of Barcelona
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2022 Activity indicators

53.98 M€
Projects outsourced to the UB
27.64 in 2021

135
patents available for transfer
132 in 2021

38.40 M€ million out of these are revenues from UB projects
15.58 M€ million are revenues from FBG projects

50
assessed inventions
43 in 2021

729
companies and institutions outsourced research
670 in 2021

17
licensed technologies
17 in 2021

1,736
active research projects
1,921 in 2021

15
assessed entrepreneurial projects
18 in 2021

746
people hired within the framework of research projects
775 in 2021

2
new spin-offs created
2 in 2021

279 companies and institutions outsourced research
670 in 2021

1,921 active research projects
15.58 M€ million are revenues from FBG projects

775 people hired within the framework of research projects
Innovation and knowledge transfer

One of the missions of the Bosch i Gimpera Foundation is to create economic and social impact based on the research carried out at the University of Barcelona; in other words, to ensure that this research translates externally into technologies and companies that create jobs and economic growth, or into collaborations between universities and companies that make them more competitive. The results of 2022 in relation to the activities developed in innovation and transfer were as follows:

Contracts and services outsourced by companies and institutions

We offer companies the opportunity to improve their products and services by outsourcing them to researchers and research groups of the University of Barcelona. Annual outsourced revenue:

11.33 M€
annual contracted revenue
10.29 in 2021

613 projects
564 in 2021
At the FBG we work to protect the technology developed by UB researchers and to make it available to companies and organisations through licensing.

- **135** patents available for transfer
  - 132 in 2021

- **86** patent applications
  - 104 in 2021
  - 14 priority patent applications
  - 17 international patent applications (PCT)
  - 55 patents in national phases abroad

- **17** licensing contracts signed
  - 17 in 2021

- **3** software technologies registered
  - 3 in 2021

- **10** material transfer agreements
  - 17 in 2021

- **289,953 €** the revenue generated by licences
  - In 2022, the revenue generated by 2021 and previous licences

An agreement has been reached with an Italian company to develop a super-resolution microscope.
Business creation and support for entrepreneurs

The FBG is the office responsible for promoting the creation of innovative companies by UB researchers.

- **23** active part-owned spin-offs (22 in 2021)
- **15** business creation ideas received and assessed (18 in 2021)
- **2** new spin-offs created (2 in 2021)
- **10.9 M€** public and private funding (6.3 in 2021)

Spin-offs created in 2022

Nimble Diagnostics
A company specialising in monitoring stents using microwaves. It contributes to Sustainable Development Goals (SDGs) 3 (Good Health and Well-Being), 8 (Decent Work and Economic Growth) and 9 (Industry, Innovation and Infrastructure).

Virmedex Virtual Experiences
Develops gamified software for specialised training in the medical sector. It contributes to SDGs 3 (Good health and well-being), 4 (Quality Education) and 9 (Industry, Innovation and Infrastructure).
The UB owns shares in newly created spin-offs through UB Innovative and Scientific Culture, SLU (CIC-UB)

Spin-off shareholdings including year of incorporation:

- Accure Therapeutics 2020
- AlGecko Technologies 2020
- Biocontrol Technologies 2004
- Bluephage* 2016
- Braingaze 2013
- ColorSensing 2018
- Cytex Biotechnologies 2015
- DapCom Data Services 2013
- BDgen Ocular Genomics 2018
- Enantia 2003
- Gate2Brain 2020
- Impetux Optics 2012
- Kumux 2017
- Mind and Identity 2020
- Neurekalab 2019
- Nimble Diagnostics 2022
- Nostrum Biodiscovery 2015
- Oniria Therapeutics 2021
- Qilimanjaro Quantum Tech 2019
- Reveal Genomics 2021
- Smalle Technologies 2012
- Virmedex Virtual Experiences 2022
- Virtual Bodyworks 2015

* Also part-owned by the Bosch i Gimpera Foundation

Featured indicators of part-owned spin-offs

- **222** jobs created
  
  163 in 2021

- **11.3 M€** total revenue
  
  9.3 in 2021
The First TECNIO Conference on the model of knowledge transfer that Catalonia needs was held in 2022, featuring the TECNIO groups of the University of Barcelona. In November, PSC Catalan MPs visited the TECNIO groups of the University of Barcelona; specifically, they visited the Clinic Catalan MPs and the Bellvitge Campus of the Faculty of Medicine and Health Sciences of the University of Barcelona to learn first-hand about the work carried out by the UB TECNIO groups SDM, MAiMA, DIOPMA, DataScience@UB, CREATIO, CPT and CEMIC, as well as the CERCA IBEC centre.

The University of Barcelona has seven TECNIO groups. In 2022, these seven groups, which include over 200 researchers, generated revenues of €8 million, 57% of which came from R&D&I contracts with companies and public grants for the development of business R&D&I projects. During this period, seven patents applications were also filed and ten researchers transferred to companies.

The following seven UB groups are recognised with the TECNIO certification:

- Centre of Microsystems Engineering for Instrumentation and Control (CEMIC)
- Thermal Projection Centre (CPT)
- Centre for the Production and Validation of Advanced Therapies (CREATIO)
- DataScience@UB
- Centre for the Design and Optimization of Processes and Materials (DIOPMA)
- Applied Mineralogy and Environment (MAiMA)
- Drug Development Service

Highlight

Time magazine recognises a test developed by Reveal Genomics as one of the best inventions of 2022.
Management of research, knowledge transfer, and innovation projects

This year 2022 marks the beginning of the consolidation of the UB’s mandate to the FBG to act as a management body for research, knowledge transfer, and innovation with the aim of attending to any need or initiative related to R&D&I projects and research valorisation.

This mandate involved the management of €33.4 million, €5.7 million of which correspond to revenues from UB projects, while the remaining €27.7 million come from FBG projects.

The FBG assists researchers in the management of their research projects, from the preparation of proposals and applications for grants and subsidies to the monitoring of the obtained funding. We do this by approving project budgets during the application phase and validating their economic justification; monitoring income, economic execution, and financial closure, and making project payments. This management also includes the processing of project-related employment contracts, collaboration grants, and work permits and authorisations.

746 people were hired in connection with research projects

775 in 2021

In 2022, a total of 23 training sessions have been held for 290 people. All workers are required to take mandatory courses, but some have also completed voluntary training. A total of 599 courses were completed.

In accordance with the ongoing pandemic situation, physical inspections of workplaces were avoided, except in extraordinary cases. Thus, it has only been necessary to visit one centre due to a very specific issue, and work has been carried out on updating risk assessment of workplaces and work equipment of a total of 24 centres, although not at the installations.
Sanofi-Aventis, SA – Promotion of the project “Publication plan on immunological mechanisms in dermatological pathologies.”

Knowledge and Development Foundation – Promoting research on all those activities related to the social function of higher education and, in particular, to aspects associated with the contribution of universities to development.

Hamilton Investigación Estratégica, SL – Promotion of the project “Impact of the pandemic on the catering sector and evaluation of the Dark Kitchen concept as a business alternative.”

Energy and Environmental Sustainability Foundation – Promoting activities related to the social function of knowledge transfer and the university-business relationship in the field of energy and environmental sustainability.

Energy and Environmental Sustainability Foundation – Promoting the Energy Sustainability Chair of the University of Barcelona.

FIATC Mutua de Seguros y Reaseguros – Promotion of research and dissemination activities carried out by the Observatory of European Systems of Complementary Social Pension Plans.

Aon Iberia Correduría de Seguros y Reaseguros, SAU – Promotion of research and dissemination activities carried out by the Observatory of European Systems of Complementary Social Pension Plans.

Grup Catalana Occident, SA – Promotion of research and dissemination activities carried out by the Observatory of European Systems of Complementary Social Pension Plans.

BanSabadell Vida SA de Seguros y Reaseguros – Promotion of research and dissemination activities carried out by the Observatory of European Systems of Complementary Social Pension Plans.

Vidacaixa, SAU – Promotion of research and dissemination activities carried out by the Observatory of European Systems of Complementary Social Pension Plans.

Fundació Privada Auditorium d’Assegurances – Promotion of research and dissemination activities carried out by the Observatory of European Systems of Complementary Social Pension Plans.

Mutualitat dels Enginyers MPS – Promotion of research and dissemination activities carried out by the Observatory of European Systems of Complementary Social Pension Plans.

Mutualidad General de la Abogacía, Mutualidad de Previsión Social a Prima Fija – Promotion of research and dissemination activities carried out by the Observatory of European Systems of Complementary Social Pension Plans.

Caja de Seguros Reunidos Compañía de Seguros y Reaseguros, SA – Promotion of research and dissemination activities carried out by the Observatory of European Systems of Complementary Social Pension Plans.

Zurich Vida, Compañía de Seguros y Reaseguros, SA – Promotion of research and dissemination activities carried out by the Observatory of European Systems of Complementary Social Pension Plans.

Consultora de Pensiones y Previsión Social, Sociedad de Asesores, SL – Promotion of research and dissemination activities carried out by the Observatory of European Systems of Complementary Social Pension Plans.
Grants

Annual revenue

51 grants
62 in 2021

2.35 M€
total volume
10.53 in 2021

Public and private grants

Research grants awarded by the European Commission

49 grants awarded both by public institutions and private institutions and companies

2 projects

1.63 M€
grants

0.72 M€
grants
Promoting collaboration between university and society

“Knowledge transfer is extremely important. I come from the field of basic science, and I have always been working on this protein, which is relevant to tumor development, but from a very fundamental point of view, to find out how it works, what its regulators are like, what alterations it presents in some tumors and which in others, and so on. This is what we basic research groups do. But in the end what we want is for all this knowledge to be applied to clinical practice. To reach that point is very rewarding. Knowledge transfer is essential so that all the knowledge we generate can reach companies, which then have to undertake an entirely different process for it to reach society.”

Neus Agell, Department of Biomedicine, Faculty of Medicine and Health Sciences (excerpt from an interview conducted in March 2022)
Activities and projects

Science + Partners

Meeting between investors and UB scientists to promote researcher projects

The eighth edition of Science + Partners, focusing on industrial and digital technologies, took place in November 2022.

5 Science

- Faculty of Physics - “A drone-based system to monitor pollution in industrial plants”, led by Dr. Agustí Gutiérrez
- Faculty of Physics - “Microscope on a chip”, led by Dr. Ángel Diéguez
- Faculty of Chemistry - “Tuning and upgrading of modern water sanitation systems”, led by Dr. Ignacio Sirés
- Faculty of Psychology - “VR United”, led by Dr. Mel Slater
- Virmedex Virtual Experiences, a spin-off of the UB and the UPC - “Virmedex Virtual Experiences: join us for a new paradigm of virtual reality based gamified simulation”, led by Dr. Daniela Tost.

5 Partners

In 2022, a total of eleven innovation tickets were awarded within the framework of this incentives programme, which aims to promote R&D&I projects. In terms of fields of knowledge, four tickets were awarded in the field of social sciences, four in the field of experimental sciences, and three in the field of health sciences.

Innovation Tickets
In 2022, two projects of the UB Social Innovation Laboratory deserved special attention:

- The fifth edition of the Good Governance and Regulation Living Lab. The themes of the session were experimentation in the regulatory field and the role of sandboxes—a term that designates a testing environment for new regulations and their involvement in new business models supervised by regulatory institutions—within the framework of the assessment of public policies and regulatory quality at the local level.

- A social innovation laboratory promoted by UB Professor Carme Llasat, director of the Group for the Analysis of Adverse Meteorological Situations (GAMA) and holder of the Creu de Sant Jordi 2022, to propose joint actions between universities, companies, the public administration, and citizens to adapt to climate change, with the aim of improving the resilience of society to extreme weather phenomena caused by climate change, such as torrential rain or heat waves, specifically in the metropolitan area of Barcelona.
The fifth edition of the Open Innovation Forum was held in 2022, with two sessions, one in July and one in December. There were 75 participants who took part in 57 meetings and tackled 31 business challenges.

Let’s UB!

The second UB Innovation and Entrepreneurship Workshop, Let’s UB!, was held in 2022, gathering over 250 people in the Historical Building of the University of Barcelona.

Cockroaches vs Unicorns: a meeting point for UB spin-offs

In October we hosted a meeting of spin-offs of the University of Barcelona so that they could get to know each other, share experiences, and create synergies.

The title of the meeting, Cockroaches vs. unicorns, refers to two concepts that can be used to define start-ups or spin-offs according to their growth and their ability to adapt to change. Cockroach companies, like the bug whose name they bear, are tough, resilient start-ups that withstand changes in the business and economic sector. Cockroaches aim for long-term, step-by-step growth and sustainable revenue increase. From an investor’s point of view, a cockroach is a low-risk investment (at least compared to a unicorn). Unicorn companies are those that show a more exponential growth in a short period of time, and are often more focused on the search for capital than on the product.
The fourth edition of the 'From Science to Market' programme, held in 2022, promoted 25 entrepreneurial projects. Business proposals were both technological and social, linked to healthcare, the environment and education, among other areas. Some of these proposals included: a tool to manage consumption data to fight energy poverty and climate emergency, a project to produce bioplastics, an autonomous parcel delivery robot, and an alternative treatment for osteosarcoma based on cold plasma.

In 2022, five sessions were organised to promote and encourage knowledge transfer among UB researchers from different fields. These sessions were aimed, respectively, at researchers from the Faculties of Biology, Mathematics and Computer Science, Information and Media, and Psychology, as well as at researchers from the Institute for Neurosciences.

Regarding attendance to trade fairs, the UB has participated, through StartUB! and the Bosch i Gimpera Foundation, in the 4YFN of the Mobile World Congress with a representation of UB spin-offs and start-ups.

In addition, we have also attended the Bioeurope Winter fair and a matchmaking event of the EIT Health network.

The UB actively participates through the FBG in several business clusters with the aim of facilitating contacts between UB research staff and research groups and companies and other agents in the same sector.

Clusters involving the FBG: Beauty Clúster Barcelona, KID’S CLUSTER, Mental Health Cluster of Catalonia (CSMC), and CataloniaBio & Health Tech.

Clusters involving research groups, institutes, networks, etc.: Catalan Water Partnership (CWP), Audiovisual Cluster of Catalonia, Advanced Materials Cluster of Catalonia (MAV), Optics and Photonics Cluster (secpho).

Communities: Deep Tech Community and TECNIO.

In 2022, it is worth highlighting the participation of the University of Barcelona in the first deep tech congress to position science–based entrepreneurship in the city. During this congress, Qilimanjaro, a UB spin–off pioneer in quantum computers, was awarded the prize for the best deep tech start-up.
## Awards

### Antoni Caparrós Prize

for the best knowledge transfer project. Awarded to:

- Santi Seguí, for the project “Artificial intelligence to improve colorectal cancer diagnosis.”
- Josep Maria Suñé, for the project “A veterinary drug to treat pain in dogs.”

### Senén Vilaró Prize

for the best innovative business. Awarded to:

ColorSensing, a spin-off of the University of Barcelona.

## Projects

- A drone equipped with a gas sensor monitors the contamination of volatile chemicals generated by industrial plants that can be harmful to workers and the general public. This drone flies over industrial plants, measures contamination in a short time and makes it possible to locate any volatile chemical products and sources of odour that may exist.
- Study of the health problems caused by the use of virtual reality.
- Worms measuring little more than a millimetre are being used in the search for new targets to prevent or cure neurodegenerative diseases such as Alzheimer’s and Parkinson’s.
- An open museum in the Pyrenees aims to disseminate and conserve, through a virtual experience, the geological history of this mountain range.
- Search for a potential drug for childhood osteosarcoma, a rare disease.
- Detection of diseases such as COPD (chronic obstructive pulmonary disease) through speech.
- Development of a potential molecular targeted therapy against pancreatic cancer by inhibiting the protein that causes pancreatic cells to generate tumours.

The University of Barcelona contributes to enhancing the competitiveness of the business sector and improving social welfare through the generation of R&D&I results.

Here are some examples of projects, success stories, and interviews with researchers that have contributed to increasing the visibility and reputation of the UB as an innovative university in 2022.
We interview researchers of the University of Barcelona in order to give visibility to their projects and to disseminate and publicize the importance of knowledge transfer to society. In this report we would like to underline a personal question asked to all the interviewees, including in each case a link to the whole interview. In addition, we would also like to point out that from September onwards, audio-visual clips have been added to the interviews. In the interviews conducted in 2022, we would like to highlight the following question:

What would you like to see in the future?

“In the field of health sciences I would like to see new treatments for all cancers, but I am aware that there are many people who are not dying of cancer, but of other much more basic diseases. So what I would really like would be to see that knowledge and advancements are accessible to everybody.”

Neus Agell
21 March 2022

“For science to never lose sight of its goal of making the world better, more inclusive and more accommodating to everyone’s diversity.”

Meritxell Teixidó
20 April 2022

“I would like to see people become empowered, to stop looking for causes in others, and look inwards instead. I think science, and researchers in particular, can contribute a lot in this regard.”

Christian Griñán
19 September 2022

“A return to a culture of hard work.”

Joan López-Moliner
24 October 2022

“Incurable diseases cured.”

Maria Dolors Pujol
20 June 2022

“The future geological evolution of the Pyrenees.”

Josep Antoni Muñoz
18 July 2022

“A use of robotics that does not serve to benefit only a small part of society, but where technological advances can benefit all citizens.”

Agustí Gutiérrez Gálvez
19 December 2022

“I would like to see more collaboration between researchers and less egotism in universities. I would also like to see more recognition for teaching and not just for research. In the field of linguistics, I would like to see greater recognition for languages, especially minority languages, because they are a treasure for humanity.”

Mireia Farrús Cabeceran
16 May 2022
Success stories

Examples of technologies that have been developed at the UB and reached the market

- A videogame against ADHD and dyslexia
- Coordination of SARS-CoV-2 surveillance in wastewater in Spain
- A test that allows fine-tuning of the type of treatment for breast cancer
- An app to identify and treat crop problems in the Middle East and North Africa

The institution

“The Bosch i Gimpera Foundation provides help and support. It is an institution that already existed when I arrived at the university. Over all these years it has been able to adapt and innovate, and has never lost its commitment to innovation thanks to a great team of people with strong values.”

Maria Dolors Pujol, Department of Pharmacology, Toxicology, and Therapeutic Chemistry (excerpt from an interview conducted in June 2022)
The Bosch i Gimpera Foundation is a member of the Board of Trustees of the Barcelona Science Park (PCB) and of the Governing Board of UB Innovative and Scientific Culture (CIC-UB). We also belong to the Governing Board of the University School of Hospitality and Tourism (CETT-UB) and to the Governing Board of StartUB! (jointly founded by the FBG and the UB), and are members of the executive board of the Barcelona University Centre (BCU). Alongside the Vice-Rectorate for Entrepreneurship, Innovation and Knowledge Transfer, we represent the University of Barcelona in the Enterprise and Innovation Policy Group (ENTE) of the European League of Research Universities (LERU). Moreover, as part of the RedOTRI, we participate in the permanent working group of the R&D&I Sectorial of the CRUE, and we are also present in the Transfer Network, the association of professionals in research transfer, innovation and management.

In 2022, it is worth highlighting the meeting of the LERU business and innovation policy group held at the UB, which brought together the heads of this area from thirteen universities in the network.

**All Together Meeting**

The FBG’s All Together Meeting is a meeting of the staff of the FBG with a researcher of the University of Barcelona. It has the twofold aim of helping FBG staffers to better understand the work of researchers through the real cases of projects that they have had a hand in launching, and of letting researchers meet the FBG’s staff in person.

In 2022, within the framework of this Meeting Space, we met:

M. Carmen Vidal, Director of the Torribera Food Campus and Professor in the Department of Nutrition, Food Science and Gastronomy at the Faculty of Pharmacy and Food Science.

Sergi Munné, Professor in the Department of Evolutionary Biology, Ecology, and Environmental Sciences at the Faculty of Biology.
Who are we?

Staff of the Bosch i Gimpera Foundation:

**General Management**
M. Carme Verdaguer, general manager; Inmaculada Soria,** secretary
- **Technical Office:** Maria Segú, head
- **Operations:** Noemí Mirón, director
- **Communication and Marketing:** Mariona Ferrer, head. **Team:** Arnau Martínez,** Aleix Solernou

Management
M. Teresa Plo, manager
- **Administration, Financial Management, and General Services:** Sergi Ros, head of administration; Ana Giménez, head of financial management. **Team:** Anna Apellániz, Andrea Arbós, Yvonne Mata, Daniel Pierrá, Mili Rivera, Sònia Salom, Gemma Sánchez, Cristina Serra, Joel Stijes, Marta Tort, and Elisabeth Vico
- **Human Resources, Health, and Safety:** Mercè Tejedor, head. **Team:** Raquel Homs, Pili Morales, Laura Ramos, Teresa Sánchez, Mireia Solsona, and Sandra Tello
- **IT:** Àlex Closa, head. **Team:** Andreu Valls
- **Public and International Grants Unit:** Olga Bogurina, coordinator. **Team:** Digna Cárçoba, Ruth Castilho, and Santa Taberner
- **International Research Projects, UB-FBG joint office:** FBG – Financial management: Xavier Gutiérrez, head. **Team:** Anna Ferrando, Sheila López, Sandra Martin, Silvia Mora, Andrea Navarro, and Anna Rovira

**Innovation and Knowledge Transfer**
Lurdes Jordi, director
- **Contract Research:** Salvador Mena, head
- **Valorisation and Licensing:** Inma Íñiguez, head
- **Business Creation:** Jose Conde, head
- **Contracts:** Gemma Casamitjana, head. **Innovation and Knowledge Transfer team:** Laia Crespo, Isabel Durán, Belén Gámez, Alba Ginés, Raquel Jiménez, Eva Martín, Gloria Roselló, Miquel Sureda, Rosa Vázquez, Dolores Vega, and Mercè Rabaneda

(**) Replacement of staff on maternity or temporary incapacity
(TI) leave, voluntary resignation, or retirement.