

2023

Annual report

*Biomedical Research
Institute of Lleida*



Presentation

I am delighted to present the 2023 annual report of the Institute of Biomedical Research Institute of Lleida (IRBLleida), which encapsulates a year of outstanding scientific achievements and high-quality research. This document highlights the remarkable efforts of our 37 research groups, whose innovative work is supported by our state-of-the-art scientific facilities and dedicated technical and administrative teams. As we celebrate our progress another year, we extend our most sincere appreciation to the various committees that provide crucial guidance, particularly the internal and external Scientific Committees which are of key importance to the progress of the center.

The scientific output of IRBLleida continues to demonstrate the excellence trend set in the last years, with an impressive 60% of our publications appearing in top-tier scientific journals in first quartile in 2023. The average impact factor of our publications has notably risen to 7.8, showcasing a significant advancement from the already excellent 7.2 in 2022. Furthermore, IRBLleida has seen a substantial increase in the number of grants obtained by the research groups, rising from 28 in 2022 to 42 in 2023, reflecting a strong commitment to advancing research endeavors. Notably, the institute's success rate in National Institute of Health Carlos III (ISCIII) Calls was the highest among Catalan institutes in 2023, underscoring our continued dedication to impactful biomedical research in the region. Moreover, other key milestones during this year are the funding obtained by our Biobank (400,000€) and our Clinical Trials Unit (180,000€) through the highly competitive ISCIII platforms to support R&D in Biomedicine and Health Sciences.

In addition, I am proud to announce that in 2023, IRBLleida has successfully renewed its ISCIII and HRS4R (Human Resources Strategy for Researchers) certification, achieving notable scores that not only reaffirm the outstanding achievements obtained thus far but also instill confidence in our continued pursuit of excellence in future evaluations. This renewal underscores our unwavering commitment to maintaining the highest standards in biomedical research. Furthermore, we have made significant efforts in strategic planning, with the development of unit-specific strategies for advancing in clinical assays, foster innovation and enhancing communication efforts. These strategic plans will serve as guiding frameworks, steering our future progress in these critical areas and ensuring that IRBLleida remains at the forefront of scientific innovation. Additionally, I am excited to highlight the organization of exciting events such as Inspiracy Lleida, which exemplify our dedication to bringing science closer to society and increasing visibility for the important work carried out by our researchers. Through initiatives like these, we aim to foster greater public engagement and appreciation for the vital role of research in improving health outcomes for all.

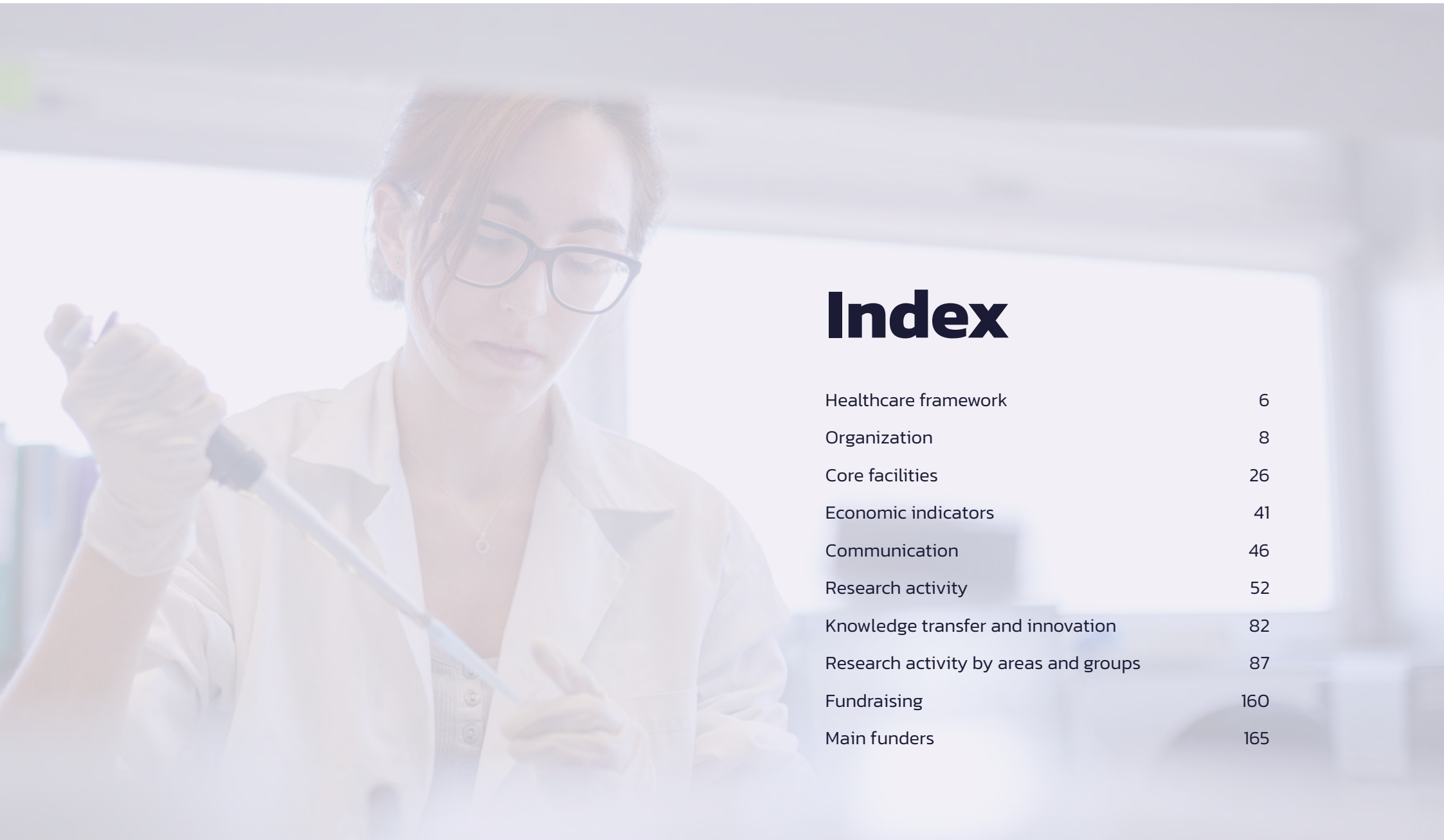
Looking forward, 2024 marks the 20th anniversary of IRBLleida, and we are excited to invite all citizens to join us in celebrating this key milestone through various events. Your engagement is essential as our research is the healthcare of the future.



Main achievements



Main figures are for 2023, figures in brackets are for 2022.



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Healthcare framework



Healthcare and teaching framework

IRBLleida acts as a cluster of all biomedical research carried out in Lleida and incorporates two key stakeholders that conduct health research and implement innovation policies:

- The **University of Lleida (UdL)**, which includes researchers from the Medicine, Nursing and Physiotherapy Faculties.
- The **Department of Health**, which includes research professionals from its health care providers:
 - » Catalan Health Institute (ICS): Arnau de Vilanova University Hospital (HUAV), the Lleida Primary Community Health Care, and the Alt Pirineu–Aran Primary Health Care.
 - » Gestió de Serveis Sanitaris (GSS): Santa Maria University Hospital (HUSM), Pallars Regional Hospital and Mental Health, and others.

Our institute also interacts with the Lleida AgriFood Science and Technology Park and Agrotecnio, the research center for agriculture, animal production and food technology at the ETSEA campus of the University of Lleida.

The Lleida Health Region includes the counties of Les Garrigues, La Noguera, Pla d'Urgell, La Segarra, El Segrià and L'Urgell. The provision of health, educational, cultural, commercial and professional services to people living in other municipalities in the district of Lleida, and in part of "La Franja", the Pyrenees and even the Terres de l'Ebre, make Lleida a center of attraction that goes beyond the district itself (with 370,000 inhabitants) to cover the needs of its inhabitants. In terms of teaching, IRBLleida receives support from the Health Sciences area of the University of Lleida with the degrees of Medicine, Nursing and Physiotherapy, and Human Nutrition and Dietetics. UdL lecturers and IRBLleida researchers also participate in the teaching of the Biotechnology degree. Since September 2009, the bachelor's degree in Biomedicine has been taught in coordination with the University of Marburg, a pioneer in this degree in the world. IRBLleida has a large animal facility located in Torrelameu, equipped with state-of-the-art experimental operating theaters, with the main objective of training surgeons, and facilities to carry out research activity using porcine models.

Healthcare activity in data

The Arnau de Vilanova University Hospital (HUAV) had 409,625 outpatient consultations in 2023 (316,009 face-to-face visits and 93,616 telemedicine). There were 38,526 day hospital sessions, 105,148 emergency visits, and a total of 27,199 discharges. The hospital has 451 beds, including 371 conventional beds, 20 pediatric beds, 4 ictus units, 30 adult critical care beds, and 10 neonatal ICU beds.

In addition, the Santa Maria University Hospital (HUSM) had 154,799 outpatient consultations, including 129,279 face-to-face visits and 25,526 telemedicine. It has had an annual activity of 7,755 hospital discharges, and there were 9,231 day hospital sessions and 189,564 rehabilitation sessions during 2023. There were also 1,410 discharges in the mental health area and 916 discharges in the socio-health area. The Santa Maria University Hospital has 106 beds available for specialized care, including 98 beds for conventional hospitalization and 8 critical beds, as well as 31 beds for socio-health care and 67 beds for mental health care.

The Teaching Unit for the training of residents (MIR, PIR, IIR, EIR, etc.) of the HUAV and the HUSM has been accredited since 1984.



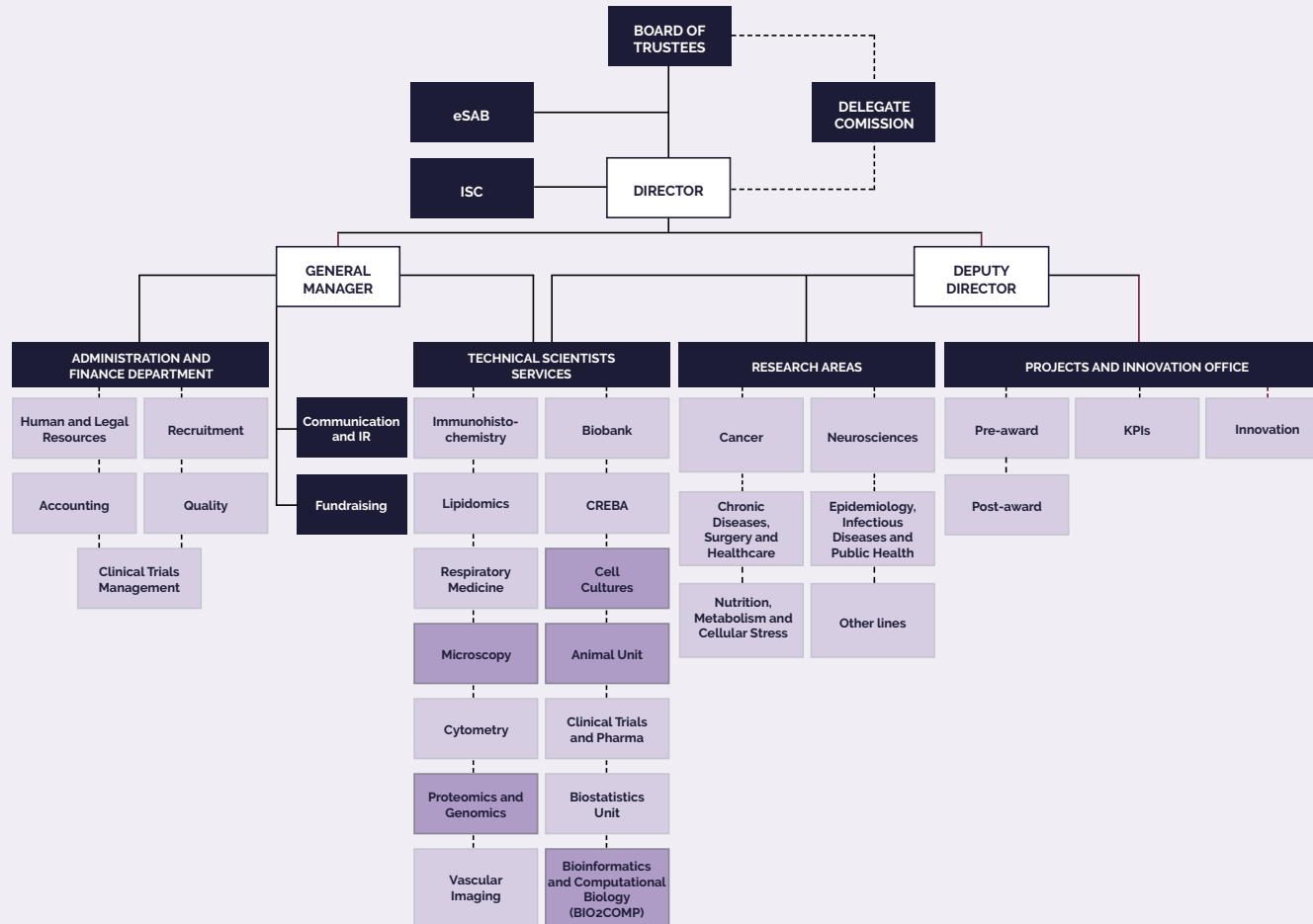


Organization

1. Board of trustees
2. Delegate commission
3. Internal scientific committee
4. External scientific advisory board (eSAB)
5. Business advisory board (BAB)
6. Drug research ethical committee (CEIm)
7. Animal experimentation ethics committees
8. Internal commissions
9. Committees and commissions composition by sex

IRBLLeida, in accordance with its statutes, is structured into the following bodies:

- Governing: board of trustees and its delegate commission.
- Advisory: the internal scientific committee (ISC) and the External Scientific Advisory Board (eSAB).
- Direction and management.



Managed by the IRBLLeida
 Managed by the UdL

Scientific Direction

Director
Dr. Diego Arango

Deputy Director
Dr. Joan Sayós

IRBLLeida Management Office

General manager
Ms. Eva López

Executive assistant
Ms. Naiara Vilagínés

Human resources, financial and clinical trials

Ms. Silvia Aresté
Ms. Anna Fernández
Ms. Núria Minguell
Ms. Elena Moscatel
Ms. Noelia Pérez
Ms. Sara Palau
Ms. Anna Sahuquillo
Dr. Alicia Sánchez de la Torre
Ms. Silvia Sisó
Ms. Georgina Tortras

Reception and concierge
Mr. Fernando Tortras

Projects and Innovación Department (project promotion and management, scientific production, valorisation and transfer)

Ms. Mònica Arango
Dr. Núria Bahi
Ms. Júlia Barbagli
Dr. Joaquin Bonelli
Ms. Anna Castilló
Ms. Irene Rosell
Ms. Anna Verdugo

Fundraising
Mr. Josep M. Bosch

Communication and public engagement
Ms. Meritxell Soria

Core facilities coordination
Dr. Maria Ruiz



1. Board of trustees

The governance, representation and senior management of IRBLleida will correspond to the board of trustees, which has all the necessary powers to achieve its foundational aims. Its composition in 2023 was as follows:

PRESIDENT

Hon. Dr. Josep Maria Argimon i Pallàs / Dr. Manel Balcells i Díaz

Counselor of the Department of Health of the Generalitat of Catalonia

FIRST VICE-PRESIDENT

Dr. Gemma Geis i Carreras / Dr. Joaquim Nadal i Farreras

Counselor of the Department of Research and Universities of the Generalitat of Catalonia

SECOND VICE-PRESIDENT

Dr. Jaume Puy Llorens

Chancellor of the University of Lleida

MEMBERS

Sr. Xavier Aldaguer Manté

Secretary of Universities and Research in the Research and Universities Department of the Generalitat of Catalonia

Dr. Ferran Barbé Illa

Professor of medicine at the University of Lleida/Chief of the pneumology department at Hospital Universitari Arnau de Vilanova

Ms. Iolanda Font de Rubinat

General deputy director of research of the Research and Universities Department of the Generalitat of Catalonia

Dr. Joan Gómez Pallarès

General director of research of the Department of Business and Knowledge of the Generalitat of Catalonia

Ms. Montserrat Llavayol Giral

General deputy director of health research of the Health Department of the Generalitat of Catalonia

Dr. Olga Martín Belloso

Vice-chancellor of research at the University of Lleida

Dr. Josep Pifarré Paredero / Mr. Raul Llevot Pérez

General manager of the Lleida Health Region

Ms. Ana Maria Plaza Tesías

General director for health planning of the Generalitat of Catalonia

Dr. Joaquim Ros Salvador

Professor of Biochemistry and Molecular Biology, University of Lleida

Dr. Lluís Rovira Pato

Director CERCA

Mr. Ramon Saladrígues Solé

General manager of the University of Lleida

Dr. Alfons Segarrara Medrano

Territorial general manager of the Catalan Institute of Health in Lleida

Mr. Joan Talarn i Gilabert

President of the Diputació de Lleida

Dr. Pilar Vaqué Castilla

Director of primary health care of the Catalan Health Institute in Lleida

Last meeting: 01/12/2023



2. Delegate commission

The board of trustees appoints, from among its members, a delegate commission. Its functions are to carry out the agreements adopted by the board of trustees, the periodic monitoring of the management tasks and of the agreements and conventions subscribed by the foundation, and to propose to the board of trustees the adoption of the agreements that correspond to this body, among others.

Dr. Joan Gómez Pallarès

General director of research of the Department of Business and Knowledge of the Generalitat of Catalonia

Dr. Olga Martín Belloso

Vice-chancellor of research at the University of Lleida

Ms. Ana Maria Plaza Tesías

General director for health planning of the Generalitat of Catalonia

Dr. Lluís Rovira Pato

Director CERCA

Mr. Ramon Saladrigues Solé

General manager of the University of Lleida

Dr. Alfons Segarra Medrano

Territorial general manager of the Catalan Institute of Health in Lleida

Last meeting: 21/11/2023



3. Internal scientific committee

The internal scientific committee is the IRBLleida's advisory body for its strategic and operational lines, which serves to promote and coordinate its scientific activity. The members of internal scientific committee in 2023 were:

PRESIDENT

Dr. Diego Arango del Corro

Scientific director

MEMBERS

Dr. Marcelino Bermúdez López

Principal investigator, Vascular and renal translational research group

Dr. Ana Garcerá Teruel

Principal investigator, Neuronal Signalling Unit

Dr. Eloi Garí Marsol

Coordinator of the Cancer research area

Dr. Mariona Jové Font

Principal investigator, Metabolic Physiopathology group

Ms. Eva López Truco

Quality manager

Dr. Anna Macià Armengol

Principal investigator, Oncological Pathology group

Dr. Rosa Maria Martí Laborda

Principal investigator, Oncological Pathology group

Dr. Manel Portero Otín

Principal investigator, Physiopathology group

Dr. Francesc Purroy García

President of the training commission

Dr. Joaquim Ros Salvador

Coordinator of the Nutrition, metabolism and cellular stress research area

Dr. Esther Rubinat Arnaldo

Principal investigator, Health care research group (GReCS)

Dr. Antonieta Salud Salvia

Principal investigator, Cancer biomarker research group (GReBiC)

Dr. Joan Sayós Ortega

Deputy director of IRBLleida

Dr. Juan Antonio Schoenenberger Arnaiz

Principal investigator, Pharmacoepidemiology and Pharmacodynamics group

Dr. Rosa Maria Soler Tatche

Coordinator of the Neurosciences research area

Dr. Anabel Sorolla Bardají

Principal Investigator, Biomarkers in cancer research group (GReBiC)

Dr. Albert Sorribas Tello

Principal Investigator, Systems Biology and Statistical Methods for Research Group

Dr. José Manuel Valdivielso Revilla

President of the training commission and coordinator of the research area Chronic diseases, surgery and cures in health and training

Dr. Oriol Yuguero Torres

Coordinator of the Epidemiology, Infectious Diseases and Public Health research area

Last meeting: 20/11/2023



4. External Scientific Advisory Board (eSAB)

The External Scientific Advisory Board (eSAB) is made up of several members of recognized scientific expertise and acts as an advisory body to the board of trustees in the tasks entrusted to it in order to ensure the scientific quality of IRBLleida, and to advise the Scientific Director in the development of its functions.

The members of the External Scientific Committee in 2023 were:

PRESIDENT

Dr. Mariano Rodríguez Portillo

*Nephrologist, Professor of Nephrology, Queen Sofia Hospital (Córdoba),
Coordinator of Teaching and Research, Group Leader, IP Maimonides Cordoba Biomedical Research
Institute*

MEMBERS

Dr. Ángeles Almeida Parra

*Doctor of Pharmacy. Scientific assistant director of the Biomedical Research Institute of Salamanca (IBSAL).
Head of the Molecular Neurobiology Group in the IBSAL and the Institute of Biology and Functional Geno-
mics (IBFG). Associate Professor of the University of Salamanca*

Dr. Antoni Andreu Periz

Scientific director EATRIS-ERIC

Dr. Ernest Arenas

*Doctor in Neuroscience, Karolinska Institutet (KI), Department of Medical
Biochemistry and Biophysics (MBB). Area of research on stem cells in the fight against Parkinson's
Disease*

Dr. Anna Lluch Hernández

*Professor of Medicine at the Faculty of Medicine of the University of Valencia and Head of Hematology
and Medical Oncology at the University Hospital of Valencia*

Dr. John Mariadason

*Professor of the School of Cancer Medicine, La Trobe University (Honorary); professor of the University
of Melbourne Department of Medicine, Austin Health (Honorary); head of the Division of Cancer Biology
and Therapy, Olivia Newton-John Cancer Research Institute; head of the Oncogenic Transcription
Laboratory, Olivia Newton-John Cancer Research Institute; director of Graduate Research, School of
Cancer Medicine (ONJCRI), La Trobe University*

Dr. Teresa Moreno Casbas

Director, Nursing and Healthcare Research Unit (Investén-ISCIII)

Dr. Josep Rodés-Cabau

*Director of the Catheterization and Interventional Laboratories of the Quebec Heart & Lung Institute, Que-
bec City, Canada; Associate Professor of Medicine at Laval University, Quebec City, Canada;
Director of Research and Innovation at the Clinic University Hospital of Barcelona, Barcelona, Spain.*

Dr. Carlos Rodríguez-Galindo

*Member, St. Jude Faculty; Executive Vice President; Chair, Department of Global Pediatric Medicine; Director,
St. Jude Global; Co-Associate Director, Outreach, Comprehensive Cancer Center, Memphis, Tennessee,
USA.*

Last meeting: 23/10/2023



5. Business Advisory Board (BAB)

The Business Advisory Board (BAB) is as a direct advisory body that collaborates closely with the institute's Board of Trustees and Director team. The BAB is composed by CEOs and general managers of health sector companies dedicated to health data, diagnostics or treatments and institutions related to innovation and economic promotion. Its primary mission is to actively contribute to the realization of the Institute's objectives in the field of Innovation.

The members of the Business Advisory Board in 2023 were:

MEMBERS

Dr. Lluís Blanch

Btcare and ITEMAS president

Mr. Ramon Boixadera

Director of the Economic Promotion Council of the Diputació de Lleida

Ms. Raquel Egea

CEO of Alma Medical

Mr. Antoni Gelonch

Member of the Social Council of the University of Lleida

Mr. Menno Marien

CEO of Bsure Medical

Ms. Laura Rodríguez

director of Invivo Capital (venture capital fund of the Barcelona Medical Association)

Mr. Jaume Saltó

president of the Chamber of Commerce of Lleida and of the company Saltó

Mr. Sun Yipeng

Director of Europa Infervision

Last meeting: 21/09/2023



6. Drug Research Ethical Comittee (CEIm)

The Drug Research Ethical Committee (CEIm) evaluates clinical drug trials in accordance with the provisions of RD1090/2015. The mission of this committee is to contribute to the improvement of the quality and relevance of the research projects, clinical trials and observational studies that are carried out in our institution, taking as a reference the main international bioethical codes.

The members of the CEIm in 2023 were:

PRESIDENT

Dr. Eduard Solé Mir

Paediatrician

VICE-PRESIDENT

Dr. Xavier Gómez Arbonés

Physician

SECRETARY

Ms. Cristina Casas Pi

Biologist

MEMBERS

Ms. Núria Badia Sanmartín

Biologist

Ms. Rocío González

Patients representative

Dr. Juan Antoni Schonenberger

Primary health care pharmacist

Ms. Maria Teresa Grau Armengol

Nurse

Mr. Josep Maria Gutiérrez Vilaplana

Nurse

Mr. Raül Llevot Pérez

Lawyer

Dr. Robert Montal Roure

Physician

Dr. Marta Ortega Bravo

Primary health care physician

Dr. Gerard Piñol Ripoll

Professor

Dr. Manel Portero Otín

Physician

Dr. Francesc Purroy García

Neurologist

Dr. Alexis Rodríguez Gallego

Clinical pharmacist

Dr. Ana Scott-Tennent de Rivas

Physician

Dr. Francisco Ignacio Torres Bondía

Hospital pharmacist

Marta Vilapriñó

Lawyer

Dr. Oriol Yuguero Torres

Representative of the healthcare ethics committee

Last meeting: 18/12/2023



7. Animal experimentation ethics committees

The animal experimentation ethics committee (CEEA) of the UdL was created to support researchers and teachers in their scientific and teaching activity involving laboratory animal experimentation. Its function is to provide information on the performance of the procedures, prior assessment of the suitability of the procedure in relation to the objectives of the study, the possibility of obtaining valid conclusions with as few animals as possible and consideration of alternative methods.

The members of the UdL CEEA in 2023 were:

PRESIDENT

Dr. Natàlia Alonso Martínez

Vice-rector for Research

SECRETARY

Dr. Carme Piñol Felis

SCT animal welfare advisor – rodent/reptile animal facility – Department of Medicine and Surgery of the UdL

MEMBERS

Dr. Daniel Babot Gaspà

Researcher at ETSEA, Department of Animal Science of the UdL

Dr. Frederic Casals Martí

Researcher at ETSEA, Department of Animal Science of the UdL

Dr. Xavier Gómez Arbonés

Researcher in Medicine at the Department of Medicine and Surgery of the UdL

Dr. José A. Moreno Martínez

Animal welfare advisor ETSEA center – Department of Animal Science of the UdL

Last meeting: 21/09/2023

The CEEA of the Center for Applied Biomedical Experimental Research (CREBA) is the body in charge of overseeing the welfare of animals used in teaching and scientific tasks that involve experimentation in a porcine model.

The members of the CREBA CEEA in the year 2023 were:

PRESIDENT

Dr. Dolores C. García Olmo

Veterinarian in charge of animal welfare and health at CREBA

VICE-PRESIDENT

Dr. Serafí Cambray Carner

Projects and Innovation manager at IRBLLeida and associate professor at the University of Lleida

MEMBERS

Dr. Carlos Alberto Rombola

Thoracic surgery section chief at the Arnau de Vilanova Hospital of Lleida and associate professor at the University of Lleida

Dr. Marcelino Bermúdez López

Principal investigator at the IRBLLeida and associate professor at the University of Lleida

Dr. Ester Desfilis Barceló

Group leader at the IRBLLeida and professor at the University of Lleida

Dr. Carme Mias Carballal

General surgeon at the Hospital Universitari Arnau de Vilanova and associate professor at the University of Lleida

Dr. Sara Puy López

Veterinarian in charge of animal health at CREBA

Dr. José Manuel Valdivielso Revilla

Group leader at IRBLLeida and associate professor at the University of Lleida

Last online evaluation: December 2023



8. Internal commissions

IRBLLeida is structured into different committees and commissions to organize its activity.

8.1. Internal commission of scientific evaluation

The IRBLLeida Internal Scientific Evaluation Commission (hereinafter CIAC), is the permanent evaluation commission and its function is to supervise the processes of evaluation and prioritization of proposals that are submitted to different calls, both coordinated by the IRBLLeida and by other funding sources.

Functions

- To establish the appropriate evaluation criteria for applications to calls that require prioritisation and/or selection of internal candidates.
- To evaluate and prioritise the proposals received in accordance with the established criteria.
- To establish the terms and conditions for internal calls, which will subsequently be reviewed and, if necessary approved by the Internal Scientific Committee.
- To communicate the results of the assessment to the IRBLLeida management.
- To respond to possible complaints and/or allegations related to calls evaluated or prioritised by the CIAC.
- To review and approve proposals submitted to the National Health Institute (ISCIII) calls.
- To monitor periodically the internal grants that may be required.
- To produce reports on the evaluations carried out (feedback).

MEMBERS

President

Dr. Manel Portero Otín

Secretary

Dr. Núria Bahi Pla

Members

Dr. Milica Bozic
 Dr. Núria Eritja Sánchez
 Dr. Helena Fernández Lago
 Dr. Xavier Gallart Palau
 Dr. Montserrat Gea Sánchez
 Dr. David de Gonzalo Calvo
 Dr. Robert Montal Roura
 Dr. José Manuel Valdivielso Revilla
 Dr. Ester Vilaprinyó Terre



Contact

ciac@irbllleida.cat



8.2. Innovation Committee

The Innovation Committee (CI) it is a permanent IRBLleida committee with the mission to advise institute management team and collaborate with the Innovation Unit with the idea to promote an innovative culture at the campus.

Main functions of CI are:

- Advise Management: On matters such as technology transfer agreements, spin-offs, results protection, etc.
- Collaborate with the innovation unit: Prioritization of ideas, indicators, project evaluation and monitoring, etc.

Last meeting: 15/10/2023

MEMBERS

President

Dr. Esther Rubinat Arnaldo

Secretary

Ms. Anna Castelló Pérez

Members

Dr. Fabien Delaspre
 Dr. David de Gonzalo Calvo
 Dr. Albert Lecube Torelló
 Dr. Manel Portero Otín
 Dr. Manuel Sánchez de la Torre
 Dr. Joan Sayós Ortega
 Dr. Aida Serra Maqueda
 Dr. José Manuel Valdivielso Revilla
 Dr. Ester Vilaprinyó Terre



Contact

innovacio@irbllleida.cat



8.3. Biosafety commission

The concept of biosafety encompasses a diverse set of regulations related to the protection of living beings and the environment from biological agents and risks. These include regulations on plant health, animal health, food safety, human health and safety, environmental safety and biodiversity protection.

IRBLLeida's Biosafety Commission is responsible for assessing the biosafety risk of projects initiated at the institution, providing support in training activities for users of tissue culture facilities with biosafety level 2 or higher, proposing improvements to processes or protocols and advising the centre's management on biosafety issues.

Functions

- To participate, while verifying the degree of compliance with current legal and internal regulations, in the assessment, identification, review and approval of facilities and research and teaching activities related to the export or import, the release into the environment, contained use, production, transport, commercialisation, packaging, destruction and/or elimination of biological agents, whether genetically modified or not, and the derivatives, products or samples that contain them.
- To carry out a prior assessment of the installations and activities that require authorisation, before notifying the competent authority, as well as to establish a registry and custody of the legally required documentation.
- To control and guarantee that the IRBLLeida's activities and installations comply with current legal and internal regulations.
- To establish the biosafety procedures to be applied by the IRBLLeida Biosafety Commission.
- To issue the certificates that are required in accordance with its competences.
- Proposing, when necessary, the improvement of facilities and equipment in terms of biosafety.
- To register the reception and packaging of biological agents, GMOs and/or their derivatives classified in risk group two or higher.
- To review information on biological incidents or accidents and notify the competent authorities of any incident, contamination or serious accident involving biohazardous material.
- To disallow the initiation and suspend any activity that is not in accordance with current regulations.
- To assess and inform IRBLLeida management of any complaints submitted by any member of the research community regarding possible irregularities in areas within the Commission's remit.
- To advise and train research teams working in laboratories on aspects related to biosafety.
- To ensure that the confidentiality of the data and information provided to the Commission is guaranteed.
- To guarantee the necessary coordination with the scientific and technical services of the IRBLLeida, the Ethics and Animal Experimentation Committees (CEEAA) and the Drug Research Ethical Committee (CEIm).
- Any other function attributed to it by law or by the governing bodies of the IRBLLeida.

The biosafety aspects of 11 projects and 28 application forms to work in the BSL2+ (3.16) containment room have been evaluated during 2023.

Last meeting: 12/12/2023

MEMBERS

President

Dr. Maria Ruiz Miró

Secretary

Dr. Marta Rafel Borrell

Members

Dr. Núria Bahi Pla
 Dr. Marcelino Bermúdez López
 Dr. Eloi Garí Marsol
 Ms. Eva López Truco
 Dr. Carme Piñol Felis
 Dr. Alicia Sánchez de la Torre
 Dr. Eva Parisi Capdevila
 Dr. Neus Pedraza Gonzalez



Contact

comitebioseguret@irbllleida.cat



8.4. Equality commission

The aim of IRBLleida's Equality commission is to facilitate compliance with existing legislation on equalities and diversity management. The members of the commission have a confidentiality agreement, as this body is a facilitator in the management of issues related to equality of gender, race, religious beliefs or geographical origin.

Functions

- To guarantee an egalitarian selection process and guarantee equal opportunities in the access, selection and permanence of staff.
- To guarantee wage equality.
- To promote staff participation in the area of equal opportunities.
- To eliminate unconscious biases and stereotypes.
- To raise awareness and train staff on issues of equality.
- To encourage a non-sexist or discriminatory use of language and images.
- To guarantee the conciliation of work, personal and family life.
- To implement measures for prevention, detection and intervention in cases of sexual harassment and harassment on the grounds of sex.
- To promote the incorporation of sex and gender perspective in research content.
- To incorporate the gender perspective in the mission, vision and values of the organization.

MEMBERS

President

Dr. Àgueda Martínez Barriocanal

Secretary

Ms. Elena Moscatel Mendelsohn

Members

Dr. Marcelí Bermúdez
 Mr. Iván Hidalgo Muñoz
 Ms. Irene Rosell Mena
 Ms. Meritxell Soria Yenez
 Mr. Marc Collado Catalán
 Mr. Luís Alejandro Rodríguez Guerrero



Contact

igualtat@irbllleida.cat



8.5. Quality commission

The Quality commission is the central body for IRBLleida's quality policy and assumes responsibility for the design, implementation and enforcement of the Quality Plan. It is also the assessment body and consults government bodies on quality policy issues.

Functions

- In relation to the Quality Plan:
 - a) To write the Quality Plan.
 - b) Review and verify compliance with the Quality Plan annually.
 - c) To write an annual report on the Quality Plan.
- Others functions related to the quality management system:
 - a) To analyse non-conformities and formulate the corresponding corrective and/or preventive actions.
 - b) To propose initiatives for the improvement (objectives) of quality.
 - c) To propose quality assessment methods and instruments.
 - d) To carry out an evaluation of the actions.
 - e) To inform the IRBLleida's governing bodies of the processes and results of quality assessment.
 - f) To assess quality issues.

Last meeting: 11/12/2023

MEMBERS

President

Ms. Eva López Truco

Secretary

Ms. Elena Moscatel Mendelson

Members

Sr. Josep Maria Bosch Pons
 Dr. Alicia Sánchez de la Torre
 Ms. Silvia Aresté Grau
 Ms. Irene Rosell Mena
 Ms. Meritxell Soria Yenez
 Ms. Laura Batalla Peinado
 Dr. Maria Ruiz Miró
 Dr. Anna Casanovas Llorens
 Dr. Eduard Solé Mir



Contact

qualitat@irbllleida.cat



8.6. Teaching committee

IRBLLeida teaching committee facilitates the compliment of the Institute's Training Plan and gives answers to the directorate's questions on training-related aspects.

Functions

- Drawing up the annual Training Plan for IRBLLeida staff linked to the general objectives of the Institute, adapting it to the different job profiles.
- To monitor training activities (attendance register), control their quality (surveys) and the system of access to training activities.
- Controlling the expenditure arising from training activities.
- To receive and prioritise training proposals in accordance with IRBLLeida and staff objectives.
- To advise and inform the Internal Scientific Committee of training needs and any incidents that may arise.
- To prepare an annual report the on compliance with the Training Plan.

MEMBERS

Presidents

Dr. Francesc Purroy Garcia
Dr. José Manuel Valdivielso Revilla

Secretary

Ms. Meritxell Soria Yenez

Members

Dr. Marcelino Bermúdez López
Dr. Silvia Bielsa Martín
Dr. Fabien Delaspre
Dr. Ester Desfilis Barceló
Dr. Ana Garcerá Teruel
Dr. Dolores Garcia Olmo
Dr. David de Gonzalo Calvo
Dr. Alberto Marín Sanguino
Ms. Meritxell Martín Garí
Ms. Elena Moscatel Mendelsohn
Dr. Èlia Obis Monné
Dr. Eva Parisi Capdevila
Ms. Arabela Sanz Alcázar
Dr. Joan Sayós Ortega
Dr. Anabel Sorolla Bardaji
Dr. Oriol Yuguero Torres



Contact

formacio@irbllleida.cat



8.7. Works council

IRBLleida Works council is the representative body of the employees of the Institute. The members of the council are elected democratically for 4-year mandates and the number of representatives to be appointed is related to the number of employees contracted by the Institute.

Functions

- Advice and defense of workers' rights.
- Regular meetings with management of the Institute.
- Negotiation of the collective agreement or other agreements with the management of IRBLleida.
- Inspection of the decisions, actions and omissions of the management in labor matters.

MEMBERS

President

Ms. Meritxell Martín Garí

Members

Ms. Rosana Abadia Ribeiro
 Dr. Montse Martínez Alonso
 Ms. Judith Muñoz Vega
 Dr. Eva Parisi Capdevila
 Ms. Sara Puy López
 Dr. Marta Rafel Borrell
 Ms. Laura Rumi Carrera
 Ms. Meritxell Soria Yenez
 Dr. M. Alba Sorolla Bardaji
 Dr. Izaskun Urdanibia Ascanio



8.8. Joint commission

The joint commission is integrated by the general manager and the executive director of IRBLleida as well as the head of the departments of Basic Medical Sciences, Medicine and Surgery, and Experimental Medicine of the University of Lleida (UdL).

Functions

- Advise the management of the IRBLleida in all those departmental matters and that may generate conflicts of competences.
- Manage the allocation and distribution of spaces in the biomedicine buildings.
- Advise on everything that refers to the maintenance and improvement of the facilities of the biomedicine buildings.
- Advise on everything that refers to the organization and operation of the biomedicine buildings.
- Manage the repair, maintenance or new acquisition, if necessary, of common equipment of the biomedicine buildings.
- Any other function that by mutual agreement derives from the previous ones.

MEMBERS

President

Dr. Diego Arango del Corro

Secretary

Ms. Eva López Truco

Members

Dr. Elisa Cabiscol Catalan
 Dr. Loreta Medina Hernández
 Dr. Carme Piñol Felis
 Dr. Maria Ruiz Miró
 Dr. Joan Sayós Ortega

9. Committees and commissions composition by sex

Total Number

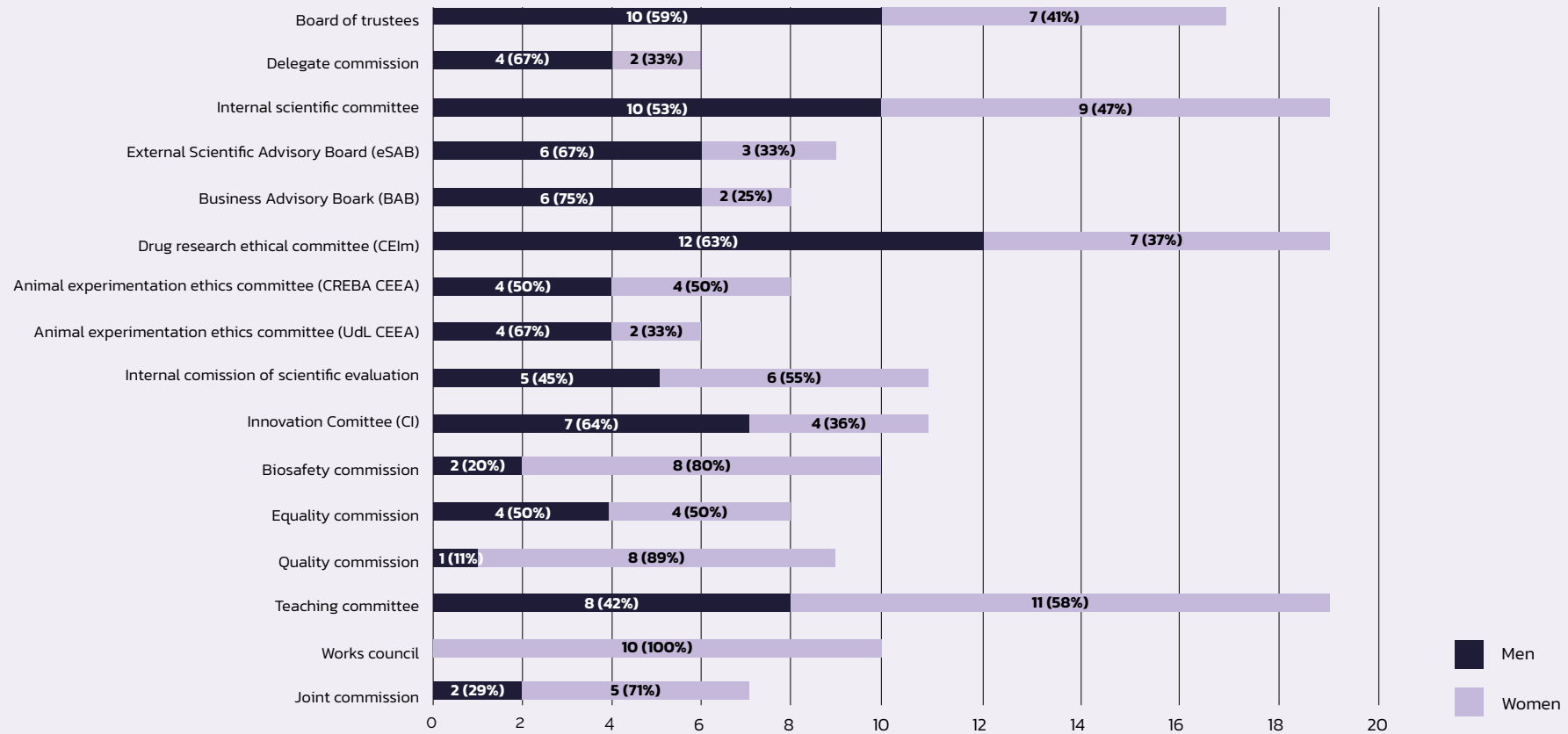


Figure 1. Total number of men and women in committees and commissions.



Core facilities

1. Biobank core
2. Microscopy and Cytometry core
3. Biostatistics core
4. Cell culture core
5. Animal housing facility
6. Clinical Research Support Unit (USIC)
7. Immunohistochemistry core
8. Lipidomics (PLICAT)
9. Respiratory medicine and chronic pathologies core
10. Proteomics and genomics core
11. Vascular image core – UDETMA
12. Centre for Applied Biomedical Experimental Research (CREBA)
13. Bioinformatics and Computational Biology (BIO2COMP)



1. Biobank core

The IRBLleida Biobank is the unit responsible for the management of samples and associated data destined for research. This management includes all the processes of reception, processing, conservation and transfer of biological samples to the scientific community, guaranteeing quality and traceability at all times, in compliance with current legislation. This scientific-technical service arises from the need to support biomedical research both in the health system of the Lleida region and at the University of Lleida. The biological samples kept at the Biobank come mainly from the *Arnau de Vilanova University Hospital and the University Hospital of Santa Maria de Lleida*.

In 2013, the biobank was authorized by the Department of Health and is registered in the National Register of Biobanks of the Carlos III Health Institute under reference B.0000682. Since 2012, the Biobank has been certified by the ISO 9001 standard and the scope of application of the Biobank's quality management system covers all the following activities: reception, processing, storage and dispatch of biological samples from donors for biomedical research. It is also part of the Xarxa Catalana de Bancs de Tumors (XBTC) and the Plataforma ISCIII Biobancos y Biomodelos. This national platform is organized into four specific hubs: Biobanks, Animal Models, 3D Printing and Organoids; and aims to make the maximum number of biological samples and their associated data available to the scientific community.

A catalogue of services has been created within the Animal Models Hub. Any customer can find out, by registering in advance, the map of animal model services available. Among these are the animal models present at IRBLleida (they can be consulted in the list). Recently, the platform has become an observer member of one of the most relevant platforms at European level, the European Biobank Infrastructure. (BBMRI-ERIC).

The Biobank currently has more than 380,000 stored samples from some 29,000 patients. These are tissue samples frozen in OCT or liquid nitrogen, paraffin, blood samples, serum, plasma, urine, CSF, pleural fluid, among others.

Collections

- Oncological diseases (breast cancer, colon, rectum, endometrium, ovary, kidney, liver, pancreas, thyroid, lung, etc.)
- Neoplastic diseases of the pleura
- Neurological diseases (stroke, Alzheimer's disease)
- Respiratory diseases (obstructive sleep apnoea, SARS-CoV2)
- Metabolic diseases (diabetes and morbid obesity)
- Inflammatory bowel disease (celiac disease)
- Cardiovascular diseases ('Bus de la Salut').

It should be noted that the Biobank is also collaborating in a prospective, multicentre international project aimed at understanding the molecular and genetic bases of cancer. The Biobank makes available to the scientific community a large number of samples (those corresponding to oncological diseases can be consulted in the search engine). Year after year there has been an upward trend in the number of samples provided to both internal IRBLleida researchers and national and international researchers. It is also attached to the Hospital Universitari Arnau de Vilanova Clinical Research Ethics Committee.

Collaborators



Head of service

Dr. Xavier Matias-Guiu

Service coordinator

Dr. Maria Ruiz Miró

Service Members

Ms. Nayhara Pérez
Dr. Irene Pociño
Mr. Enric Pouso-Vázquez
Ms. Sara Serrano

KPI

- Users: **24**
- Services: **37**
- Processed samples: **3,386**
- Publications Acknowledgement: **20**
- Training activities: **10**
- Consultations: **31**



2. Microscopy and Cytometry core

Flow Cytometry Unit

Flow cytometry is a technology which enables to analyse several parameters from a heterogeneous particle suspension, usually of cells. These cells can be stained either with fluorescent antibodies, which recognize a protein or antigen (on the cell membrane or intracellular), or fluorescent probes (for example, to detect oxygen reactive species) in order to detect them one by one. With this method we can gain information on the different cell populations depending on their fluorescence. The Flow Cytometry Service provides IRBLLeida researchers with flow cytometry equipment but also we offer technical expertise for experimental design, data analysis and training. We also participate in scientific dissemination and promotion of IRBLLeida's research.

Location

- Flow Cytometry Unit is located in Lab. 4.14 in the 4th Floor of Biomedicine 2 Building
- Microscopy Unit is in the B-1.1 and B-1.5 Lab located in the Biomedicine I Building basement.

Equipment in the Flow Cytometry Unit

- Becton Dickinson FACS Canto-II digital analyzer cytometer with three lasers 4-2-2 configuration and to analyze up to eight different colours. The cytometer is equipped with a computer to control the operation and comes installed with FACS Diva v. 6.1.3 analysis software.
- Beckman Coulter Cytoflex SRT cell sorter in a class II biosafety cabinet with sample temperature control. It can detect up to 15 parameters and it is able to sort 4 different populations in tubes, well plates or slides.
- Automac Pro (Miltenyi Biotec) magnetic cell separator in a cabin class II biosafety.
- Analysis software: Modfit LT, FCAP Array (CBA experiments from BD), FlowLogic and Cytobank.

Services

- Consultancy (experimental design or data analysis)
- Sample acquisition with operator or autoservice.
- Training

The Microscopy Unit

managed by the University of Lleida, currently, has the following microscopes and other equipment:

- Olympus FV1000 spectral confocal microscope with 5 laser lines: 405nm, 488 nm, 543 nm, 559 nm and 635 nm. It has 4x, 10x, 20x, 40x (oil), 60x (oil) and 100x (oil) lenses. It can also be used with phase contrast and DIC. This microscope also allows experiments to be performed in vivo and over time, as it has a cabin with CO2 and temperature control.
- Olympus FV10i confocal desktop microscope (10x and 60x objectives (oil))
- Leica SPE confocal microscope (10x, 20x, 40x oil, 63x oil)
- Olympus BX51 epifluorescence microscope (10x, 20x, 40x, 60x objectives (oil))
- Zeiss Axio Observer Z1 epifluorescence microscope: also with phase contrast and DIC. It allows in vivo time-lapse studies and has different excitation filters covering a wide range of wavelengths.
- Leica CM1950 cryostat with automatic cutting
- Leica RM2235 microtome
- Vibratome Leica VT 1000S
- Leica Ultramicrotome EM UC6
- Transmission electron microscope Jeol JEM1400 Flash (120kV)

Services

- Consultancy (experimental design or data analysis)
- Sample preparation for electron microscopy.
- Training



Flow Cytometry unit scientific coordinator

Dr. Conchi Mora

Core facility coordinator

Dr. Anaïs Panosa

Core facility technician

Dr. Judith Gracia

Microscopy unit managers

Dr. Jordi Calderó

Dr. Anaïs Panosa

FLOW CYTOMETRY UNIT – KPI

- Users: **36**
- Publications: **3**
- Training activities: **2**

CONFOCAL MICROSCOPY UNIT – KPI

- Users: **63**
- Training activities: **5** different science divulgation activities to High School students and Researcher's Night



3. Biostatistics core

Statistical methods are essential for designing studies, analyzing data and interpreting results. The Biostatistics Core has the ultimate goal of contributing to the generation of knowledge that can improve health by working with researchers to turn their data into useful information. To achieve this goal, the Biostatistics Unit provides advice and methodological support for the design and data analysis of studies by the research groups at IRBLLeida and external organizations. It participates in improving the processes of data collection, validation and integration for the research groups at IRBLLeida, and actively participates in Biostatistics networks in Spain and abroad. It also organizes and participates in training courses of statistics and research methodology at IRBLLeida and other institutions.

Mission

Our mission is to provide every biomedical researcher with outstanding statistical designs and methods, including the proper and efficient use and outcome interpretation of standard and cutting-edge methods.

Vision

Our vision is to expand to more biomedical researchers and maximize the quality and satisfaction with our service as part of our commitment to continuous improvement.

Values

Our values are ethics, excellence, professional responsibility, transparency, innovation, rigour, integrity, sharing of knowledge, social commitment and environmental responsibility.



Core facility coordinator

Dr. Montserrat Martínez

KPI

- Users: **54**
- Services: **79**
- Training activities: **4**
- New users: **40**



4. Cell culture core

The Cell Culture Facility (SCT-CC) of the University of Lleida (UdL) supports research and provides the necessary infrastructure and personnel for researchers to conduct experiments with animal cells in culture, under appropriate aseptic and biosafety conditions. This service is available to the scientific community of the UdL, the Biomedical Research Institute of Lleida (IRBLleida), and other public or private institutions.

This SCT is located in the IRBLleida building and consists of 6 biosafety laboratories of Biological Containment Level 2 (BCL2) with specific features for the use of animal cell cultures, a dissection room and a cell cryopreservation area. The laboratories are equipped with incubators, laminar flow hoods, Biolla biosafety cabinets, centrifuges, phase contrast microscopes, fluorescence microscopes, stereomicroscopes, a fluorescence stereomicroscope, thermostatic baths and a hypoxic chamber, among others.

The laboratories of the SCT-CC are certified by the Ministry of Agriculture, Fisheries and Food as an accredited facility for working with genetically modified organisms (GMO) at Biosafety Level 2, using lentiviral vectors.

The staff of the SCT-CC perform maintenance on the facility and its equipment, ensure the preservation and custody of cells, train users and ensure safety in the use of animal cell cultures.



Core facility coordinator

Dr. Neus Pedraza

Service Technician

Ms. Rosa Vaquera

- Users: **155**
- Internal users: **32**
- External users: **1**
- Research groups: **32**



5. Animal housing facility

Animal models are essential for the advancement of biomedical research. The purpose of this facility is to produce and maintain the animals (rodents) required for the different research projects carried out by scientists in our center. The animal facilities occupy an area of 1,200 m² distributed in two floors, and has the capacity to house approximately 40,000 rodents. The facility includes 3 experimental areas that allow animal housing and research in different biosafety and microbiological conditions: 1) a barrier area operating under Specific Pathogen Free (SPF) conditions; 2) a conventional area operating under clean conditions; and 3) a quarantine for animals with improper or undefined microbiological profile. These experimental areas contain 12 animal housing and husbandry rooms (5 in the SPF barrier, 6 in the conventional area and 1 in the quarantine area) and 9 fully-equipped laboratories/surgery rooms (4 in the SPF barrier and 5 in the conventional area). The facility also has 2 technical areas (sterilization/management of materials and a warehouse). Importantly, all the research projects carried out in this animal facility are supervised, evaluated and approved by the Ethics Committee for Animal Research and Welfare.

Some of the services provided by the Animal Housing Facility are:

- Breeding of different species and strains of rodents (mouse and rat) for teaching and research.
- Advice on the import of special models from authorized external suppliers and other research centres.
- Installations for the maintenance of rodents in the course of the experimental procedure.
- Advice for compliance with the legislation regulating the use of animals for teaching and research: facilities, operation, records, staff, ethics committees, project processing and procedures with experimental animals.
- Advice on the handling, care and handling of animal animals and anesthesia procedures.
- Advice to researchers on issues related to animal welfare regarding their acquisition, housing, care and use.
- Advice to researchers on the application of the requirement for replacement, reduction and refinement, and information on technical and scientific advances in the application of this requirement.
- Advisory functions in relation to the state of health and treatment of animals.
- Training of animal user staff with the functions of experimenter and design of projects and procedures.



Scientific coordinator

Dr. Carme Piñol

Appointed veterinarian

Dr. José Antonio Moreno

Staff

Mr. Albert Ardèvol

Mr. Marc Collado

Ms. Leticia Fabre

Ms. Núria Moix

Ms. Jéssica Pairada



6. Clinical Research Support Unit (USIC)

The Clinical Research Support Unit (USIC) at IRBLleida is located on the ground floor of the Biomedicine II building at IRBLleida.

The SCT USIC constitutes a research support infrastructure whose purpose is to provide researchers with the necessary resources, both material and human, for the execution of clinical trials and other research projects from their initial stage and start-up to their completion, guaranteeing all the time the quality of the service and the compliance with the principles of Good Clinical Practice guidelines.

For this purpose, it has a team of multidisciplinary professionals with experience in the comprehensive management of clinical studies and an infrastructure equipped with clinical research support facilities:

- Fully equipped medical offices.
- Reception and waiting room for participants and family members.
- Laboratory equipped with all the necessary equipment for processing biological samples.
- Pharmacy for clinical trials.
- Ambient medication storage room with restricted access and controlled temperature.
- Refrigeration equipment room with monitored alarm systems and centralized temperature control.
- Stores for consumables and materials.
- Meeting area available for monitoring clinical trials and/or external audits.
- Archive of active clinical trials.
- External archive for the custody of documentation in accordance with current regulations.
- Offices for trial coordination.

Services

The main objective of the SCT USIC is to support the clinical research groups of IRBLleida, Arnau de Vilanova University Hospital and Santa María University Hospital, in the promotion and development of quality clinical research, providing comprehensive or partial technical-methodological support for the project. To achieve this objective, the unit has a portfolio of services adapted to each study based on the needs of the researchers.

Methodological support

- Design and drafting of all the necessary/essential documentation for the study (Protocol, Case Report Form (CRF), Informed Consent Form, etc.)
- Design and management of electronic CRF (REDCap)

Monitoring

- Preparation of monitoring plan adapted to risk evaluation
- Monitoring in all centers participating in multicentric studies
- Preparation, development and elaboration of site visit reports
- Database revision and source documents verification
- Preparation and management of site files: investigator, promoter, pharmacy

Data management

- Data record in source documents and CRF
- Queries management
- Record and actualization of study information at different platforms



Scientific coordinator

Dr. Joan Antoni Schoenenberger Arnaiz

Core facility coordinator

Dr. Alicia Sánchez de la Torre

Staff

Ms. Laura Rumi Carrera – *Clinical trials pharmacist*

Ms. Aida Moroba Estor – *Lab technician*

Ms. Alba García Ribas – *Clinical trial assistant and Clinical trial monitor*

Ms. Mònica Baldrich Mora – *Study nurse*

Ms. Judit Herrera Duran – *Study nurse*

Dr. Petya Vladeva Valcheva – *Study coordinator*

Ms. Sara Vidal Puig – *Study coordinator*

KPI

- Clinical areas: **11**
- Clinical studies: **39**
- Training activities:
 - Good Clinical Practice Certificate
 - Certificate IATA for Infectious Substances Transport
 - Clinical Trial Assistants Training
 - Defibrillator & CPR First Aid Training

**Administrative management / Regulation**

- Management of participating sites contracts
- Management of requests, clarifications, amendments and notifications to CEIm and regulatory agencies
- Civil liability insurance policy request

Coordination and Nursery

- Participate in site and researchers team selection
- Participate in study feasibility evaluation
- Analysis of the circuits and technical needs, space and personnel of each clinical trial
- Conducting meetings with investigators
- Facilitate the communication between the medical services and the external parties involved in the study
- Maintenance of necessary site files: researcher, promoter, pharmacy
- Facilitate the process of recruitment and obtaining the informed consent
- Control and management of nursing procedures and complementary tests
- Coordination of visits and follow-up controls
- Comprehensive patient care support
- Pharmacovigilance: management of adverse events
- Management of possible audits
- Custody of clinical trial documentation
- Contact with monitors and preparation of documentation for external monitoring

Laboratory technician

- Processing of biological samples and management of their shipment to the central laboratory

Pharmacy

- Management and preparation of study medication



7. Immunohistochemistry core

This core facility offers the research groups high quality technical support in histological and immunohistochemical labeling of cells or tissue sections of human or animal origin.

The service offers support in the processing of:

- Tissues (human, animal) paraffin embedded
- Frozen tissues
- Cytologies
- In vitro cell cultures

Services

- Preparation of paraffin and frozen blocks.
- Preparation of paraffin and frozen blocks
- Microtomy
- Histological staining (Hematoxylin-Eosin)
- Special stains (Histochemistry)
- Immunohistochemical protocol for the detection of proteins in human, pig, dog, cat and mouse tissues using concentrated or prediluted antibodies.
- Construction of Tissue Micro Arrays (TMA Grand Master, 3D HISTECH).
- Immunohistochemical protocol of double staining. Detection of two proteins simultaneously in the same tissue section.
- Immunofluorescence technique.
- Digital scanning of slices (Pannoramic® 250 Flash III, 3D HISTECH) and Analysis of immunohistochemical images using the specific software Quant modul (3D HISTECH).
- In situ hybridization using FISH (Fluorescent In Situ Hybridization) or CISH (Chromogenic In Situ Hybridization).
- Optical microscopy.
- Quality controls.



Head of Service

Dr. Xavier Matias-Guiu

Service coordinator

Dr. Maria Santacana

Service Members

Ms. Maria Carrelé

Ms. Elisabet Carpi

Collaborating staff

Dr. Sònia Gatius

Dr. Judit Pallarés

KPI

- Publications: **1**
- Collaboration in research projects:
 - Internal: **23**
 - External: **18**
- Number of blocks performed: **779**
- Number of IHQ Stainings performed: **2,982**
- Number of tissue sections performed (microtomy): **6,183**
- Number of TMAs performed: **13**
- Number of used blocks for research (biological samples):
 - Internal: **1,160**
 - External: **212**



8. Lipidomics (PLICAT)

The Lipidomics Platform in Catalonia (PLICAT) is a reference center for the analysis of lipids in biological samples. The platform has been consolidated from the previous Metabolomics and Lipidomics service from IRBLleida.

Systems for detecting compounds for metabolomics and lipidomics applications.

- **1** mass spectrometer with orbital ion trap Orbitrap Exploris 240® with UPLC Vanquish from Thermo Fisher Scientific coupled to TriVersa NanoMate® ion source platform from Advion;
- **2** mass spectrometers QTOF (models 6545 and 6420) from Agilent Technologies;
- **4** mass spectrometers QQQ (models 6420, 6465 Ultivo, and 6495); associated with UPLC model 1290 from Agilent Technologies;
- **2** mass spectrometers single Q (5977B and 5973A models) coupled to gas chromatographs (Intuvo 9000 and HP6890 models);
- **1** gas chromatography system (model 7890A) with FID detector.

Software for the bioinformatic analysis and a high-volume database storage server.

- MassHunter Data Acquisition, Qualitative Analysis, Quantitative Analysis, Mass Profiler, LipidAnotator and Profinder from Agilent Technologies.
- Compound discoverer and Lipid Search from Thermo Fisher Scientific.
- QNAP NAS Server 16 bays.

It has databases with its own metabolite libraries and 500 commercial metabolite standards, as well as all types of accessory equipment for sample storage and processing: freezers, homogenizers, syndicators, incubators, agitators, centrifuges, vacuum dryers, and nitrogen evaporators. The services offered can be agreed with the researchers according to their needs. Most common services are:

Services

- Experimental design and advice for sampling
- Sample processing with standardized protocols and quality controls at every step
- Lipid profile analysis with GC-FID and GC-MS; Non-targeted and targeted lipidomic and metabolomic analysis with LC-MS type QTOF and QQQ; shotgun lipidomics by Nanomate-Orbitrap®
- Data processing, bioinformatics and statistical analysis
- Lipid identification, access to databases and interpretation of results

Collaborators

IRBLleida has the support and co-financing of the European Regional Development Fund (FEDER) of the European Union, and Departament de Recerca i Universitats de la Generalitat de Catalunya, to develop and consolidate the Lipidomic Platform of Catalonia (PLICAT) – IU16-015805.



Funded by the
European Union



Core facility coordinator

Dr. Èlia Obis

Staff

Ms. Meritxell Martín

Mr. Arnau Oronich

KPI

- Users: **19**
- Services: **29**
- Processed samples: **2,962**
- Publications: **10**
- Training activities: **2**



9. Respiratory medicine and chronic pathologies core

The Scientific and Technical Service of Respiratory Medicine and Chronic Pathologies core provides specialized support for the performance of respiratory functional tests and specialized monitoring and follow-up activities in the field of respiratory medicine and chronic pathologies.

The service has access to specific technical equipment such as respiratory polygraphs, actigraphy, devices for ambulatory blood pressure monitoring (ABPM) and spirometry, among others, for the provision of the services offered.



Scientific coordinator

Dr. Ferran Barbé Illa

Core facility coordinator

Dr. David de Gonzalo

Staff

Ms. Clara Gort

Ms. Esther Gràcia

Ms. Lola Martínez

Ms. Anna Moncusí

Dr. Adriano Targa



10. Proteomics and genomics core

This service offers technology for the study of genes and gene expression or proteome. The equipment of the unit integrates technological platforms to perform genotypic analysis, gene expression analysis and proteomic analysis of complex samples, techniques that are an essential tool for current basic and clinical research in the field of cellular and molecular biology. This core facility is managed by the UdL.

The services provided include:

Genomic studies

- Gene and miRNA expression
- Genotyping on basis of different molecular markers
- Gene copy number variation
- DNA methylations
- NGS applications
- Genotyping of SNPs by MALDI-TOF mass spectrometry
- Detection and quantification of microorganisms and GMOs
- Determination of viral load

Proteomic studies

- Quantification of proteins by Western Blot
- Protein expression studies using antibody microchips
- Differential or expression proteomics based on two-dimensional gels
- Determination of the molecular mass of proteins / peptides by MALDI-TOF/TOF mass spectrometry



Scientific coordinators

Dr. Eloi Garí

Dr. Joaquim Ros

Core facility coordinator

Ms. Isabel Sánchez



11. Vascular imaging core - UDETMA

This core provides support for the diagnosis of subclinical or asymptomatic atheromatosis, by means of techniques specific and validated instruments, non-invasive, in population with cardiovascular risk factors.

Objectives

1. Diagnosis of subclinical or asymptomatic atheromatosis using specific techniques and validated non-invasive instruments in a population with cardiovascular risk factors.
2. Moving towards personalized medicine: seeing individually the health of the arteries and the impact of risk on them.
3. Calculate the vascular age and whether there is a dissociation with the chronological age due to the action of risk factors (accelerated arterial aging).
4. Change the paradigm in the assessment and treatment of cardiovascular risk taking into account the existence of asymptomatic target organ injury (presence of arterial atheroma plaque).
5. Research into the development and implementation of new technologies for the evaluation of atheromatosis, its prevention and evolution: composition of the plaque, atheromatous burden (total plaque area, number of affected territories).
6. Training on diagnostic techniques for atheromatous disease for health professionals (technicians, nurses, doctors...).
7. Provide expert advice in the field of atherothrombotic disease to IRBLleida researchers and external researchers.
8. Support research, innovation and transfer of knowledge.
9. Build clinical, analytical, image and biobank databases of all the populations studied, and make them available to different research groups (internal and external).

During the year 2023 the core has been involved in a clinical trial investigating the vascular benefits of black garlic: "Supplementation with nutraceuticals derived from black garlic for blood pressure control: a double-blind, randomized, placebo-controlled study. (Endogarlic)" (sponsor: Pharmactive, S.L.).



Scientific coordinator

Dr. Jose Manuel Valdivielso

Staff

Ms. Alicia Garcia



12. Centre for Applied Biomedical Experimental Research (CREBA)

CREBA (Centre for Applied and Experimental Biomedical Research) is a leading research and training centre focused on biomedicine. Promoted by the Diputació de Lleida and the IRBLleida, the CREBA project arose from the need for high-level facilities for translational research and continuous training for health professionals.

Within its facilities, our centre offers conference and simulation rooms, experimental operating theatres with high-level technological equipment, specifically designed to maximise the learning experience of open and laparoscopic surgical techniques and other interventional skills, as well as the performance of high quality scientific-technical research, with the highest ethical standards. CREBA has a swine animal facility and a staff specialised in this species to provide support to teachers and researchers.

Facilities

- Three operating rooms equipped with 3D laparoscopic technology, indocyanine green detection, and other surgical techniques
- Surgical training room with five fully equipped tables
- Complete equipment for conventional surgery, endoscopic surgery and interventional radiology
- Simulation room with devices for learning laparoscopic surgery
- Laboratory for the conservation and handling of biological samples
- Facilities for porcine animals
- Teaching room connected to a videoconferencing system (capacity for 30 people)
- Meeting room (capacity for 10 people)

www.creballeida.org

Twitter: @creballeida

Facebook: creballeida

LinkedIn: Company/creba



Scientific coordinator

Dr. Jorge J. Olsina

Core facility coordinator

Dr. Dolores C. García Olmo

Staff

Ms. Sara Castañé

Ms. Teresa Escoda

Ms. Marta Farré

Ms. Silvia López Bellón

Ms. Sara Puy

KPI

- Research projects: **2**
- Training activities: **25**
- Trainees: **437**
- Activities with schools and social groups: **14**



13. Bioinformatics and Computational Biology (BIO2COMP)

This core offers training, consultancy and analysis in bioinformatics and computational biology.

Services

1. IN BIOINFORMATICS

Training and consultancy

- Consultancy services to researchers for the approach of bioinformatics activities in the application for project funding and in the planning of their experiments with a view to an adequate subsequent bioinformatics treatment.
- Personalised and group training in bioinformatics and mathematical modelling.
- Advice and support to users of bioinformatics tools and methods.

Standard analysis

- De novo assembly and annotation of prokaryotic genomes.
- Reference genome variant analysis in prokaryotes and eukaryotes.
- Gene expression analysis (Microarray & RNAseq) for identification of differentially expressed genes.
- Analysis and optimisation of expression of biological sequences (use of most frequent codons).
- Modelling and prediction of protein structures.
- Data visualisation in maps of biological networks.

Specialised analysis

- Qualitative and quantitative analysis of results of omics experiments.
- Data analysis.
- Other non-standard projects.

2. IN COMPUTATIONAL BIOLOGY

Training and consultancy

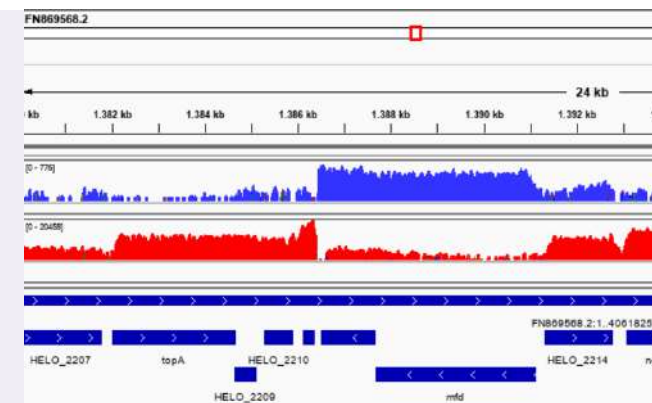
- Consultancy services to researchers for the approach of computational biology activities in the application for project funding and in the planning of their experiments with a view to an adequate subsequent bioinformatics treatment.
- Personalised and group training in computational biology methods.
- Advice and support to users in the use of mathematical modelling software in biology, biomedicine and biotechnology.

Specialised analyses

- Creation of "digital twins" of biological processes for analysis and optimisation.
- Compartmental modelling.
- Sensitivity analysis and evaluation of 'what if...' scenarios. (in silico experiments).

Equipment

- 2 Servers, each with 2 Intel Xeon processors (24 compute nodes) at 2.0 GHz, 124 GB RAM, for intensive calculations.
- 4 HP Z series workstations, with Intel Xeon processors and 8 computation nodes.
- 3 HP high-performance PCs.



Scientific coordinator

Dr. Rui Carlos Vaqueiro de Castro Alves

Staff

Dr. Alberto Marin Sanguino

Dr. Albert Sorribas Tello

Dr. Ester Vilaprinjó Terre



HEALTHCARE
FRAMEWORK

ORGANIZATION

CORE FACILITIES

ECONOMIC
INDICATORS

COMMUNICATION

RESEARCH
ACTIVITY

KNOWLEDGE
TRANSFER AND
INNOVATION

RESEARCH ACTIVITY
BY AREAS AND
GROUPS

FUNDRAISING

MAIN FUNDERS



Economic indicators



Revenues and Expenses

	2019	2020	2021	2022	2023
Revenues	6,279,450	5,865,169	6,496,569	7,373,774	8,745,571
Expenses	-6,395,285	-5,887,399	-6,578,826	-7,415,044	-8,774,979
Total	-115,835	-22,229	-82,257	-41,270	-29,408

Table 1. The following table shows summary information about the expenses and income of the institute, as reported in its income statement.

Detailed revenues

	Trustees Transfers	Clinical Trials and other Invoices	Grants	Donations	Total
2019	115,000	2,644,725	2,877,643	642,081	6,279,450
2020	700,262	2,328,807	2,351,665	484,434	5,865,169
2021	840,386	3,012,258	2,395,703	248,220	6,496,569
2022	1,006,322	3,059,990	2,999,034	308,427	7,373,774
2023	1,383,908	3,156,520	3,948,591	256,550	8,745,571

Table 2. The following table shows information on the income obtained by the institute, with the sources of income grouped according to whether it is obtained through trustees transfers, clinical trials and other invoices, grants and donations.



Revenues from Indirect Costs

	Trustees Transfers	Clinical Trials and other Invoices	Grants	Donations	Total
2019	0	333,878	171,120	40,091	545,089
2020	0	329,229	210,969	44,956	585,155
2021	0	495,800	269,991	29,030	794,822
2022	0	500,775	254,944	32,177	787,896
2023	0	488,158	399,899	29,834	917,892

Table 3. The following table shows information on the income obtained by the institute from indirect costs, with the sources of income grouped according to whether it is obtained through trustees transfers, clinical trials and other invoices, grants, and donations.



Balance Sheet

	2019	2020	2021	2022	2023
A) NON-CURRENT ASSETS	942.064	886,042	799,525	1,814,060	2,473,134
I. Intangible assets	35.701	31,247	74,182	41,588	16,863
Tangible fixed assets	906.362	854,795	725,343	1,772,472	1,909,998
Long-term financial investments	NA	NA	NA	NA	546,272
B) CURRENT ASSETS	11.689.695	15,203,742	17,726,290	20,558,073	21,839,124
II. Stocks	NA	NA	11,183	14,534	NA
III. Users, sponsors and debtors of the activities and other accounts receivable	5.867.835	7,518,681	8,276,136	7,068,929	7,668,983
IV. Short-term financial investments	2.400.000	1,900,000	1,900,000	1,900,000	6,500,000
VI. Cash and other equivalent liquid assets	3.421.860	5,785,060	7,538,971	11,574,610	7,670,141
TOTAL ASSETS	12.631.760	16,089,784	18,525,816	22,372,133	24,312,259
A) NET EQUITY	2.824.351	2,950,523	3,072,226	10,366,886	10,986,467
A-1) OWN FUNDS	1.426.625	1,404,395	1,322,138	1,280,868	1,251,460
I. Endowment funds or social funds	18.030	18,030	18,030	18,030	18,030
III. Surpluses from previous years	1.524.431	1,408,595	1,386,365	1,304,108	1,262,837
V. Surplus for the year (positive or negative)	-115.835	-22,229	-82,2+57	-41,270	-29,408
A-2) GRANTS, DONATIONS AND LEGACY RECEIVED	1.397.725	1,546,128	1,750,087	9,086,018	9,735,007
B) NON-CURRENT LIABILITIES	1.398.036	1,991,066	2,202,595	1,174,461	888,449
II. Long term debts	1.398.036	1,991,066	2,202,595	1,174,461	888,449
C) CURRENT LIABILITIES	8.409.372	11,148,194	13,250,995	10,830,786	12,437,342
I. Short-term provisions	4.588.194	5,129,432	5,840,468	0	0
II. Short term debts	3.487.460	5,725,499	6,901,766	10,501,974	11,941,130
IV. Creditors for activities and other accounts payable	333.716	293,262	508,759	328,812	496,211
TOTAL NET EQUITY AND LIABILITIES	12.631.760	16,089,784	18,525,816	22,372,133	24,312,259

Table 4. The following table shows the information about the assets and liabilities of the institute, which are included in its balance sheet.



2023 Detailed revenues share

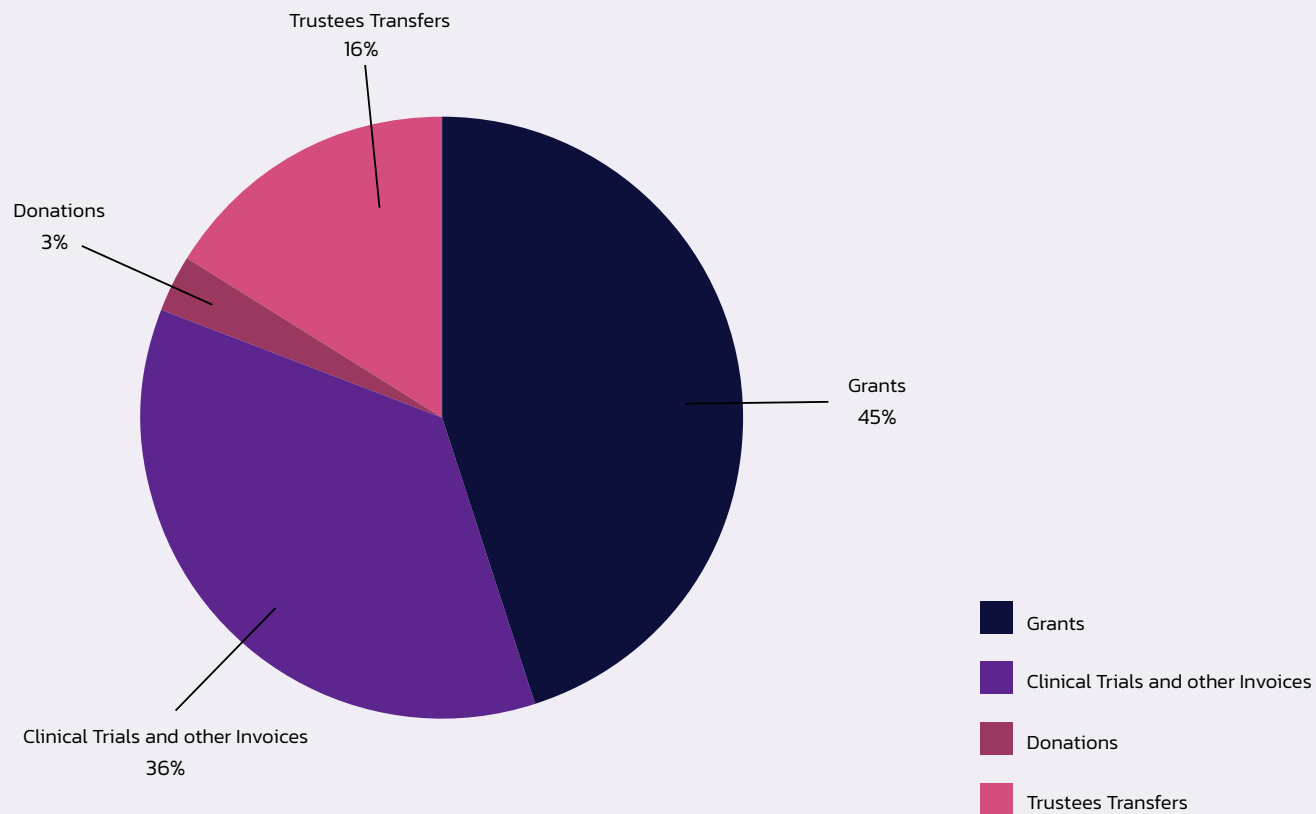


Figure 2. Information on the income obtained by the institute, with the sources of income grouped according to whether it is obtained through trustees transfers, clinical trials and other invoices, grants and donations.



Communication

1. Promotional material
2. Outreach
3. Internal communication
4. External communication

1. Promotional material

1. IRBLLeida general leaflet

Som recerca Som futur Som IRBLLeida

Science Research Innovation

Accions destacades

Dades rellevants 2022

423	495	83	304
2.270	7.47	173	28
65	157	2	7.5M
9.000	179		

5 àrees de recerca
35 grups de recerca

6 àrees de investigació
35 grups de investigació

2. IRBLLeida's corporate social responsibility report 2022 and bookmark

MEMÒRIA DE LA RESPONSABILITAT SOCIAL CORPORATIVA DEL 2022 DE L'IRBLLeida Institut de Recerca Biomèdica

2022 IRBLLeida CORPORATE SOCIAL RESPONSIBILITY REPORT

1. Leida Serra Foundation Grant Writing Program for Young Scientists at IRBLLeida.
2. HR Excellence in Research Award Renewal.
3. Educational workshops.
4. Visits to IRBLLeida.
5. Guided tours of IRBLLeida.
6. Ciència+Art: Present Science and Art for Future Researchers.
7. Participation in social media campaigns for world disease days.
8. School group visits to the Centre for Applied Biomedical Experimental Research (CERBA).
9. InspiraLeida.
10. Become a Leida Scientist.
11. IRBLLeida grants for first-year university students.
12. Affiliation to the European Mobility Week.
13. Participation in European Researchers' Night.
14. LeidaConCienca podcasts.
15. The role of science.
16. IRBLLeida with the family.
17. Third edition of the course in scientific dissemination.
18. Renewal of the Innovation Unit.

For more information, see the full report on our website: www.irblleida.cat



2. Outreach

The communication area is responsible for organising different types of events such as external visits and conferences, internal events, collaborating in the organisation of informative activities (seminars, conferences, workshops, etc.), among others.

Summary of activities 2023

VISITS

The IRBLleida has organised **26 visits** for different group profiles (educational centres, medical, nursing and physiotherapy residents) during 2023. **477 people** have enjoyed these visits that have counted with the collaboration of research groups and core facilities.



EDUCATIONAL WORKSHOPS

The Biomedical Research Institute of Lleida (IRBLleida), with the collaboration of the La Caixa Foundation, the Department of Education and the FECYT Foundation, has launched the organisation of workshops aimed at secondary school students to promote the biomedical research that will be carried out in Lleida's counties and to encourage scientific vocations that will be carried out in Lleida's counties and to encourage scientific vocations.



1. 10/02/2023: IE Torre Queralt i Col·legi Episcopal, Lleida
2. 17/02/2023: Col·legi Episcopal, Lleida
3. 03/03/2023: Institut la Serra, Mollerussa
4. 17/03/2023: Institut de Seròs
5. 24/03/2023: Institut TorreVicens, Lleida
6. 31/03/2023: Institut Guindàvols i Sant Jaume – Les Heures, Lleida
7. 21/04/2023: Institut d'Alpicat
8. 28/04/2023: Vedruna Balaguer
9. 05/05/2023: Institut Josep Vallverdú, les Borges Blanques
10. 19/05/2023: Institut Joan Solà, Torrefarrera
11. 26/05/2023: Institut Joan Solà, Torrefarrera
12. 02/06/2023: Institut la Mitjana, Lleida
13. 06/10/2023: Institut Màrius Torres, Lleida
14. 20/10/2023: Col·legi Lestonnac, Lleida
15. 11/11/2023: Institut Lo Pla d'Urgell, Mollerussa
16. 17/11/2023: IE Magraners i Sant Jaume – Les Heures, Lleida
17. 24/11/2023: Escola Pia, Balaguer

CONFERENCE/WORKSHOPS

- 22/09/2023: Nit de la Recerca.
 - Talks: **1**
 - Guided tours IRBLleida: **4**
 - Workshops: **18**
 - Total number of people attending: **800**



SYMPOSIUMS

- 15/12/2023: Third IRBLleida Annual Scientific Symposium. "Third Annual Scientific Symposium" was held at the Llotja de Lleida. The aim of this symposium is to improve the visibility of the research carried out by the different IRBLleida research groups.



OTHER ACTIVITIES

- LleidaConCienca Podcasts
- Inspiracy Lleida
- Become a Lleida Scientist
- CiènciArt Ponent: Science and Art for Future Researchers



3. Internal communication

Monthly electronic bulletin with the news of the month, as well as an interview with a person from the centre and a collaborating organizations and companies.



Social activities



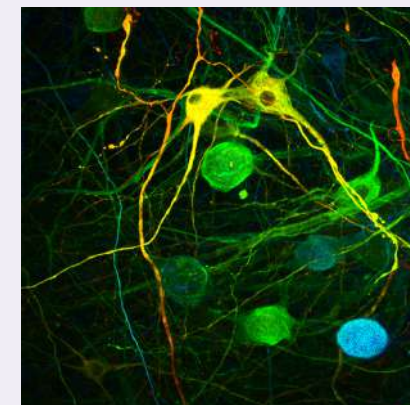
Adhesion to the European Mobility Week



IRBLeida with the families



Own campaigns on social networks



Photography competition

4. External communication

During the year 2023 the IRBLleida has released 62 press notes, mainly through web and newspapers. These press notes have resulted in a total of 975 media hits. In addition, there has been a significant increase in the number of followers on social networks compared to previous years.

Press

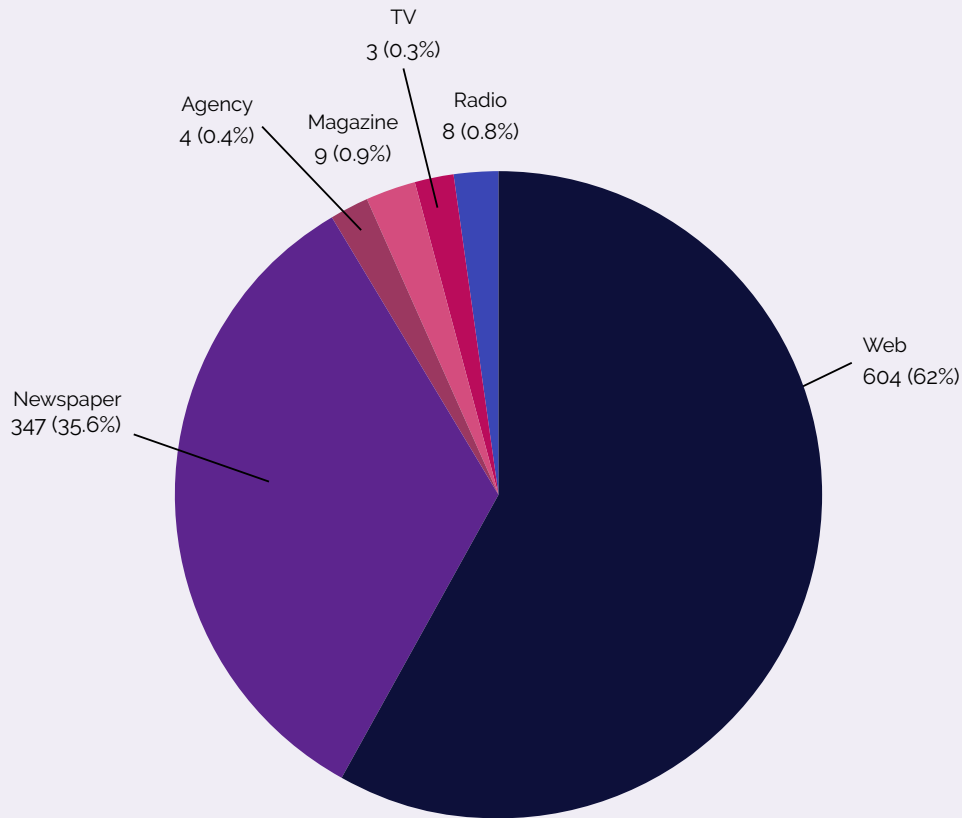


Figure 3. Press releases during 2023.

Social networks

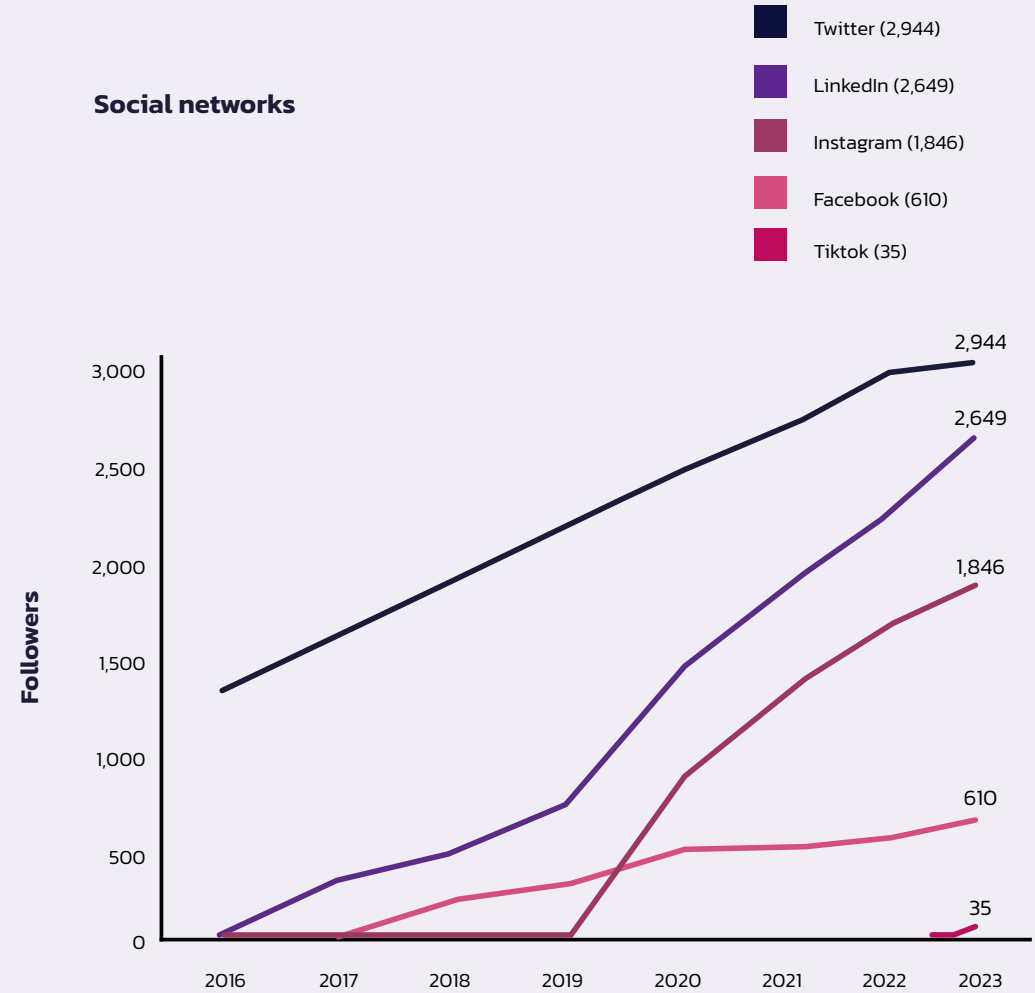


Figure 4. Historical data on social networks followers.



Figure 5. Media impacts (TV, radio, press and others) of the different scientific-technical groups and services in 2023.



Research activity

IRBLleida staff

IRBLleida comprises 572 professionals, of which 485 are personnel devoted to research. The research staff are distributed in the following profiles: First Stage Researcher (R1), Recognised Researcher (R2), Established Researcher (R3) and Leading Researcher (R4). The support staff are distributed in: Support office, Research technician and core facilities support (SCT).

Distribution by researcher categories

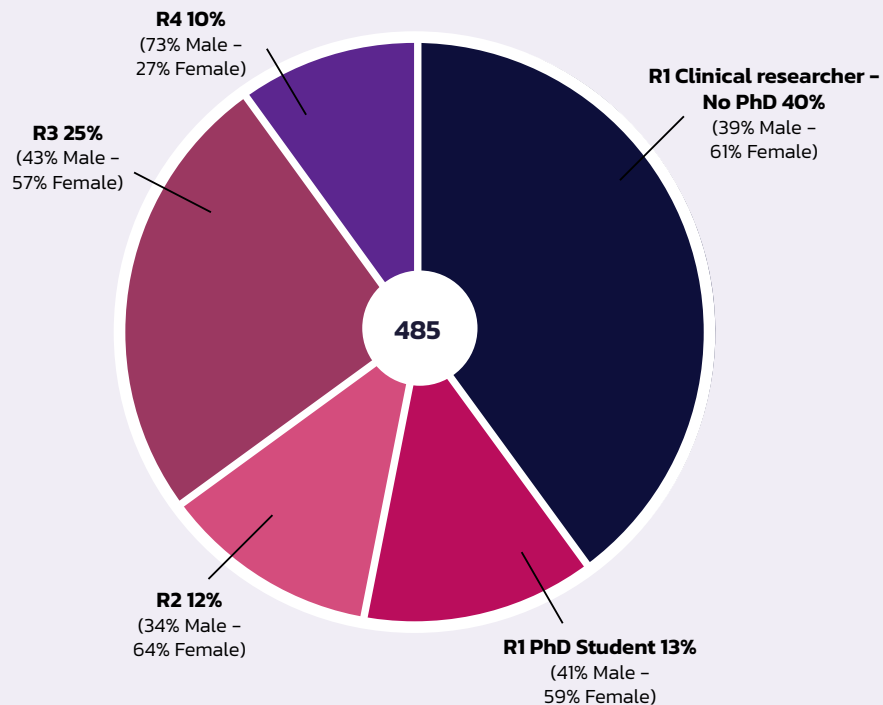


Figure 6. Classification of researchers by categories.

	Male	Female	Total
Support office	3	21	24
Research technician	7	23	30
SCT	4	29	33

Table 5. Classification of support staff by categories.

Distribution by affiliation

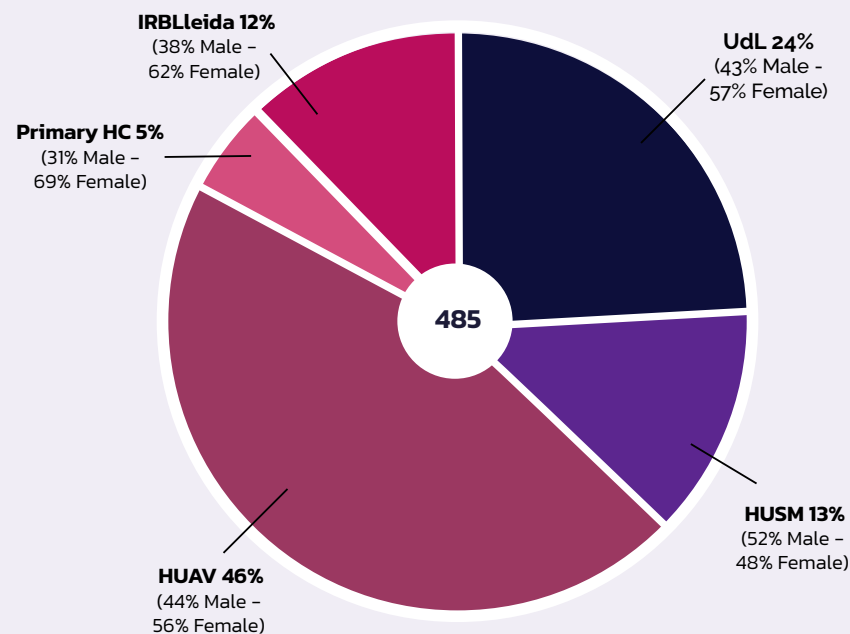


Figure 7. Classification of researchers by employers.





Global data on scientific production

In 2023, IRBLleida researchers produced a total of 314 scientific publications, of which 287 are original publications, 18 are review articles and 9 are letters.

	Publications	Average IF	IF Cumulative
Articles	287	7.87	2,258.87
Reviews	9	13.07	117.60
Letters	18	3.84	69.20
Total	314	7.79	2,445.67

Table 6. Scientific production 2023. Number of publications and accumulated impact factor (IF), according to the 2022 Journal Citation Report.

Publication by quartile

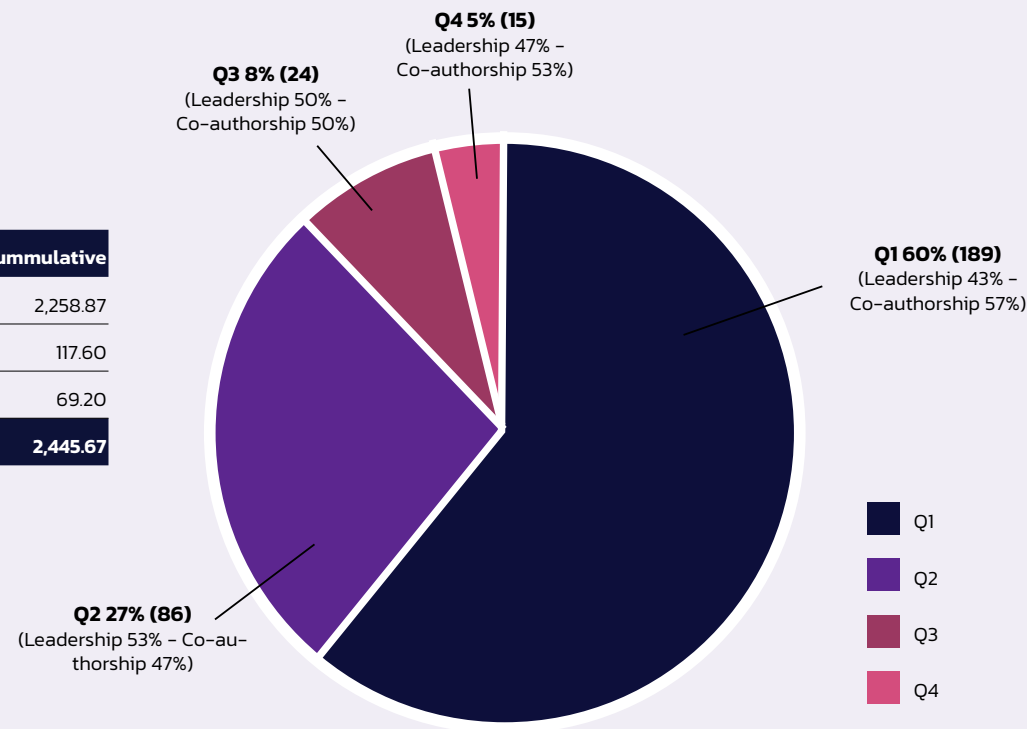


Figure 8. Scientific production for 2023 by specialty quartiles. Percentage of publications per quartile (Q), total number of publications are in brackets. For each quartil leadership and co-authorship is indicated in percentatge.

Historical data on quartile publications

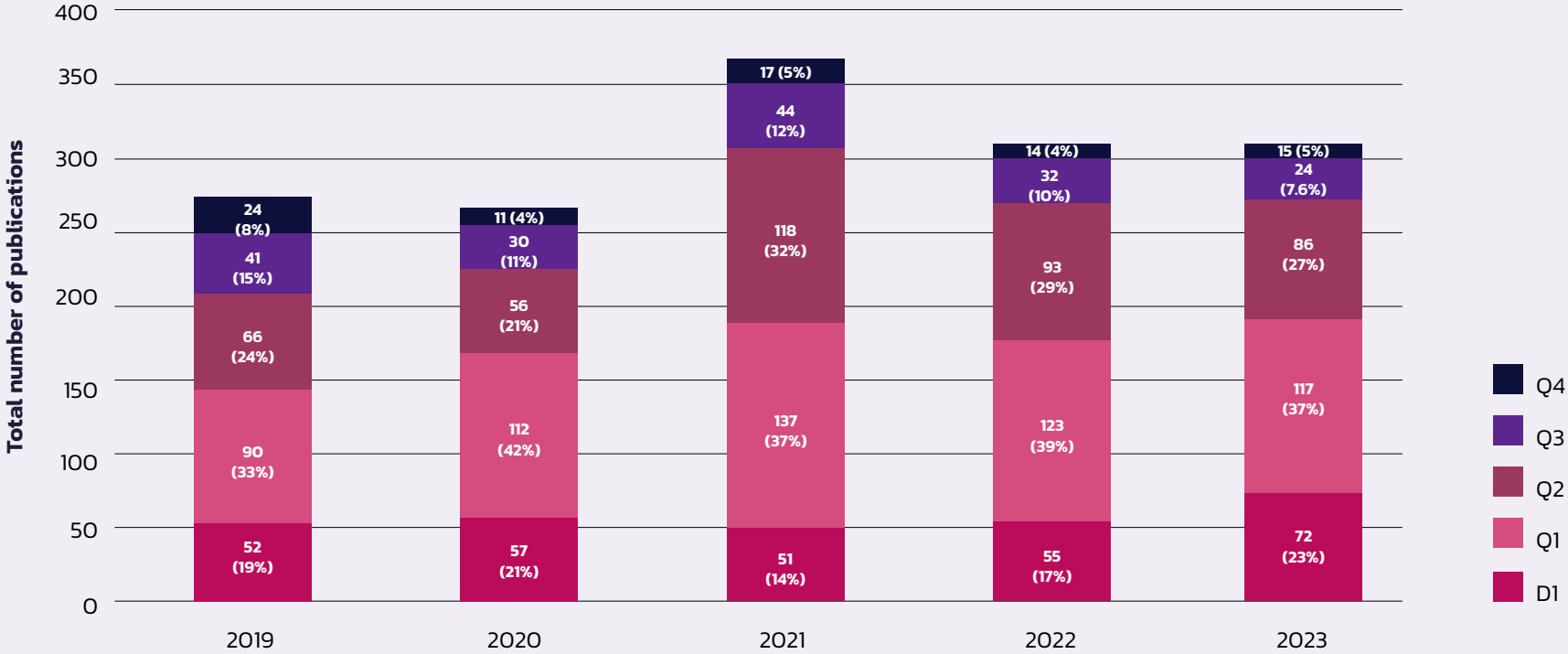


Figure 9. Total number of publications as well as the number and percentage of publications by decile/quartile. The Q1 category shown in the graph represents only the non-D1 Q1 publications. Therefore, the total number of publications in the first quartile would correspond to the sum of the categories Q1+D1 that appear in the graph.

The number of publications has been maintained while accumulated impact factor has significantly increased in 2023 compared to 2022, so the average impact factor is the highest of all the historical series. Figures 10 and 11 show the evolution of scientific production in the last 5 years, in number of publications and average and cumulative impact factor (JCR).

Publications and citations historical series

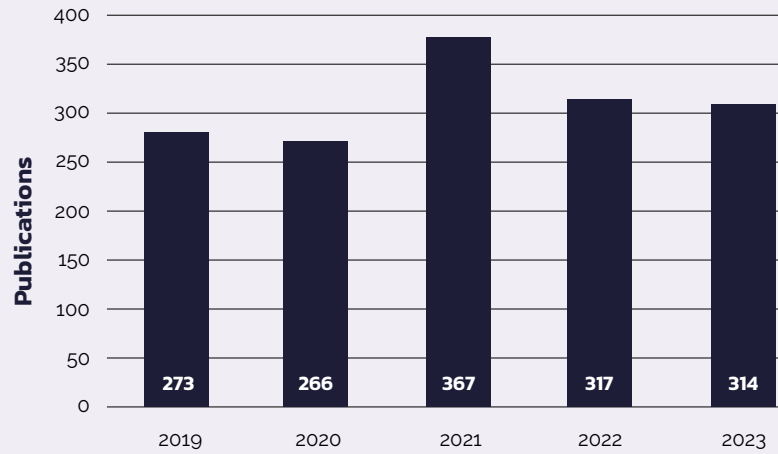


Figure 10. Total number of publications in the last 5 years. The blue line indicates the cumulative number of citations per year.

Impact factor historical series

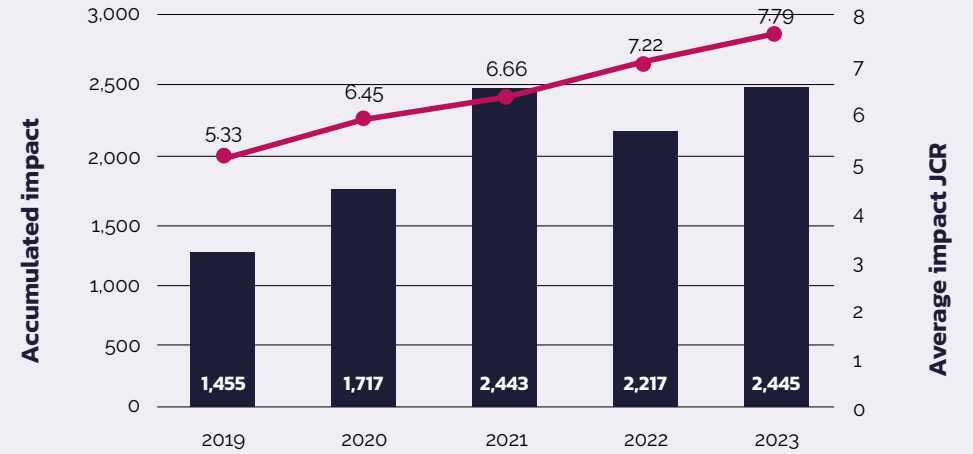


Figure 11. Evolution of the accumulated Impact Factor (IF) and average (points). The 2023 FI has been calculated according to the 2022 Journal Citation Report.

In 2023 almost 50% publications have been led by IRBLLeida researchers (Fig. 12), understanding leadership as the first and/or last author or corresponding. The remaining 50% correspond to publications in which IRBLLeida researchers participate in the research team. 36% of publications have been in international collaboration (Fig. 13).

Publication leadership

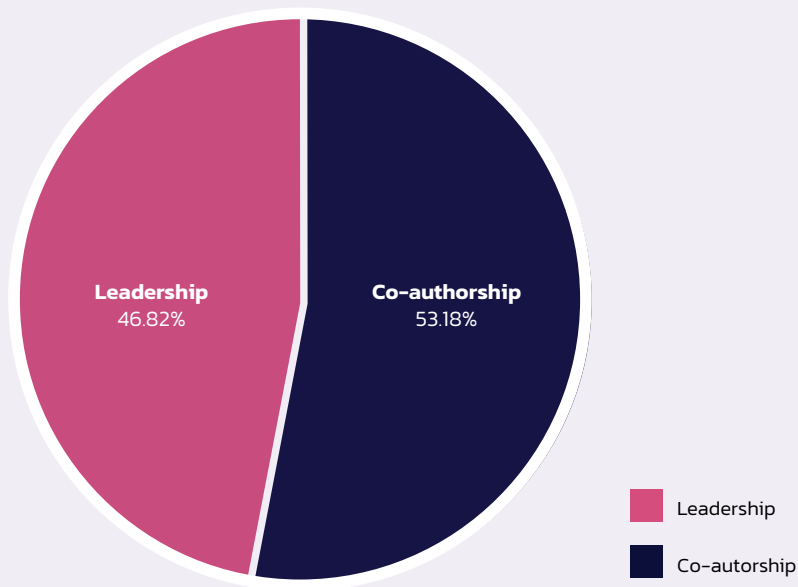


Figure 12. Distribution of 2023 publications according to IRBLLeida research leadership.

Publication Collaborations

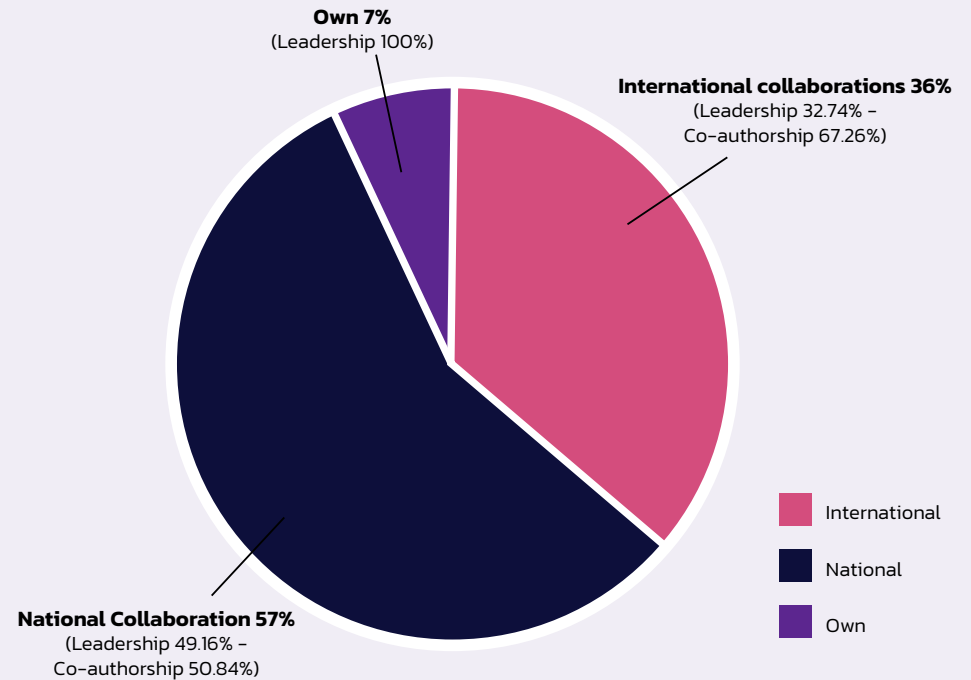


Figure 13. Distribution of 2023 publications by type of collaboration. Collaboration with international, national or own researchers if all authors are affiliated with IRBLLeida. For each group leadership and co-authorship is indicated in percentatge.



Scientific production by areas

Research areas	Number of publications	Total IF	Average IF	Q1 publications	D1 publications
Cancer	50	464.40	9.29	64.00% (32)	26.00% (13)
Chronic diseases, surgery and health care	135	1215.41	9.00	65.19% (88)	25.19% (34)
Epidemiology, infectious diseases and public health	47	285.46	6.07	51.06% (24)	8.51% (4)
Neurosciences	67	402.25	6.00	58.21% (39)	25.37% (17)
Nutrition, metabolism and cellular stress	38	291.90	7.68	65.79% (25)	28.95% (11)
Other research lines	26	134.80	5.18	61.54% (16)	11.54% (3)

Table 7. Publications, IF, quartile and decile of IRBLleida areas in 2023.



Scientific production by group

Group	Total Publications	Total IF	Average IF	Q1 Publications	D1 Publications
Cancer					
Calcium cellular signalling	0	0.00	0.00	0.00% (0)	0.00% (0)
Cell cycle	4	30.40	7.60	100.00% (4)	25.00% (1)
Developmental and oncogenic signalling	7	122.70	17.53	100.00% (7)	57.14% (4)
Drosophila models of disease	4	21.00	5.25	50.00% (2)	0.00% (0)
Molecular oncology	3	26.90	8.97	100.00% (3)	33.33% (1)
Oncological pathology	25	250.40	10.02	68.00% (17)	36.00% (9)
Research group of cancer biomarkers (GReBIC)	17	153.00	9.00	47.06% (8)	17.65% (3)
Chronic diseases, surgery, and health care					
Cardiac Physiology and Pathology	10	56.55	5.66	50.00% (5)	10.00% (1)
Digestive diseases research group - DdRG	6	41.60	6.93	66.67% (4)	16.67% (1)
Experimental surgery	8	32.30	4.04	37.50% (3)	12.50% (1)
Precision Medicine in Chronic Diseases group	24	353.30	14.72	79.17% (19)	41.67% (10)
Research Group in Immunology and Metabolism (GRIM)	16	110.20	6.89	75.00% (12)	12.50% (2)
Research group of health care (GReCS)	39	150.16	3.85	51.28% (20)	12.82% (5)
Translational research in respiratory medicine group	38	548.50	14.43	81.58% (31)	47.37% (18)
Vascular and renal translational research group	23	285.50	12.41	65.22% (15)	21.74% (5)
Epidemiology, infectious diseases and public health					
Applied epidemiology	14	64.31	4.59	35.71% (5)	0.00% (0)
ERLab, research in emergency medicine	6	26.70	4.45	50.00% (3)	0.00% (0)
Indicators and specifications of the quality in the clinical laboratory	3	16.60	5.53	66.67% (2)	33.33% (1)
Intensive Medicine	15	129.50	8.63	53.33% (8)	13.33% (2)
Multidisciplinary clinical research group on musculoskeletal pathology, fragility and pain management	1	0.28	0.28	0.00% (0)	0.00% (0)
Pharmacoepidemiology and pharmacodynamics (P&P)	10	52.25	5.23	60.00% (6)	0.00% (0)
Research in clinical microbiology and antibiotic resistance	4	21.00	5.25	50.00% (2)	25.00% (1)



Scientific production by group

Group	Total Publications	Total IF	Average IF	Q1 Publications	D1 Publications
Neurosciences					
+Pec Proteomics	6	44.10	7.35	100.00% (6)	50.00% (3)
Biological foundations of mental disorders	11	55.10	5.01	45.45% (5)	45.45% (5)
Clinical neurosciences	16	104.60	6.54	56.25% (9)	25.00% (4)
Cognition and behaviour study group	13	95.90	7.38	84.62% (11)	30.77% (4)
Evolutionary developmental neurobiology	4	11.85	2.96	50.00% (2)	0.00% (0)
Experimental Neuromuscular Pathology	3	17.90	5.97	66.67% (2)	0.00% (0)
Neurocognition, psychobiology of the personality and behavioral genetics	5	17.00	3.40	20.00% (1)	0.00% (0)
Neuroimmunology	13	73.00	5.62	30.77% (4)	7.69% (1)
Neuronal signalling Unit	1	7.00	7.00	0.00% (0)	0.00% (0)
Nutrition, metabolism and cellular stress					
Biochemistry of oxidative stress	2	14.60	7.30	100.00% (2)	0.00% (0)
Cell signalling and apoptosis group	0	0.00	0.00	0.00% (0)	0.00% (0)
Cell signalling in yeast	1	5.60	5.60	100.00% (1)	0.00% (0)
Metabolic physiopathology	29	197.40	6.81	65.52% (19)	31.03% (9)
Nutrition, metabolism and microbiota in patients with heart failure (NUTRIMMIC)	3	61.40	20.47	66.67% (2)	66.67% (2)
Systems biology and statistical methods for biomedical research	3	12.90	4.30	33.33% (1)	0.00% (0)
Other lines					
Other lines	26	134.80	5.18	61.54% (16)	11.54% (3)

Table 8. Publications, IF, quartile and decile of IRBLleida groups in 2023.



Intramural research calls

Intramural Research Program - IREP 2023

IRBLleida is committed to promoting the research activity of the groups of our institute and dedicates a significant part of the annual budget to an Intramural Research Program (IREP) consisting of different competitive calls open to all the groups in our institute. This 2023 Intramural Research Program included calls for research grants (PIRS and Innovation Seed Projects), human resources (Master students, predoctoral and postdoctoral fellowships), and international research stay fellowships. The budget for the IREP calls for 2023 was €735,600, largely (80%) financed by the Diputació of Lleida.

1

**Collaborative Research
Projects to Promote Health
Research (PIRS 2023)**
Budget (250,000€)

2

**IREP Master Students
fellowships 2023**
Budget (15,000€)

3

**IREP Postdoctoral fellowships
2023**
Budget (133,000€)

4

**IREP Predoctoral fellowships
2023**
Budget (292,600€)

5

**IREP International Mobility
fellowships 2023**
Budget (15,000€)

6

**Innovation Seed Projects in
Biomedicine**
Budget (20,000€)

7

**Biomedical Research Projects,
High Pyrenees and Aran
Modality.**
Budget (10,000€)



External competitive calls

Competitive projects obtained

Center	Scope	Number of grants	Funds (€)
IRBLleida	LOCAL	1	10,543
	REGIONAL	4	454,046
	INTERNATIONAL	2	342,946
	NATIONAL	28	3,048,608
UdL	REGIONAL	1	225,990
	NATIONAL	5	777,163
Total general		41	4,859,296

Table 9. Competitive projects obtained in IRBLleida and UdL.

Competitive human resources obtained

Center	Scope	Number of grants	Funds (€)
IRBLleida	REGIONAL	6	269,344
	NATIONAL	7	638,220
UdL	LOCAL	4	653,760
	REGIONAL	2	50,750
	NATIONAL	2	174,663
Total general		21	1,786,737

Table 10. Competitive human resources obtained in IRBLleida and UdL.



External competitive calls

Summary of competitive projects awarded by funder

Center	Scope	Funder	Call	Number of grants	Funds (€)
IRBLLeida	LOCAL	UNIVERSITAT DE LLEIDA UDL	EU4H-2022-DGA-MS-IBA-I	1	10,543.38
	REGIONAL	DEPARTAMENT DE SALUT GENERALITAT CAT	PERIS 2023: GO EUROPE	1	118,884.78
		FUNDACIÓ CATALANA PER A LA RECERCA I LA INNOVACIÓ FCRI	2022 - JOAN ORÓ D'AJUTS PER AL FOMENT DE LA CULTURA CIENTÍFICA A CATALUNYA	1	11,000.00
		FUNDACIO LA MARATÓ DE TV3	2022: SALUT CARDIOVASCULAR	1	193,161.43
		FUNDACION BANCARIA CAIXA D'ESTALVIS I PENSIONS DE BARCELONA LA CAIXA	HEALTH RESEARCH 2023 CALL FOR PROPOSALS	1	131,000.00
INTERNATIONAL		EUROPEAN COMMISSION EU	HORIZON-KDT-JU-RIA	1	257,946.25
		FRIEDRICH'S ATAXIA RESEARCH ALLIANCE	AWARD FOR INNOVATIVE MINDSET (AIM) - 2023	1	85,000.00
NATIONAL		FUNDACIÓN CONTIGO	I Edición de la Beca Contigo Esther Balletbó 2023	1	79,983.00
		FUNDACION ESPAÑOLA PARA LA CIENCIA Y LA TECNOLOGÍA FECYT	AYUDAS 2022 PARA EL FOMENTO DE LA CULTURA CIENTIFICA, TECNOLOGICA Y DE LA INNOVACION	1	22,000.00
		FUNDACION EUGENIO RODRIGUEZ PASCUAL	AYUDAS DE INVESTIGACION BIOMEDICA 2023	1	24,429.00
		FUNDACIÓN FRANCISCO LUZÓN FUNDACIÓN LUZÓN	I CONVOCATORIA DE AYUDAS A PROYECTOS DE INVESTIGACIÓN EN ELA UNZUÉ-LUZÓN	1	57,000.00
		GILEAD SCIENCES SL	10º CONVOCATORIA BECAS GILEAD A LA INVESTIGACIÓN BIOMÉDICA	1	49,375.00
			6º CONVOCATORIA DE BECAS GILEAD A PROYECTOS DE MICROELIMINACIÓN EN HEPATITIS C Y EPIDEMIOLOGÍA EN HEPATITIS D 2023	1	29,790.00
		INSTITUTO DE SALUD CARLOS III ISCIII	AES 2022: PROYECTOS DE INVESTIGACION EN SALUD	1	141,775.19
			AES 2023: PROYECTOS DE DESARROLLO TECNOLÓGICO EN SALUD (DTS23)	1	168,619.00
			AES 2023: PROYECTOS DE INVESTIGACION EN SALUD	10	1,428,937.50
			AES 2023: PLATAFORMAS DE APOYO A LA INVESTIGACION EN BIOMEDICINA Y CIENCIAS DE LA SALUD INVESTIGACIÓN CLINICA	1	183,570.00
		AES 2023: PLATAFORMAS DE APOYO A LA INVESTIGACION EN BIOMEDICINA Y CIENCIAS DE LA SALUD BIOMODELOS Y BIOBANCOS	1	401,012.00	
		AES 2022: PROYECTOS DE MEDICINA PERSONALIZADA DE PRECISION (PMP22)	1	54,166.67	
		AES 2021: PROYECTOS DE MEDICINA PERSONALIZADA DE PRECISIÓN (PMP21)	1	88,870.83	
		AES 2023: PROYECTO MIGUEL SERVET	1	40,000.00	
		IBEC	CONVOCATORIA PARA PROPUESTAS COLABORATIVAS EN EL MARCO DEL PLAN COMPLEMENTARIO DE BIOTECNOLOGÍA APLICADA A LA SALUD (C17.II) DEL PLAN DE RECUPERACIÓN, TRANSFORMACIÓN Y RESILIENCIA	1	178,650



External competitive calls

Summary of Competitive projects awarded by funder (continued)

Center	Scope	Funder	Call	Number of grants	Funds (€)
IRBLLeida	NATIONAL	PFIZER SLU	INNOVATIVE DIGITAL EDUCATIONAL CHANNELS IN ONCOLOGY FOR HEALTH CARE PROFESSIONALS OR PATIENTS TO INCREASE LOCAL AWARENESS	1	49,500.00
		SOCIEDAD ESPAÑOLA DE COLUMNA VERTEBRAL GEER	BECAS INVESTIGACIÓN GEER 2023	1	3,000.00
		SOCIEDAD ESPAÑOLA DE DIABETES	2022 - XIV AYUDAS SED A PROYECTOS DE INVESTIGACIÓN EN DIABETES	1	20,000.00
		SOCIEDAD ESPAÑOLA DE MEDICINA INTERNA - SEMI	AYUDAS A LA INVESTIGACIÓN CLÍNICA 2023	1	27,930.00
Total IRBLLeida				35	3,856,144.03
UdL	REGIONAL	AGENCIA GESTIO AJUTS UNIVERSITAT I RECERCA AGAUR	AJUTS PER FINANÇAR PROJECTES DE RECERCA PER A LA MITIGACIÓ I L'ADAPTACIÓ AL CANVI CLIMÀTIC	1	225,990.00
	NATIONAL	MINISTERIO DE CIENCIA E INNOVACION	CONVOCATÒRIA 2022 D'AJUTS A PROJECTES DE GENERACIÓ DEL CONEIXEMENT, EN EL MARC DEL PLA ESTATAL DE RECERCA CIENTÍFICA, TÈCNICA I INNOVACIÓ 2021-2023	4	748,750.00
		MINISTERIO DE IGUALDAD	CONVOCATÒRIA 2023 DE SUBVENCIONS DESTINADES A LA REALITZACIÓ D'INVESTIGACIONS FEMINISTES, DE GÈNERE I SOBRE DONES	1	28,412.70
Total UdL				6	1,003,152.70
Total general				41	4,859,296.73

Table 11. Competitive projects awarded for funder in IRBLLeida and UdL.



External competitive calls

Summary of Competitive human resources awarded by funder

Center	Scope	Funder	Call	Number of grants	Funds (€)	
IRBLLeida	REGIONAL	AGENCIA GESTIO AJUTS UNIVERSITAT I RECERCA AGAUR	AJUTS JOAN ORÓ PER CONTRACTAR PREDOCTORALS EN FORMACIÓ (FI 2023)	3	73,383.97	
			Convocatòria de Doctorats Industrials (DI 2022)	1	33,960.00	
	NATIONAL	DEPARTAMENT DE SALUT GENERALITAT CAT	PERIS 2023: INCORPORACIÓ PERSONAL DE SUPORT ALS GRUPS DE RECERCA	2	162,000.00	
			INSTITUTO DE SALUD CARLOS III ISCIII	AES 2023: CONTRATOS MIGUEL SERVET	1	202,500.00
			AES 2023: CONTRATOS PREDOCTORALES DE FORMACION EN INVESTIGACION EN SALUD (PFIS)	3	299,367.00	
			AES 2022: Contratos Sara Borrell	1	95,000.00	
			Ministerio de Ciencia e Innovacion	AYUDAS JUAN DE LA CIERVA	1	30,000.00
Ministerio de Universidades	ESTANCIAS DE PERSONAL DOCENTE Y/O INVESTIGADOR SENIOR EN CENTROS EXTRANJEROS 2022	1	11,353			
Total IRBLLeida				13	907,563.97	
UdL	LOCAL	UNIVERSITAT DE LLEIDA	Personal predoctoral en formació UdL 2023	4	653,760.00	
	REGIONAL	AGENCIA GESTIO AJUTS UNIVERSITAT I RECERCA AGAUR	AJUTS JOAN ORÓ PER CONTRACTAR PREDOCTORALS EN FORMACIÓ (FI 2023)	2	50,749.50	
	NATIONAL	MINISTERIO DE CIENCIA E INNOVACION Y UNIVERSIDADES	Formación de Doctores (FD)	1	111,758.00	
		MINISTERIO DE CIENCIA E INNOVACIÓN Y UNIVERSIDADES	Formació de professorat universitari 2023 (FPU)	1	62,905.08	
Total UdL				8	879,172.58	
Total general				21	1,786,736.55	

Table 12. Competitive human resources awarded for funder in IRBLLeida and UdL.



External competitive calls

Detail of all the Competitive projects awarded

Center	Scope	Funder	Official code	Funds (€)
IRBLleida	LOCAL	UNIVERSITAT DE LLEIDA UDL		10,543.38
	REGIONAL	DEPARTAMENT DE SALUT GENERALITAT CAT	SLT028/23/000118	118,884.78
		FUNDACIÓ CATALANA PER A LA RECERCA I LA INNOVACIÓ FCRI		11,000.00
		FUNDACIO LA MARATO DE TV3	158/U/2023	193,161.43
		FUNDACION BANCARIA CAIXA D'ESTALVIS I PENSIONS DE BARCELONA LA CAIXA	HR23-00124	131,000.00
	INTERNATIONAL	EUROPEAN COMMISSION EU		257,946.25
		FRIEDRICH'S ATAXIA RESEARCH ALLIANCE		85,000.00
	NATIONAL	FUNDACIÓN CONTIGO		79,983.00
		FUNDACION ESPAÑOLA PARA LA CIENCIA Y LA TECNOLOGÍA FECYT	FCT-22-18046	22,000.00
		FUNDACION EUGENIO RODRIGUEZ PASCUAL		24,429.00
		FUNDACIÓN FRANCISCO LUZÓN FUNDACIÓN LUZÓN		57,000.00
		GILEAD SCIENCES SL	GLD23/00063	49,375.00
				29,790.00
		INSTITUTO DE SALUD CARLOS III ISCIII	CP23/00095	40,000.00
			DTS23/00086	168,619.00
		PI22/00887	141,775,19.00	
		PI23/00035	115,000.00	
		PI23/00176	252,500.00	
		PI23/00237	58,937.50	
		PI23/00308	63,750.00	
	PI23/00926	107,500.00		
	PI23/01062	102,500.00		
	PI23/01062	102,500.00		
	PI23/01205	215,000.00		
	PI23/01381	183,750.00		
	PI23/01584	246,250.00		
	PI23/01648	83,750.00		
			178,650.00	
		IBEC		



External competitive calls

Detail of all the Competitive projects awarded (continued)

Center	Scope	Funder	Official code	Funds (€)
IRBLLeida	NATIONAL	INSTITUTO DE SALUD CARLOS III ISCIII	PMP21/00107	88,870.83
			PMP22/00033	54,166.67
			PT23/00032	401,012.00
			PT23/00121	183,570.00
		PFIZER SLU	49,500.00	
		SOCIEDAD ESPAÑOLA DE COLUMNA VERTEBRAL GEER	3,000.00	
		SOCIEDAD ESPAÑOLA DE DIABETES	20,000.00	
		SOCIEDAD ESPAÑOLA DE MEDICINA INTERNA - SEMI		27,930.00
Total IRBLLeida				3,856,144.03
UdL	REGIONAL	AGENCIA GESTIO AJUTS UNIVERSITAT I RECERCA AGAUR	2023 CLIMA 00047	225,990.00
	NATIONAL	MINISTERIO DE CIENCIA E INNOVACION	PID2022-1386880B-I00	180,000.00
			PID2022-1399650B-I00	162,500.00
			PID2022-1412200B-I00	206,250.00
			PID2022-141323NB-I00	200,000.00
		MINISTERIO DE IGUALDAD		28,412.70
Total UdL				1,003,152.70
Total general				4,859,296.73

Table 13. Competitive projects awarded to IRBLLeida and UdL.



External competitive calls

Competitive human resources obtained

Center	Scope	Funder	Official code	Funds (€)	
IRBLleida	REGIONAL	AGENCIA GESTIO AJUTS UNIVERSITAT I RECERCA AGAUR	2022 DI 00100	33,960.00	
			2023FI_00054	25,374.75	
			2023 FI-2 00034	22,374.75	
			2023 FI-3 00005	25,634.47	
			DEPARTAMENT DE SALUT GENERALITAT CAT	SLT028/23/000191	81,000.00
				SLT028/23/000208	81,000.00
	NATIONAL	INSTITUTO DE SALUD CARLOS III ISCIII	CD23/00097	95,000.00	
			CP23/00095	202,500.00	
			FI23/00022	89,900.00	
			FI23/00200	119,567.00	
			FI23/00222	89,900.00	
			MINISTERIO DE CIENCIA E INNOVACION	JDC2022-049344-I	30,000.00
MINISTERIO DE UNIVERSIDADES	PRX22/00116	11,353			
Total IRBLleida				907,563.97	
UdL	LOCAL	UNIVERSITAT DE LLEIDA	2023 UdL 03	163,440.00	
			2023 UdL 05	163,440.00	
			2023 UdL 01	163,440.00	
			2023 UdL 14	163,440.00	
	REGIONAL	AGENCIA GESTIO AJUTS UNIVERSITAT I RECERCA AGAUR	2024 FI-2 00638	25,374.75	
			2024 FI-2 00095	25,374.75	
	NATIONAL	MINISTERIO DE CIENCIA E INNOVACION Y UNIVERSIDADES	PID2021-122785OB-I00	111,758.00	
			MINISTERIO DE CIENCIA E INNOVACIÓN Y UNIVERSIDADES	FPU21/03358	62,905.08
	Total UdL				879,172.58
	Total general				1,786,736.55

Table 14. Competitive human resources obtained in IRBLleida and UdL.

Historical data on funds obtained from competitive calls

In 2023 researchers obtained in IRBLleida 3,856,144€ and UdL 1,003,152€ from competitive projects.

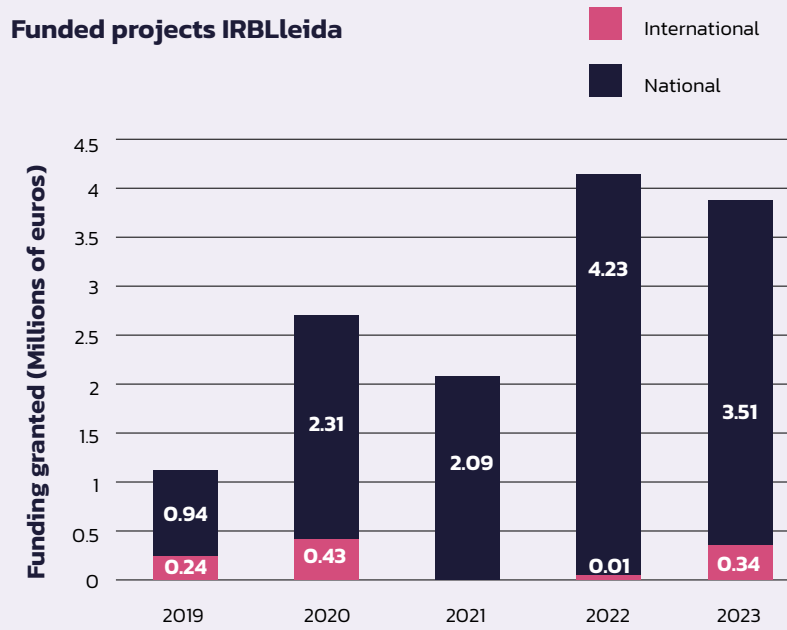


Figure 14. Historical data on funds obtained by IRBLleida from competitive projects, by national/international source.

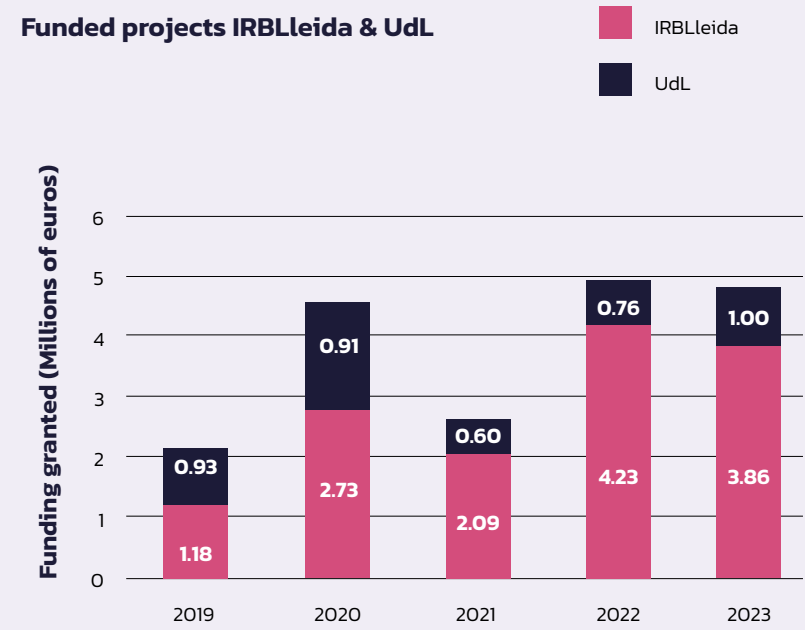


Figure 15. Historical data on funds obtained by IRBLleida groups, indicating whether they are handled by IRBLleida or UdL grants office.

Historical data on funds obtained from human resources competitive calls

In 2023 researchers obtained in IRBLleida 896,211€ and UdL 879,172€ from human resources competitive calls.

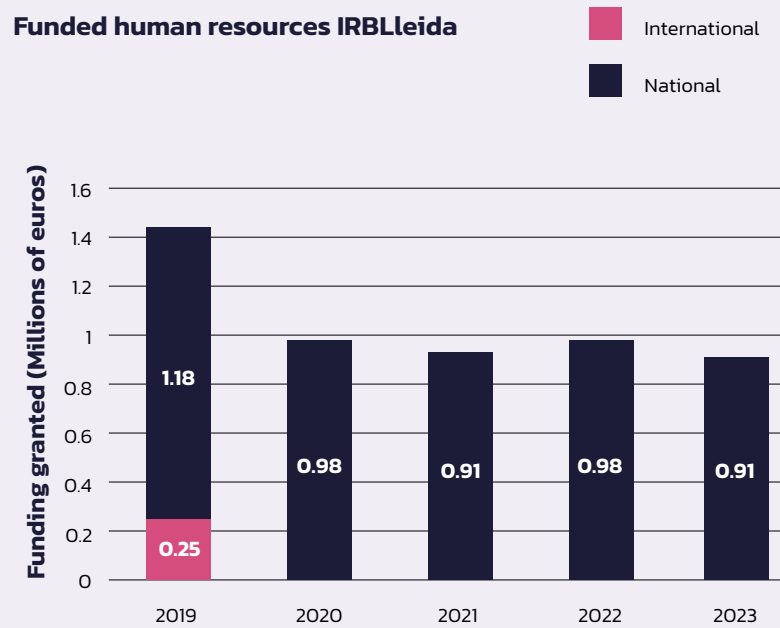


Figure 16. Historical data on funds obtained by IRBLleida from competitive human resources, by national/international source.

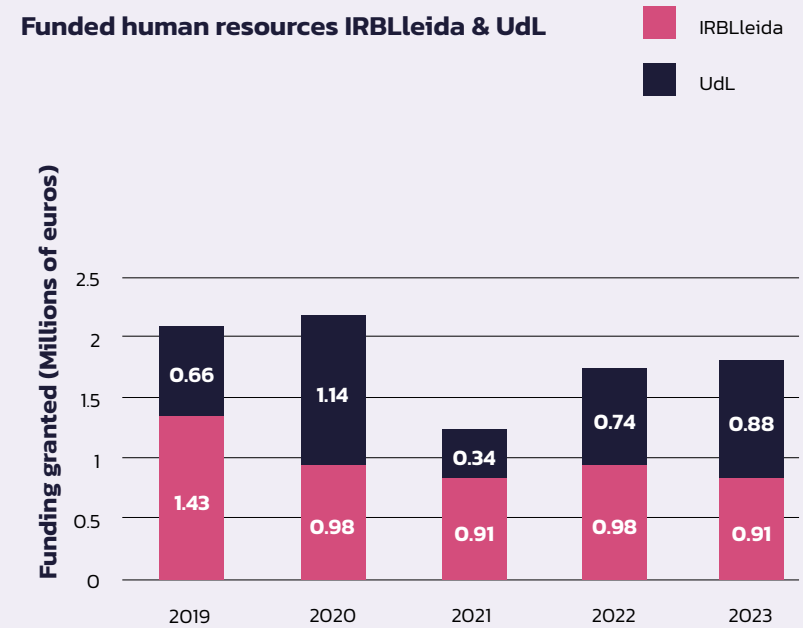


Figure 17. Historical data on funds obtained by IRBLleida groups, indicating whether they are handled by IRBLleida or UdL grants office.

Clinical trials and observational studies

The total number of clinical studies started during 2023 was 65 (40 clinical trials and 25 observational studies).
 The active clinical studies were 238 (160 clinical trials and 78 observational studies).

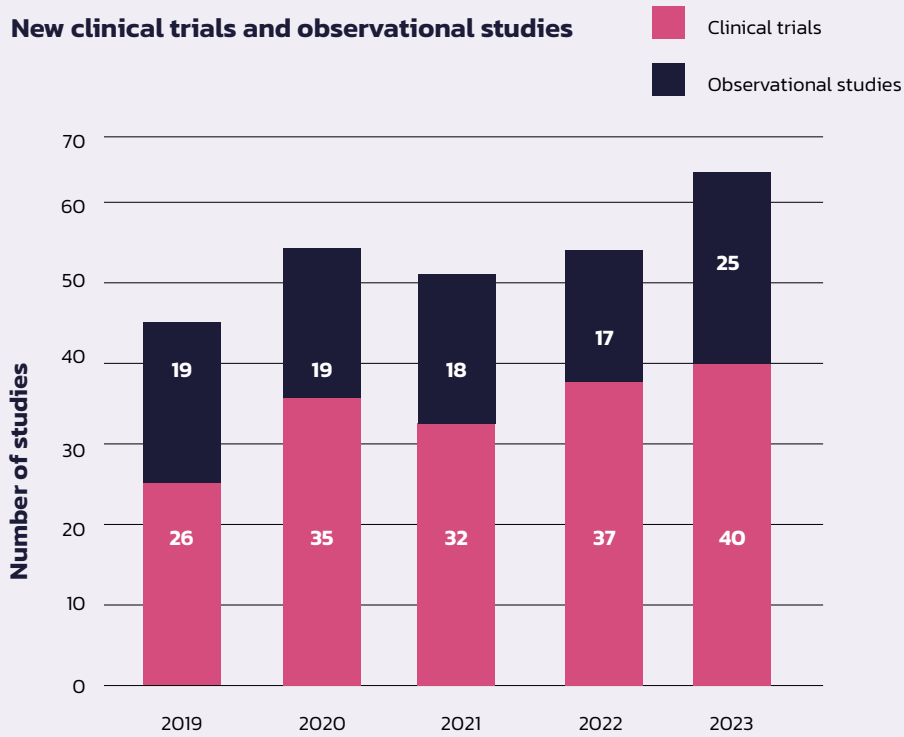


Figure 18. Historical data on new clinical trials and observational studies.

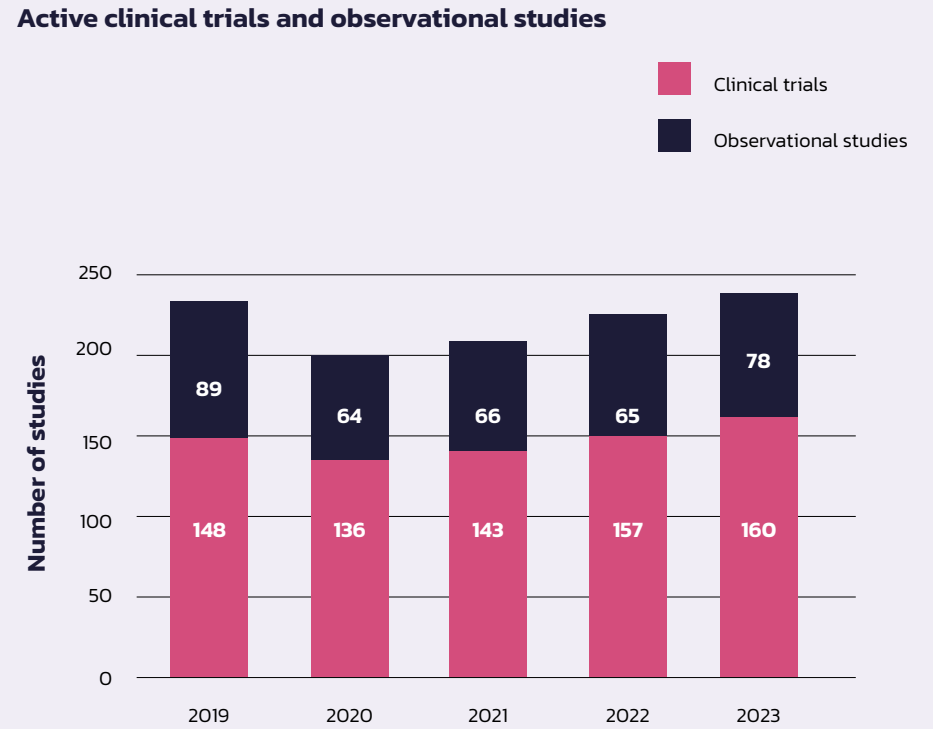


Figure 19. Historical data on active clinical trials and observational studies.

Clinical trials and observational studies

Number of active clinical studies by medical area during 2023.

Active clinical trials by medical area

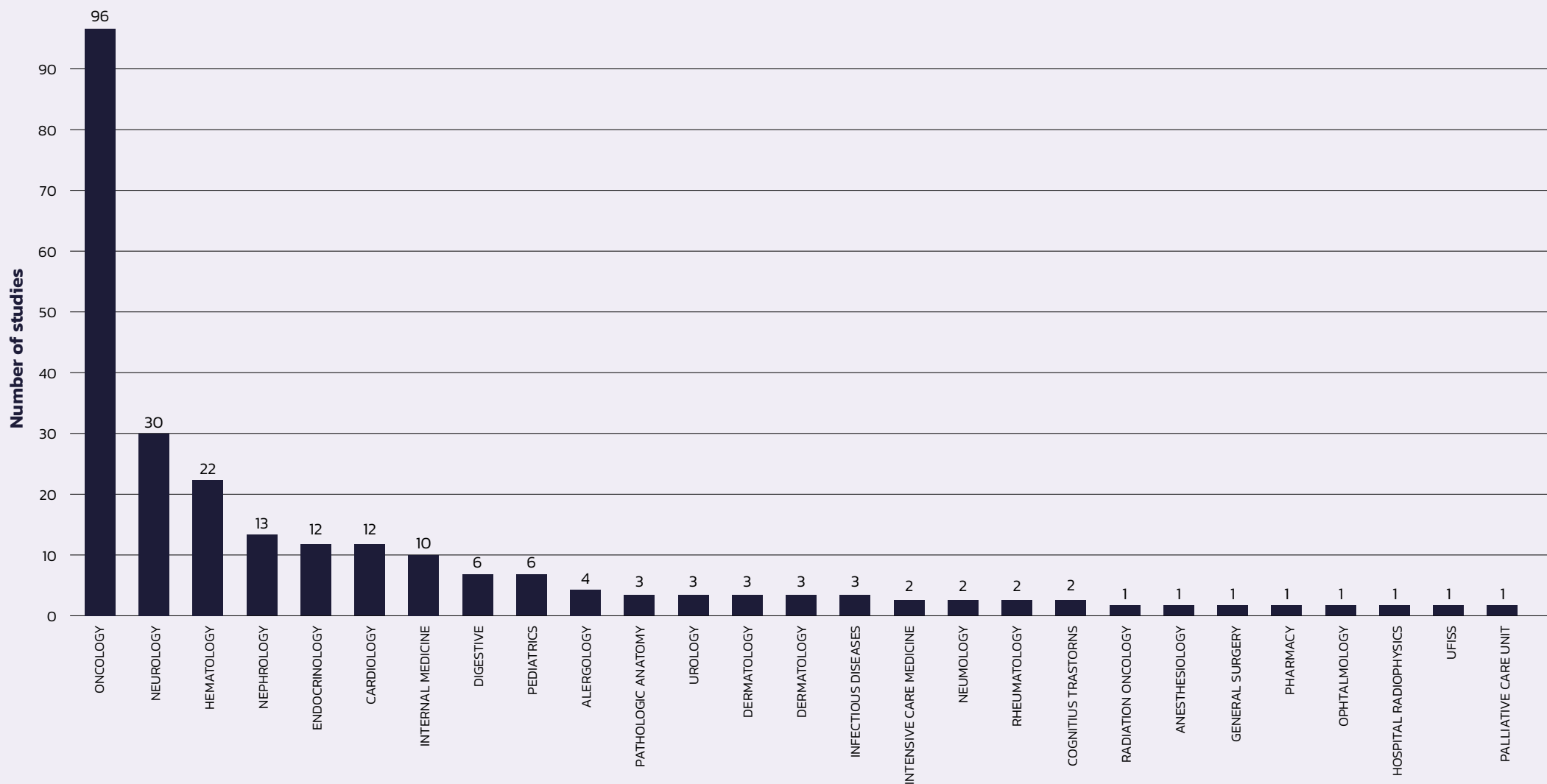


Figure 20. The figure presents the number of active clinical studies by Medical Area during 2023.

Clinical trials and observational studies

The total income from clinical trials and observational studies was 1,991,642.83€.

Funds from clinical trials and observational studies

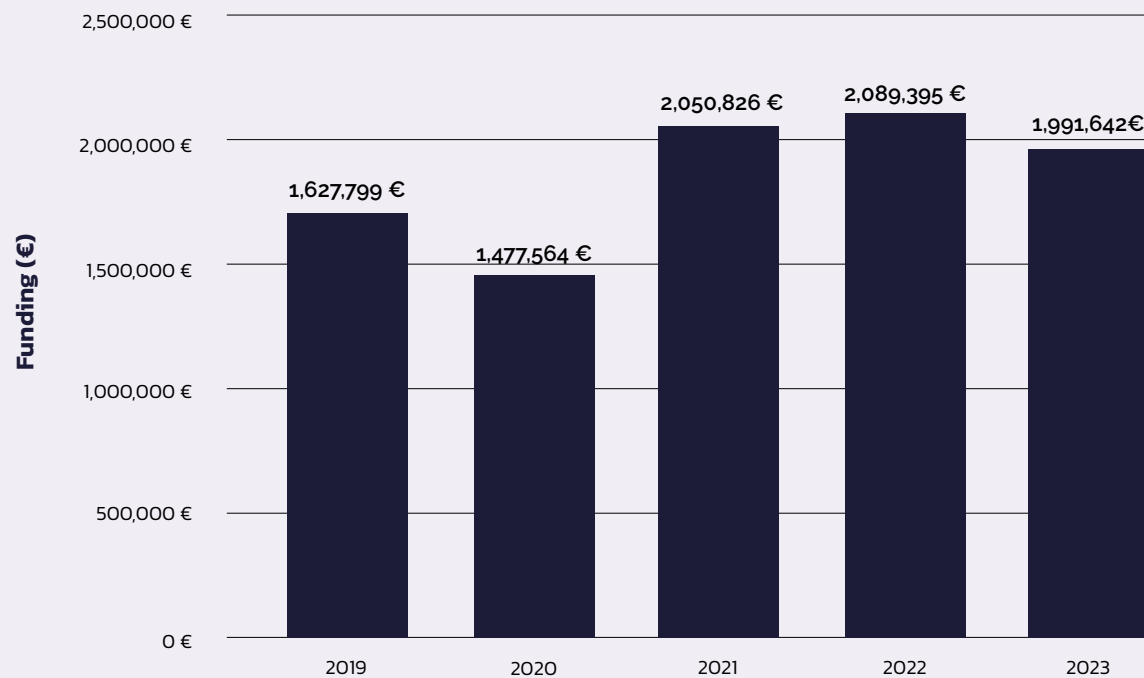


Figure 21. Historical data on funds obtained from clinical trials and observational studies.



Clinical practice guidelines 2023

IRBLLeida researchers have published 12 clinical practice guidelines during 2023.

Type of document	Title	Researcher	Research Group	Impact	Additional Info
Cancer					
Article	FIGO staging of endometrial cancer: 2023	Matias-Guiu Guia, Xavier	Oncological pathology	International	DOI: 10.1002/ijgo.14923 DOI: 10.3802/jgo.2023.34.e85
Article	Diagnosis and Treatment of Pleural Effusion. Recommendations of the Spanish Society of Pulmonology and Thoracic Surgery. Update 2022	Porcel Pérez, Jose Manuel	GREBIC	International	DOI: 10.1016/j.jarbres.2022.09.017
Article	ERS/ESTS statement on the management of pleural infection in adults	Porcel Pérez, Jose Manuel	GREBIC	International	DOI: 10.1183/13993003.01062-2022
Clinical Guide	ICO-ICS Praxis para el tratamiento médico y con irradiación del cáncer de pulmón de célula no pequeña	Rodrigo Cáceres, Alberto	GREBIC	Regional	ISBN: 978-84-126482-3-2
Epidemiology, Infectious Diseases and Public Health					
Article	Impact of an Antimicrobial Stewardship Strategy on Surgical Hospital Discharge: Improving Antibiotic Prescription in the Transition of Care.	Jover, Alfredo; Schoenenberger, Joan Antoni; Ramirez, Maria Fernanda	Pharmacoepidemiology and Pharmacodynamics (P&P) / Other lines of research	International	DOI: 10.3390/antibiotics12050834
Article	Prognostic evaluation in patients with advanced cancer in the last months of life: ESMO Clinical Practice Guideline	Nabal Vicuña, Maria	Pharmacoepidemiology and Pharmacodynamics (P&P)	International	DOI: 10.1016/j.esmoop.2023.101195
Clinical Guide	Grup de treball ICO-ICSPraxi per al tractament mèdic i amb irradiació del mieloma múltiple. Barcelona 2023. Institut Català d'Oncologia	Rius Perera, Judit	Pharmacoepidemiology and Pharmacodynamics (P&P)	Regional	ISBN: 978-84-126482-6-3
Clinical Guide	ICO-ICS Praxi per al tractament mèdic de la trombocitopènia immune	Rius Perera, Judit; Lluà Galan, Armando	Pharmacoepidemiology and Pharmacodynamics (P&P) / Other lines of research	Regional	ISBN: 978-84-126482-8-7
Clinical Guide	Adaptación del modelo de atención farmacéutica CMO al paciente que vive con infección por VIH	Taberner Bonastre, Pilar	Pharmacoepidemiology and Pharmacodynamics (P&P)	National	ISBN: 978-84-095088-2-2



Clinical practice guidelines 2023

Type of document	Title	Researcher	Research Group	Impact	Additional Info
Chronic diseases, surgery and health care					
Article	Myocarditis-related SARS-CoV-2 infection or vaccination: an expert consensus statement on its diagnosis and management	Pastor Pueyo, Pablo	Cardiac Physiology and Pathology	National	DOI: 10.1016/j.rec.2023.01.011 DOI: 10.1016/j.re-cesp.2023.01.010
Article	Vitamin D and Chronic Kidney Disease Association with Mineral and Bone Disorder: An Appraisal of Tangled Guidelines	Valdivielso, Jose Manuel	Vascular and renal translational research group	International	DOI: 10.3390/nu15071576
Nutrition and cell metabolism					
Article	Executive summary of the 2023 update on the consensus regarding basic conduct during hospital admission for patients with acute heart failure	Morales Rull, Jose Luis	NUTRIMIC	International	DOI: 10.1016/j.rceng.2023.07.008

Table 15. Clinical practice guidelines published in 2023.

Theses

Through the 2023 the IRBLleida researchers have defended 32 doctoral theses.

Doctoral theses

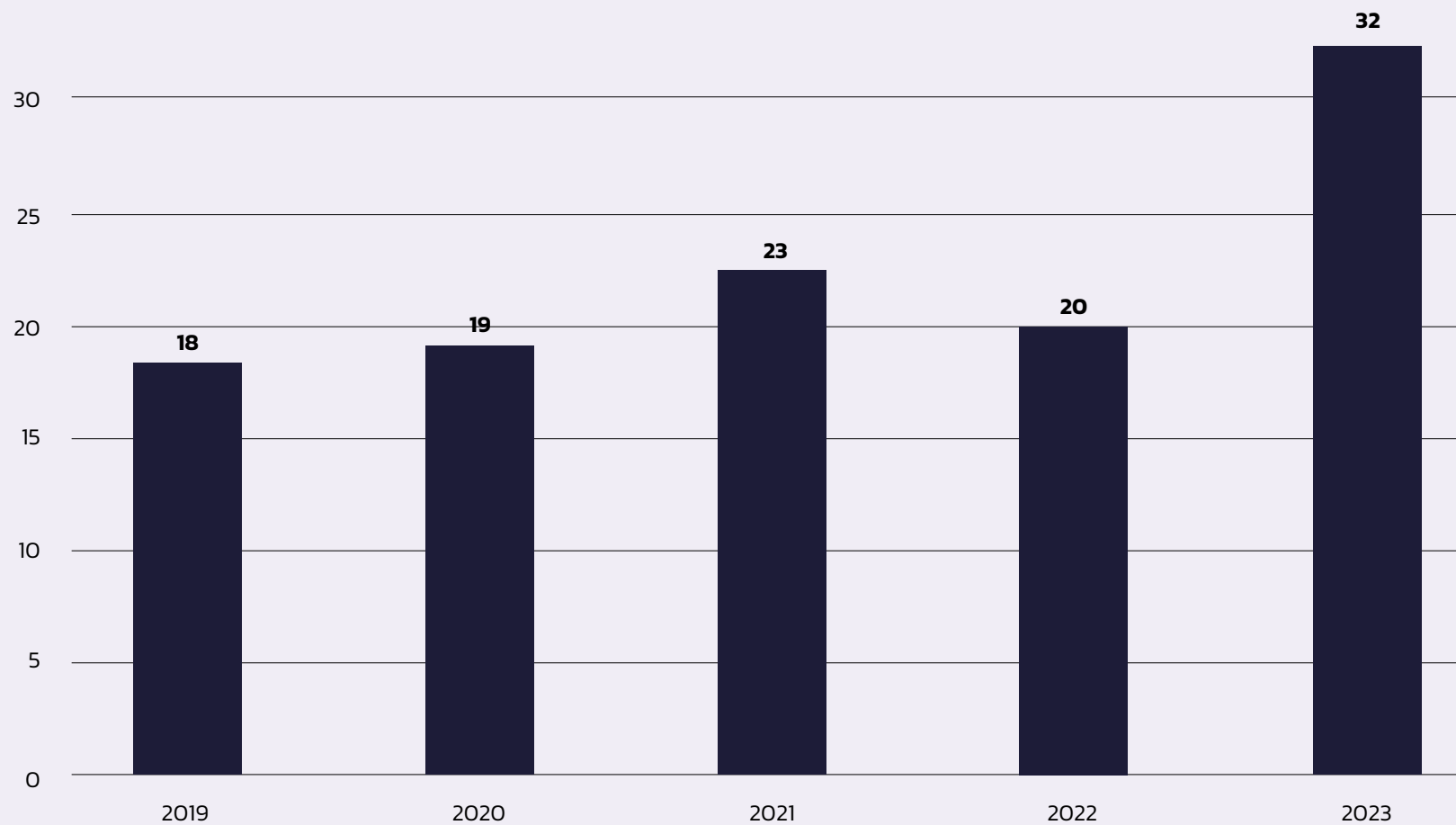


Figure 22. Historical data on doctoral theses defended by PhD students supervised by researchers of the IRBLleida.



Theses directed by IRBLleida researchers in 2023

During 2023, 32 PhD students supervised by IRBLleida researchers have defended their doctoral theses.

PhD Student	Thesis	Director/s	Group
Cancer			
Gisela Altés Bargalló	Noves funcions de Sprouty en el desenvolupament i l'homeòstasi del sistema genitourinari	Mario Encinas Martin	Developmental and oncogenic signaling
Inés De la Rosa Zurera	Estudio genético y análisis del microambiente tumoral del melanoma lentiginoso acral. Identificación de biomarcadores de aplicación clínica	Rosa Maria Martí Laborda & Anna Macia Armengol	Oncological pathology
Roger Ferran Solé Soler	Molecular mechanisms of Smc5/6 complex function: from ATPase-dependent DNA loading to E3 activities	Jordi Torres Rosell	Cell cycle
Anna Ruiz Mitjana	Estudi del TGF-β en processos de tumorigènesi i avaluació de la Metformina com a potencial fàrmac anticancerígen	Francesc Xavier Dolcet Roca	Developmental and oncogenic signaling
Xavier Soria Gili	Paper de la freqüència al·lèlica de la mutació BRAFV600E i de la variant germinal de KDRQ472H en les característiques clinicopatològiques de melanoma cutani	Felip Vilardell Vilellas & Rosa Maria Martí Laborda & Anna Macia Armengol	Oncological pathology
Chronic diseases, surgery and health care			
Lorena Acea López	Expectativas y experiencias laborales de estudiantes y egresados/as del Grado de Enfermería	Erica Tula Briones Vozmediano & María del Mar Pastor Bravo & Esther Rubinat Arnaldo	Research group of health care (GReCS)
Rabie Adel Abdel Kareem El Arab	Addressing patient education gaps in obstructive sleep apnoea and the role of nurses	Manuel Sanchez de la Torre & Francesc Valenzuela Pascual	Precision medicine in chronic diseases group/Research group of health care (GReCS)
Núria Doladé Masot	Papel de BTLA en el eje cardio-renal	Sandra Rayego Mateos & Jose Manuel Valdivielso Revilla	Vascular and renal translational research group
María Ferrer Gil	Beneficios de la sutura continua de la lesión perineal en la adaptación a la maternidad	Miguel Angel Escobar Bravo	Research group of health care (GReCS)
Francesca González Palau	Anàlisi de la relació terapèutica infermera en les unitats d'aguts de salut mental a Catalunya	Antonio Rafael Moreno Poyato & Erica Tula Briones Vozmediano & Álvaro Alconada Romero	Research group of health care (GReCS)
Gemma Horta Garcia	The role of the nurse in leadership and supervisory positions in long-term care in Catalonia	Montserrat Gea Sanchez & Juan Blanco Blanco	Research group of health care (GReCS)
Celmira Laza Vasquez	Consideraciones para la implementación de la detección precoz personalizada del cáncer de mama en un sistema nacional de salud: puntos de vista de mujeres y profesionales de la salud	Montserrat Gea Sanchez & Montserrat Rue Monne	Research group of health care (GReCS)



Theses directed by IRBLleida researchers in 2023 (continued)

PhD Student	Thesis	Director/s	Group
Chronic diseases, surgery and health care			
Mariana Ignacia Loezar Hernandez	Maternidades actuales, vulnerabilidad y la respuesta del sistema sanitario desde una perspectiva de género	Laura Otero García & Erica Tula Briones Vozmediano	Research group of health care (GReCS)
Juliana Luna Salinas	Validació de la ciclina D3 com a reguladora clau de l'apoptosi de la cèl·lula beta pancreàtica induïda per estrès de reticle endoplasmàtic en la diabetis de tipus 1 (T1D)	Concepción Mora Giral	Research Group in Immunology and Metabolims (GRIM)
Lucia Pinilla Latorre	Precision Medicine in Obstructive Sleep Apnea: Deciphering Novel Biomarkers and Biometrics	Manuel Sanchez de la Torre & Fernando Eduardo Barbe Illa	Precision medicine in chronic diseases group / Translational research in respiratory medicine group
Dinora Polanco Alonso	Optimización del proceso diagnóstico del cáncer de pulmón a través de una vía de diagnóstico rápido	Manuel Sanchez de la Torre & Fernando Eduardo Barbe Illa	Precision medicine in chronic diseases group / Translational research in respiratory medicine group
Justo Rueda López	Coste de las Heridas Complejas: Aplicación de modelos económicos desde una perspectiva enfermera	Juan Blanco Blanco & Montserrat Gea Sanchez	Research group of health care (GReCS)
Montserrat Santclemente Dalmau	Anàlisi de les competències de les infermeres d'anestèsia a Catalunya al segle XXI	Paola Galbany Estragués & Esther Rubinat Arnaldo	Research group of health care (GReCS)
Maria Teresa Sanz Osorio	Humanización asistencial en las unidades de hospitalización de agudos de psiquiatría: análisis desde la perspectiva de las personas con experiencia en salud mental, los cuidadores y profesionales	Olga Monistrol Ruano & Miguel Angel Escobar Bravo	Research group of health care (GReCS)
Andrea Zapater Matute	Medicina de precisión en pacientes con apnea obstructiva del sueño y síndrome coronario agudo	Manuel Sanchez de la Torre & Fernando Eduardo Barbe Illa	Precision medicine in chronic diseases group / Translational research in respiratory medicine group
Epidemiology, infectious diseases and public health			
Albert Bernet Sanchez	Diagnòstic microbiològic i epidemiologia dels virus respiratoris a la província de Lleida	Alba Belles Belles & Eduardo Sole Mir	Research in clinical microbiology and antibiotic resistance / Other research lines
Maria Teresa Castañ Abad	Incidencia y factores de riesgo de exacerbación grave y muerte en pacientes codiagnosticados de EPOC y Diabetes Mellitus tipo 2	Pere Godoy Garcia	Applied epidemiology
Carlos Luz María Cruz	Consens per l'establiment de valors crítics de les magnituds biològiques més freqüentment sol·licitades als laboratoris d'anàlisis clíniques a nivell nacional i la seva repercussió en la pràctica clínica diària	Mercè Ibarz Escuer	Indicators and specifications of the quality in the Clinical Laboratory



Theses directed by IRBLleida researchers in 2023 (continued)

PhD Student	Thesis	Director/s	Group
Neurosciences			
Alba Blasco Carmona	Evolució Canvis neuromusculars en l'envelliment: efectes de la suplementació dietètica amb flavonoides del te verd i del cacau sobre la sarcopènia n del grado de conocimiento de La enfermedad en sujetos que han sufrido un ictus en la población de Lleida	Jordi Caldero Pardo & Olga Tarabal Mostazo	Experimental Neuromuscular Pathology
Alek Hanafi Metwalli	Developmental dynamics shaping excitatory/inhibitory balance and stress-related gene expression in the central extended amygdala of chicken	Antonio Abellan Rodenas & Loreta Maria Medina Hernandez	Evolutionary developmental neurobiology
Cristina Pereira Priego	PSICOICTUS: avaluació i pronòstic de les alteracions afectives i cognitives després d'un ictus minor. Abordatge translacional	Gerard Piñol Ripoll & Francisco Purroy Garcia & Gloria Arque Fuste	Cognition and behaviour study group
Alba Sansa Zaragoza	Understanding the intracellular mechanisms leading to motoneuron degeneration in spinal muscular atrophy disease	Ana Garcera Teruel & Rosa Maria Soler Tatche	Neuronal signalling unit
Coral Torres Querol	A novel neuroprotective therapy for acute ischemic stroke: preclinical evidence of remote ischemic conditioning	Francisco Purroy Garcia & Gloria Arque Fuste	Clinical neurosciences
Other research areas			
Maria Fernanda Ramirez Hidalgo	Individualización del período de aislamiento en pacientes con tuberculosis pulmonar	Miquel Falguera Sacrest	Other research lines
Rosa Isabel Upegui Villegas	Papel de la interleuquina 6 y las angiopoyetinas 1 y 2 en la evolución de pacientes diagnosticados de Mieloma Múltiple	Xavier Gomez Arbones	Other research lines
Various Areas			
Epidemiology, infectious diseases and public health/Chronic diseases, surgery and health care			
Ester García Martínez	La influencia de una intervención educativa biopsicosocial a través de las TICs, en las creencias y las actitudes de los profesionales de Atención Primaria sobre el dolor lumbar crónico inespecífico: estudio de método mixto	Marta Ortega Bravo & Francesc Valenzuela Pascual	Applied epidemiology/ Research group of health care (GReCS)
Epidemiology, infectious diseases and public health/Nutrition and cell metabolism			
Joaquim Sol Culleré	Aplicacions de big data per a l'estudi del procés fisiològic de l'envelliment i les malalties associades a l'edat	Marta Ortega Bravo & Mariona Jove Font & Reinald Pamplona Gras	Applied epidemiology/ Metabolic physiopathology

Table 16. List of doctoral theses defended during 2023 directed by IRBLleida researchers.



Research networks and platforms

Reference	Acronym	Funder/Entity	Researcher Member	Research Group
Cancer				
CB16/12/00231	CIBERONC	ISCI (CIBER)	X. Matias-Guiu	Oncological pathology
RED2022-134164-T	INGEN	Ministerio de Ciencia e Innovación	Jordi Torres	Cell Cycle
Chronic diseases, surgery and health care				
COST Action B26	ESADA	European Cooperation in Science & Technology (COST)	F. Barbé	Translational research in respiratory medicine group
CBO7/06/2008	CIBERES	ISCI (CIBER)	F. Barbé, Torres G., Benitez I., Targa A., Belmonte T., Gracia E., Gort C., de Batlle J., de Gonzalo D., M. Sanchez, L. Pinilla.	Translational research in respiratory medicine group, Precision medicine in chronic diseases group
812699	IMPROVE-PD	European Commission – MSCA – ITN – 2018	J. M. Valdivielso	Vascular and renal translational research group
COST CA18216	VascAgeNet	European Cooperation in Science & Technology (COST)	J. M. Valdivielso	Vascular and renal translational research group
	INCOSACT	International Collaboration of Sleep Apnea Cardiovascular Trialists	M. Sanchez	Precision medicine in chronic diseases group
COST CA17129	EU-CardioRNA	European Cooperation in Science & Technology (COST)	D. De Gonzalo	Translational research in respiratory medicine group
COST CA21153		European Cooperation in Science & Technology (COST)	D. De Gonzalo	TRMM
CB15/00071	CIBERDEM	ISCI (CIBER)	Esther Rubinat/ Minerva Granados	GRECS
CB16/10/00468	CIBERFES	ISCI (CIBER)	Joan Blanco/ Montse Gea	GRECS
Epidemiology, infectious diseases and public health				
	APORED	Various Organizations	J. Ribas	Pharmacology unit
COST CA19137	PARQ COST	European Cooperation in Science & Technology (COST)	O. Yuguero	Urgency and emergency multi-disciplinary research group
-	EFLM	Laboratory medicine credit points, working group. European Federation of clinical chemistry and laboratori medicine.	M. Ibarz	Indicadors i especifici laboratorii clinic
-	EFLM	Preanalytical phase, working group. European Federation of clinical chemistry and laboratori mrdicine	M. Ibarz	Indicadors i especifici laboratorii clinic



Research networks and platforms

Reference	Acronym	Funder/Entity	Researcher Member	Research Group
Neurosciences				
812777	CHICKENSTRESS	European Commission – MSCA – ITN – 2019	L. Medina	Evolutionary developmental neurobiology
CB/07/09/0037	CIBERSAM	Centro de investigación biomédica en red de salud mental	Salvador Miret	Fonaments dels trastorns mentals
	TECSAM	AGAUR	X. Gallart	pECProteomics
	XARSMART	IDIBELL	X. Gallart	pECProteomics
	CIBERSAM	Centro de investigación biomédica en red de salud mental	X. Gallart	pECProteomics
RD21/0006/0023	RICORS-ICTUS	ISCIII (RETICS)	F. Purroy	Clinical Neurosciences
EXOPSYCOG2023	IKUR-EXOPSY-COG2023	IKUR Neurobiosciences – Basque Government	X. Gallart	pECProteomics
Nutrition, metabolism and Cellular Stress				
COST CA19105	EpiLipidNET	European Cooperation in Science & Technology (COST)	R. Pamplona	Metabolic physiopathology
-	INFECMOL	Campus Iberus	G. Bellí	Molecular biology of yeast
Transversal Platforms				
PT20/00021	Plataforma de Biobancos y Biomodelos	ISCIII (Plataformas)	X. Matias-Guiu, D. Arango, Agueda Martinez B.	Biobank IRBLleida
PT23/00121	Plataforma de investigación clínica	ISCIII (Plataformas)	A. Lecube	Clinical Research Support Unit (USIC) IRBLleida

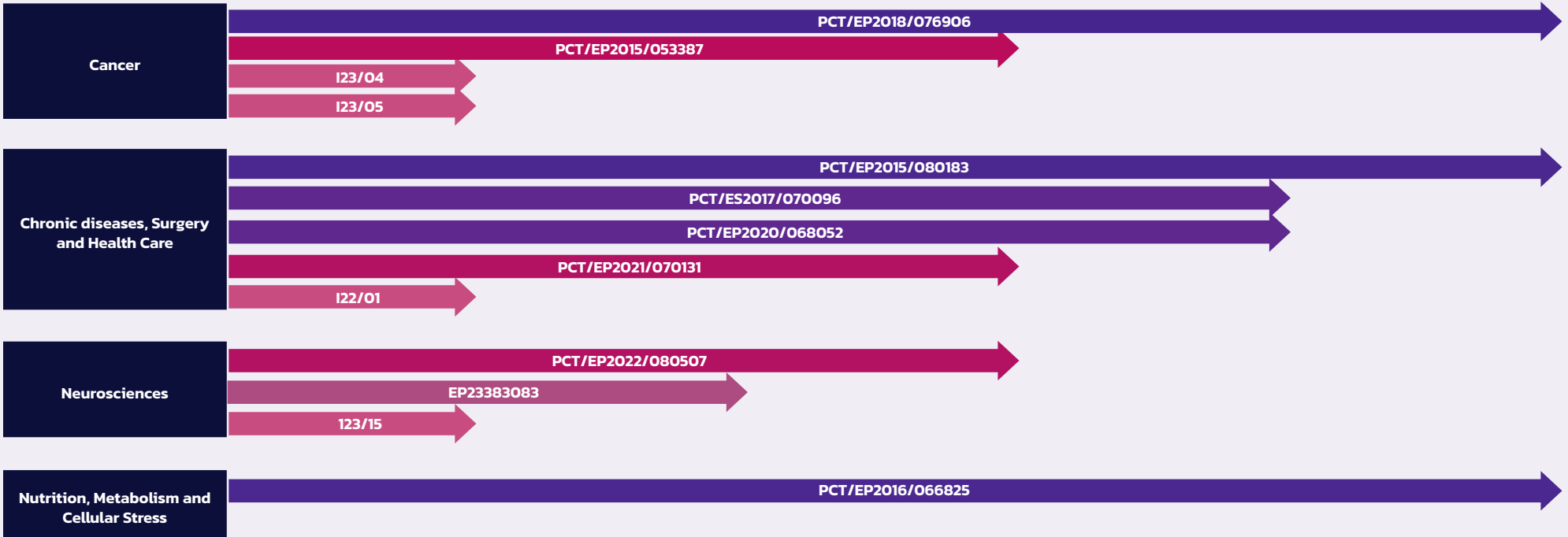
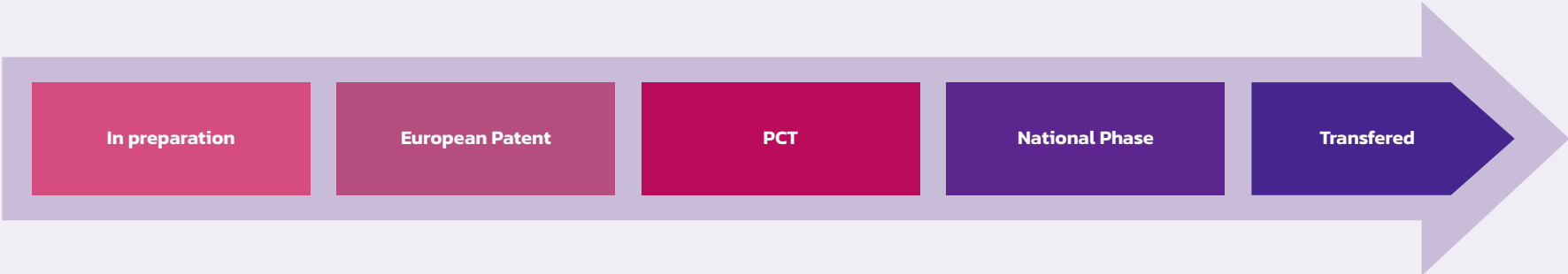
Table 17. Research networks and research platforms with IRBLleida researchers.



Knowledge transfer and innovation

Innovation unit 2023

State of patents IRBLleida 2023 Total: 13



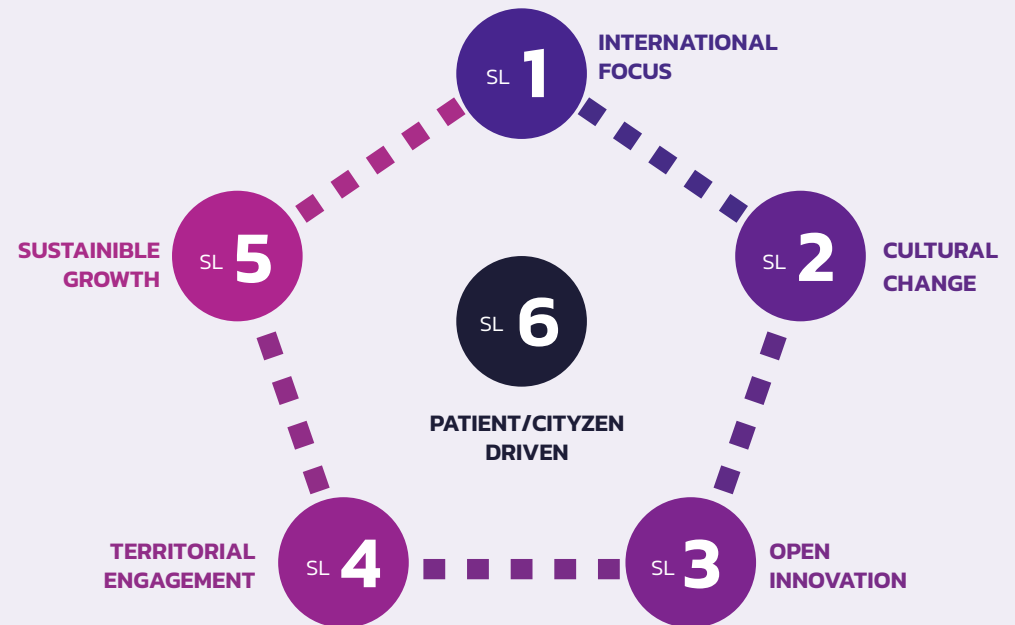
Innovation unit: 2023–2025 Plan

Within the IRBLleida Strategic Plan, innovation is identified as one of the strategic pillars of the Institute. This identified necessity led to the preparation and development of the Innovation Plan 2023–2025. An outline of the model that will facilitate the acceleration of innovation at the institute can be found below.

Milestones 2023

- Achieved a 95.75% compliance rate for activities planned in the 2023 Innovation Plan (2023–2025).
- Established the Innovation Unit, Innovation Commission, Business Advisory Board, and launched an Innovation Newsletter.
- Hosted an innovation event to present portfolio projects to companies.
- Launched an internal call for an Innovation Seed Grant.
- Conducted training sessions on Intellectual Property.
- Integration of the "Research Group of Health Care (GReCS)" and the "Biological Foundations of Mental Disorders" research group into the TECSAM network, focusing on the valorization and transfer of research results to the market in mental health and personalized medicine.
- Prepared for the launch of two upcoming spin-offs.

Strategic lines



Innovation unit: 2023-2025 Plan

Innovative researchers

- Active Innovative researchers
- Innovative researchers

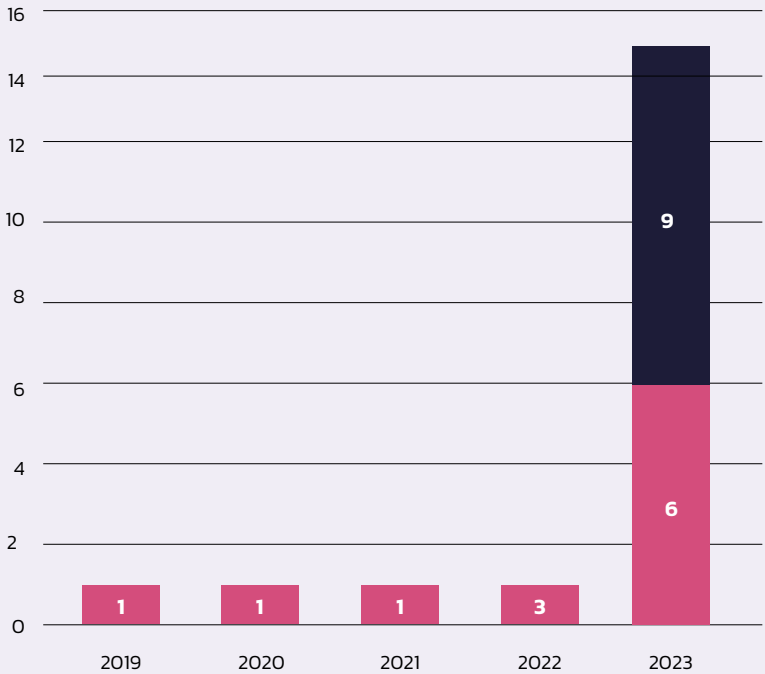


Figure 23. Innovative researchers.

Note: Active innovative researchers are the investigators at the institute that have already submitted an idea in Fundanet and are actively working on the innovation process; Innovative researchers are the researchers that are on the radar of IRBLleida (based on conversations, interactions, trainings, projects, etc.) with a potential innovation idea but have not yet made the submission of the idea in Fundanet software.

Ideas and Industrial and Intellectual property

- Ideas
- Industrial and intellectual property

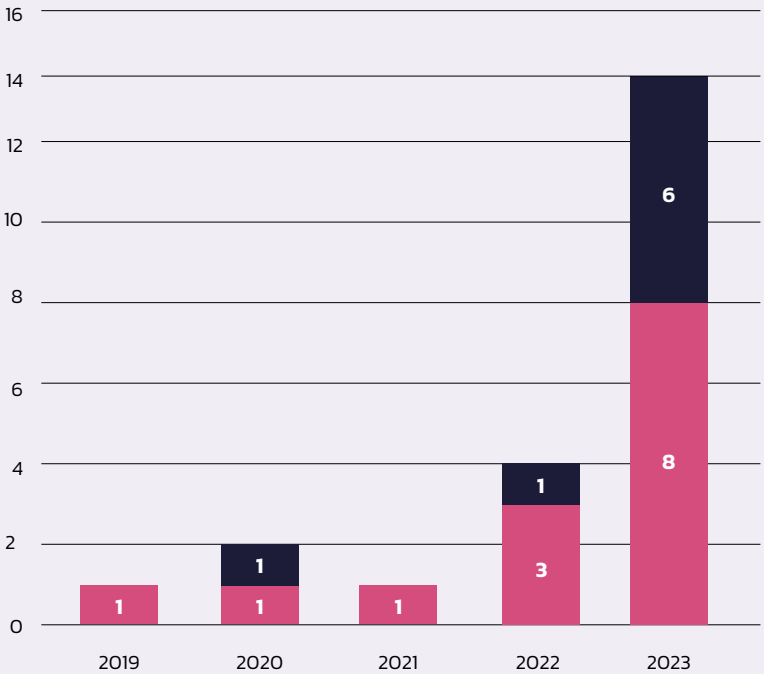


Figure 24. Ideas and Industrial and Intellectual property.

Innovation unit: 2023-2025 Plan

Innovation grants applications

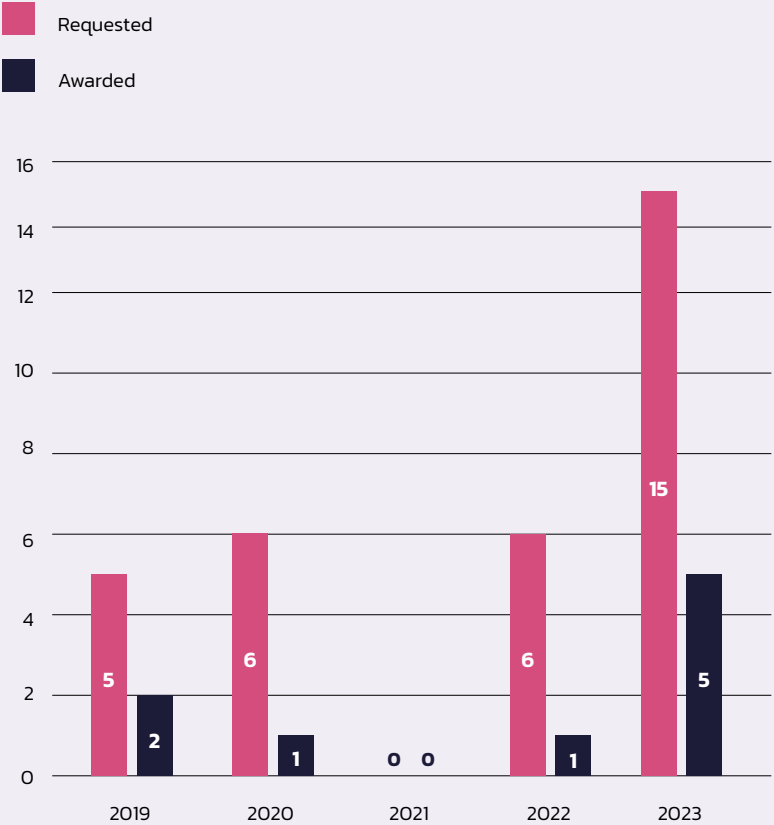


Figure 25. Number of innovation grants applications.

Note: Requested innovative projects are IRBLLeida projects that have been submitted to diferent grants with the support of the innovation department of the administration office of the institute. Awarded count the total amount of those grants that had a positive resolution for IRBLLeida.

Innovation grants funding

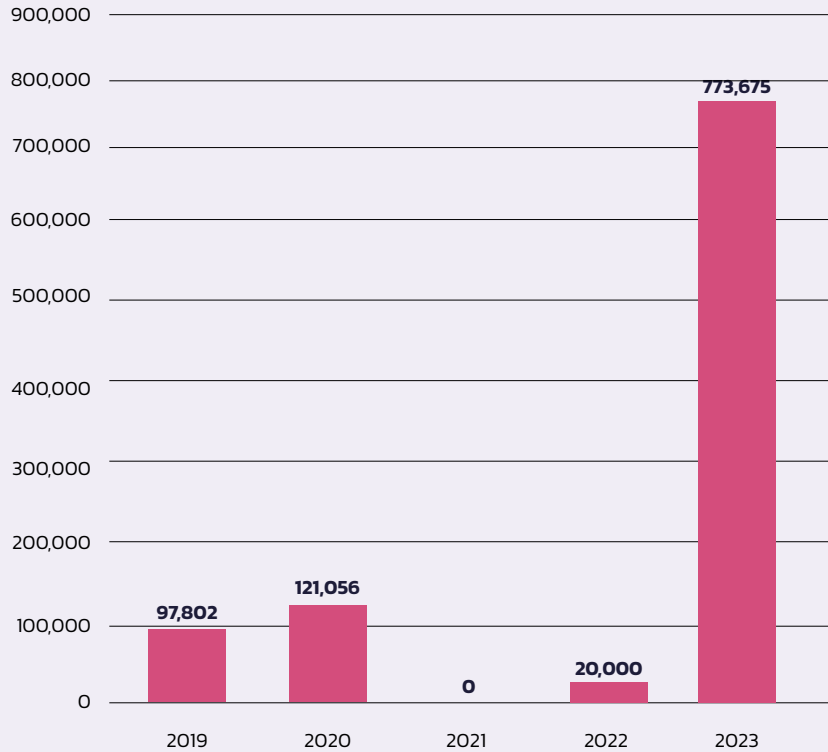


Figure 26. Funding obtained from innovation grants.



Research activity by areas and groups

- Area 1. Cancer
- Area 2. Chronic diseases, surgery and health care
- Area 3. Epidemiology, infectious diseases and public health
- Area 4. Neurosciences
- Area 5. Nutrition and cell metabolism
- Area 6. Other research areas



Area 1. Cancer

Area coordinator: Dr. Eloi Garí Marsol & Dr. Águeda Martínez Barriocanal

The cancer area includes research staff trained in different specialties of Medicine and Biology. The common goal is oncology research integrating basic (model organisms), translational, and clinical research (trials).

Groups

1.1 Calcium cellular signalling

1.2 Cell cycle

1.3 Developmental and Oncogenic Signaling

1.4 Drosophila disease models and (epi)genetic analysis

1.5 Molecular Oncology

1.6 Oncological pathology

1.7 Research group of Cancer Biomarkers (GReBiC)

7

Groups

81

Researchers

Male 46% Female 54%

18

Funded grants

Male 44% Female 56%

1,778,563€

Grants funding

Male 58% Female 42%

33

Active projects

50

Publications

464

Total IF

9.29

Average IF

65%

%Q1

25%

%D1



1.1. Calcium cellular signalling

During tumor progression, cancer cells adapt to changes in the microenvironment (lack of nutrients and /or oxygen) through the activation of stress pathways and autophagy. These processes are relevant in the resistance of the tumor to treatment and therefore important in the fight against cancer. Our group studies the relationship between calcium signaling and these adaptive processes, with the aim of proposing antitumoral strategies. The reason for this relationship stems from our findings that showed that T-channel deficiency activates processes of death or proliferative arrest in tumor cells. Currently our working model is Glioblastoma, an aggressive brain tumor that is characterized by its rapid growth, high invasiveness, plasticity and resistance to treatment. We use primary cultures derived from human biopsies, biochemical and cell biology techniques, gene silencing, and preclinical models of glioblastoma. The group is formed by two senior researchers, a postdoctoral researcher, a predoctoral researcher and technical staff.

Funded projects

PI	Funding agency	Project	Budget (€)
Judit Herreros Danés	Ministerio de Ciencia e Innovación	Disrupción del contexto protumoral del glioblastoma: modulación de canales iónicos en las distintas poblaciones celulares implicadas	180,000

Active projects

PI	Funding agency	Project	Budget (€)
Carles Cantí Nicolás	Fundació La Marató DE TV3	Targeting calcium channels against primary and resistant glioblastoma	180,375

RESEARCH TEAM

Group leaders

Judit Herreros Danés

Carles Cantí Nicolás

Researcher

Anna Visa Pretel

PhD student

Lia Alza Blanco

Research technicians

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1.2. Cell cycle

The Cell Cycle group studies the molecular mechanisms that regulate the division of eukaryotic cells, in particular:

- (A) the mechanisms dependent on SUMO and SMC complexes that ensure genome stability during the cycle and in response to DNA damage.
- (B) the mechanisms involved in the control of Cell Cycle entry and its relation to polarity, cell adhesion and migration.

Mouse embryonic fibroblasts, cell lines and primary cultures of human keratinocytes are used as models of cell adhesion and polarity whereas budding yeast and human cell lines are employed for chromosome replication, cohesion and segregation studies.

The overall goal of this work is to contribute to a better understanding of the processes that are altered during the loss of genome integrity and in diseases such as cancer.

Funded projects

PI	Funding agency	Project	Budget (€)
Eloi Garí Masol	Agencia Gestió Ajuts Universitat i Recerca AGAUR	Cicle Cel·lular Eucariota	40,000

Active projects

PI	Funding agency	Project	Budget (€)
Eloi Garí Masol	Ministerio de Ciencia e Innovación	Characterization of non-canonical functions of the Cyclin D1-Cdk4 complex involved in cell signaling	145,200
Eloi Garí Masol i Sonia Gatius Caldero	Diputació de Lleida	Clinical and functional identification of metastatic colonization biomarkers.	50,000
Gemma Belli Martínez	Institut de Recerca Biomèdica de Lleida IRBLleida	Designing functional food containing active ingredients with potential anti-obesity properties	25,623.4
Jordi Torres Rosell	Ministerio de Ciencia e Innovación	Mecanismos moleculares de transacciones dependientes del complejo Smc5/6 sobre cromosomas eucarióticos	229,900

Publications

– Matas C, Bech JJ, Gatius S, Gomez X, Ribes M, Guasch M, Pedraza N, Casanova JM, Gómez CT, Garí E, Aguayo RS. Biomarkers found in the tumor interstitial fluid may help explain the differential behavior among keratinocyte carcinomas. *Mol. Cell. Proteomics*. 2023. 22. (6):p. 100547-100547. IF:7,000. (D1).

– Ibars E, Codina J, Bellí G, Casas C, Tarrés M, Solé R, Lorite NP, Ximénez P, Muñoz J, Colomina N, Torres J. Ubiquitin proteomics identifies RNA polymerase I as a target of the Smc5/6 complex. *Cell Reports*. 2023. 42. (5):p. 112463-112463. IF:8,800. (Q1).

– Pedraza N, Monserrat MV, Ferrezuelo F, Torres J, Colomina N, Miguez F, Párraga JP, Soto D, López E, García C, Esteban JA, Egea J, Garí E. Cyclin D1-Cdk4 regulates neuronal activity through phosphorylation of GABAA receptors. *Cell. Mol. Life Sci*. 2023. 80. (10):p. 280-280. IF:8,000. (Q1).

– Lopez IC, Pijuan J, Navaridas R, Santacana M, Gatius S, Velasco A, Castellà G, Panosa A, Cabiscol E, Pinyol M, Coll L, Bonifaci N, Peña LP, Vidal A, Villanueva A, Garí E, Llobet D, Fajas L, Matias X, Yeramian A. Oxidative stress-induced FAK activation contributes to uterine serous carcinoma aggressiveness. *Mol. Oncol*. 2023. 17. (1):p. 98-118. IF:6,600. (Q1).

RESEARCH TEAM

Group leaders

Eloi Garí Masol
Jordi Torres Rosell

Principal investigators

Gemma Belli Martínez
Neus Colomina Gabarrella
Francisco Ferrezuelo Muñoz

Researchers

Marta Guasch Vallés
Rafael Aguayo Ortiz
José Manuel Fernandez Armenteros
Neus Pedraza Gonzalez
Jose Manuel Casanova Seuma

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Neus Perez Lorite
Roger Ferran Solé Soler

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1.3. Developmental and Oncogenic Signaling

The aim of the team is to join efforts to gain insight into the signaling pathways governing the biology of the genitourinary (GU) system, using genetically modified mice as a model system.

Publications

– Ruiz A, Vidal M, Navaridas R, Perramon A, Yeramian A, Nicholson N, Egea J, Encinas M, Matias X, Dolcet X. Metformin exhibits antineoplastic effects on Pten-deficient endometrial cancer by interfering with TGF- β and p38/ERK MAPK signalling. *Biomed. Pharmacother.* 2023. 168. p. 115817–115817. IF:7,500. (D1).

– Navaridas R, Vidal M, Ruiz A, Altés G, Perramon A, Yeramian A, Egea J, Encinas M, Gatus S, Matias X, Dolcet X. In Vivo Intra-Uterine Delivery of TAT-Fused Cre Recombinase and CRISPR/Cas9 Editing System in Mice Unveil Histopathology of Pten/p53-Deficient Endometrial Cancers. *Adv Sci (Weinh).* 2023. 10. (32):e2303134. IF:15,100. (D1).

– Pedraza N, Monserrat MV, Ferrezuelo F, Torres J, Colomina N, Miguez F, Párraga JP, Soto D, López E, García C, Esteban JA, Egea J, Garí E. Cyclin D1-Cdk4 regulates neuronal activity through phosphorylation of GABAA receptors. *Cell. Mol. Life Sci.* 2023. 80. (10):p. 280–280. IF:8,000. (Q1).

– Cassier PA, Navaridas R, Bellina M, Rama N, Ducarouge B, Hernandez H, Delord JP, Lengrand J, Paradisi A, Fattet L, Garin G, Gheit H, Dalban C, Pastushenko I, Neves D, Jelin R, Gadot N, Braissand N, Léon S, Degletagne C, Matias X, Devouassoux M, Mery E, Allard J, Zindy E, Decaestecker C, Salmon I, Perol D, Dolcet X, Ray I, Blanpain C, Bernet A, Mehlen P. Netrin-1 blockade inhibits tumour growth and EMT features in endometrial cancer. *Nature.* 2023. 620. (7973):p. 409–416. IF:64,800. (D1).

– Herrerías F, Yeramian A, Baena JA, Bueno M, Fleitas C, de la Fuente M, Serrano J, Granado A, Santamaría M, Yeramian N, Zorzano M, Mora C, Lecube A. PKNI Kinase: A Key Player in Adipocyte Differentiation and Glucose Metabolism. *Nutrients.* 2023. 15. (10):2414. IF:5,900. (Q1).

– Navaridas R, Vidal M, Ruiz A, Perramon A, Megino C, Llobet D, Matias X, Egea J, Encinas M, Bardia L, Colombelli J, Dolcet X. Transient and DNA-free in vivo CRISPR/Cas9 genome editing for flexible modeling of endometrial carcinogenesis. *Cancer Commun.* 2023. 43. (5):p. 620–624. IF:16,200. (D1).

– Roy R, Lorca C, Mulet M, Sánchez JA, Baratas A, de la Casa M, Espinet C, Serra A, Gallart X. Altered ureido protein modification profiles in seminal plasma extracellular vesicles of non-normozoospermic men. *Front Endocrinol (Lausanne).* 2023. 14. p. 1113824–1113824. IF:5,200. (Q1).

Funded projects

PI	Funding agency	Project	Budget (€)
Francisco Javier Dolcet Roca	Ministerio de Ciencia e Innovación	Análisis funcional de genes supresores de tumores implicados en el cáncer de endometrio de alto riesgo mediante edición CRISPR/Cas9 in vivo	206,250
Francisco Javier Dolcet Roca i Dolors Cuevas Sanchez	Diputació de Lleida	Analysis Of Molecular Alterations And Therapeutic Targets For P53/Pten-Deficient Endometrial Cancers.	50,000
Carmen Espinet Mestre	Agencia Gestió Ajuts Universitat i Recerca AGAUR	Ajuts per donar suport a les activitats dels grups de recerca SGR-21: Developmental and oncogenic signalling	0

Active projects

PI	Funding agency	Project	Budget (€)
Francisco Javier Dolcet Roca	Ministerio de Ciencia e Innovación	Descifrando redes de señalización en el cáncer de endometrio: papel del microRNA-424(322)/503 neoplasias endometriales y su regulación por las vías PI3K/AKT y TGF/Smad (NEOSIGNAL)	151,250
Joaquim Egea Navarro	Ministerio de Ciencia e Innovación	Estudio de la RhoGTPasa Rnd3/RhoE en la formación de pliegues corticales durante el desarrollo del cerebro mediante el uso de ratones modificados genéticamente	127,050
Mario Encinas Martin	Ministerio de Ciencia e Innovación	Mecanismos moleculares y efectos biológicos de la senescencia celular mediada por Sprouty	157,300

RESEARCH TEAM

Group leaders

Francisco Javier Dolcet Roca
Mario Encinas Martin

Principal investigators

Carmen Espinet Mestre
Joaquim Egea Navarro

Researcher

Andree Yeramian Hakim

PhD students

Anna Olomi Pallas
Nathan Nicholson Sabate
Bahira Zammou
Anna Ruiz Mitjana

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1.4. Drosophila disease models and (epi)genetic analysis

Our research group embodies a multidisciplinary approach, encompassing diverse research lines that delve into both basic and translational research. Our work primarily revolves around two key research areas

- Utilizing *Drosophila* as a model organism to delve into the genetic and biological underpinnings of human diseases, with a particular emphasis on metastatic colorectal cancer.
- Delving into the comprehensive characterization of genetic and epigenetic alterations in complex traits, discerning their involvement in disease susceptibility and progression.

Publications

– Parisi E, Hidalgo I, Montal R, Pallise O, Tarragona J, Sorolla A, Novell A, Campbell K, Sorolla MA, Casali A, Salud A. PLA2G12A as a Novel Biomarker for Colorectal Cancer with Prognostic Relevance. *Int J Mol Sci*. 2023. 24. (13):10889. IF:5,600. (Q1).

– Chung FF, Maldonado SG, Neme A, Bouaoun L, Cahais V, Cuenin C, Salle A, Johnson T, Ergüner B, Laplana M, Datlinger P, Jeschke J, Weiderpass E, Kristensen V, Delalogue S, Fuks F, Risch A, Ghantous A, Plass C, Bock C, Kaaks R, Herceg Z. Buffy coat signatures of breast cancer risk in a prospective cohort study. *Clin. Epigenetics*. 2023. 15. (1):p. 102–102. IF:5,700. (Q1).

– Sharpe JL, Morgan J, Nisbet N, Campbell K, Casali A. Modelling Cancer Metastasis in *Drosophila melanogaster*. *Cells*. 2023. 12. (5):677. IF:6,000. (Q2).

– Fibla J, Maceda I, Laplana M, Guerrero M, Álvarez MM, Burgueño J, Camps A, Fàbrega J, Felisart J, Grané J, Remón JL, Serra J, Moral P, Lao O. The power of geohistorical boundaries for modeling the genetic background of human populations: The case of the rural catalan Pyrenees. *Front. Genet*. 2023. 13. p. 1100440–1100440. IF:3,700. (Q2).

Funded projects

PI	Funding agency	Project	Budget (€)
Andreu Casali Taberner	Ministerio de Ciencia e Innovación	Identificación de genes esenciales para el inicio de la metastasis en un modelo de <i>Drosophila</i>	200,000
Marina Laplana Lafaja i Jorge J.Olsina Kissler	Diputació de Lleida	Mejora del Diagnóstico en Cáncer de Páncreas (MEDI-CAPA)	50,000

Active projects

PI	Funding agency	Project	Budget (€)
Andreu Casali Taberner	Ministerio de Ciencia e Innovación	Modelling metastasis in adult <i>Drosophila</i> : Identification of the mechanisms underlying successful cell migration	133,100

RESEARCH TEAM

Group leaders

Andreu Casali Taberner

Researchers

Marina Laplana Lafaja

Ricard Lopez Ortega

Joan Fibla Palazon

PhD student

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Laia Castells Roca

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1.5. Molecular oncology

The main interest of our laboratory is the study of molecular events underlying the oncogenic process, especially in colorectal, gastric and head-and-neck cancer. Gaining a deeper understanding of the molecular mechanisms responsible for the tumorigenic process is essential to improve the diagnosis and treatment of these patients. We are also interested in the identification of novel biomarkers capable of predicting therapy response, thus contributing to treatment personalization for colorectal cancer patients. Finally, we explore novel therapeutic options for microvillus inclusion disease (MVID), a rare life-threatening intestinal disease.

Publications

- Rafael D, Guerrero M, Marican A, Arango D, Sarmento B, Ferrer R, Durán EF, Clark SJ, Schwartz SJR. Delivery Systems in Ocular Retinopathies: The Promising Future of Intravitreal Hydrogels as Sustained-Release Scaffolds. *Pharmaceutics*. 2023. 15. (5):1484. IF:5,400. (Q1).
- González P, Gener P, Díaz ZV, Conti S, Cámara P, Riera R, Mancilla S, García M, Peg V, Arango D, Rosell A, Labernadie A, Trepas X, Albertazzi L, Schwartz SJR, Seras J, Abasolo I. Extracellular vesicles secreted by triple negative breast cancer stem cells trigger pre-metastatic niche remodeling and metastatic growth in the lungs. *Int J Cancer*. 2023. 152. (10):p. 2153-2165. IF:6,400. (Q1).
- Matos AI, Peres C, Carreira B, Moura L, Acúrcio RC, Vogel T, Wegener E, Ribeiro F, Afonso MB, Santos FMF, Martínez A, Arango D, Viana AS, Góis PMP, Silva LC, Rodrigues CMP, Graca L, Jordan R, Satchi R, Florindo HF. Polyoxazoline-Based Nanovaccine Synergizes with Tumor-Associated Macrophage Targeting and Anti-PD-1 Immunotherapy against Solid Tumors. *Adv Sci (Weinh)*. 2023. 10. (25):e2300299. IF:15,100. (D1).

Funded projects

PI	Funding agency	Project	Budget (€)
Agueda Martínez Barriocanal	Instituto de Salud Carlos III ISCIII	Turning drug-induced senescence into a novel therapeutic opportunity for colorectal cancer treatment	102,500
Diego Arango del Corro	Agencia Gestió Ajuts Universitat i Recerca AGAUR	Ajut per donar suport a les activitats del grup de recerca consolidat de Oncologia Molecular	0

Active projects

PI	Funding agency	Project	Budget (€)
Agueda Martínez Barriocanal i Xavier Matias-Guiu Guia	Diputació de Lleida	EPH Receptor Signaling in Endometrial Cancer	50,000
Diego Arango del Corro	Instituto de Salud Carlos III ISCIII	Antioxidant treatment as a novel therapeutic option for microvillus inclusion disease. ARMED	174,966
Diego Arango del Corro	Instituto de Salud Carlos III ISCIII	Nueva aproximación terapéutica para el cáncer colorectal.	183,920
Diego Arango del Corro	Instituto de Salud Carlos III ISCIII	Targeting RHOA signaling in gastric cancer	236,857.5
Diego Arango del Corro	Instituto de Salud Carlos III ISCIII	Development of CXCR4 targeting-nanosystem-imaging probes for molecular imaging of cancer cells and tumor microenvironment	99,946

RESEARCH TEAM

Group leader

Diego Arango del Corro

Principal investigator

Águeda Martínez Barriocanal

PhD students

Javier Martín Delgado

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1.6. Oncological pathology

The group studies the molecular alterations of endometrial and skin cancers, in correlation with clinical and pathological characteristics, using descriptive molecular pathology tools (immunohistochemistry, in situ hybridization, sequencing, epigenetics, gene gain and loss), as well as in vitro functional analysis in cell cultures (2D and 3D), and experimental animals. The objective is to transfer the results to clinical practice for the benefit of patients.

Publications

- Berek JS, Matias X, Creutzberg C, Fotopoulou C, Gaffney D, Kehoe S, Lindemann K, Mutch D, Endometrial Canc Staging S, FIGO Womens Canc C, Concin N. FIGO staging of endometrial cancer: 2023. *J Gynecol Oncol.* 2023. 34. (5):e85. IF:3,900. (Q1).
- Pizarro D, Romero I, Perez B, Redondo A, Caniego T, Carretero I, Cristobal E, Gutierrez A, Santaballa A, D'Angelo E, Hardisson D, Vieites B, Matias X, Estevez P, Guerra E, Prat J, Poveda A, Lopez JA, Palacios J. The Prognostic Significance of Tumor-Infiltrating Lymphocytes, PD-L1, BRCA Mutation Status and Tumor Mutational Burden in Early-Stage High-Grade Serous Ovarian Carcinoma—A Study by the Spanish Group for Ovarian Cancer Research (GEICO). *Int J Mol Sci.* 2023. 24. (13):11183. IF:5,600.(Q1).
- Parisi E, Hidalgo I, Montal R, Pallise O, Tarragona J, Sorolla A, Novell A, Campbell K, Sorolla MA, Casali A, Salud A. PLA2G12A as a Novel Biomarker for Colorectal Cancer with Prognostic Relevance. *Int J Mol Sci.* 2023. 24. (13):10889. IF:5,600. (Q1).
- Gené M, Cuatrecasas M, Amat I, Veiga JA, Fernández MJ, Fusté V, Tarragona J, Jurado I, Fernández R, Martínez C, Alenda C, Zac C, Ortega de la Obra P, Fernández MT, Esteller M, Musulen E. Alterations in p53, Microsatellite Stability and Lack of MUC5AC Expression as Molecular Features of Colorectal Carcinoma Associated with Inflammatory Bowel Disease. *Int J Mol Sci.* 2023. 24. (10):IF:5,600. (Q1).
- Albertí M, Megino C, Macià A, Gatus S, Matias X, Eritja N. Metabolomic-Based Approaches for Endometrial Cancer Diagnosis and Prognosis: A Review. *Cancers.* 2023. 16. (1):185. IF:5,200. (Q2).
- Lombaers MS, Cornel KMC, Visser NCM, Bulten J, Küsters HVN, Amant F, Boll D, Bronsert P, Colas E, Geomini P, Gil A, van D, Huvila J, Krakstad C, Kraayenbrink AA, Koskas M, Mancebo G, Matías X, Ngo H, Pijlman BM, Vos MC, Weinberger V, Sniijders MPLM, van SW, E, Haldorsen IS, Reijnen C, Pijnenborg J. Preoperative CA125 Significantly Improves Risk Stratification in High-Grade Endometrial Cancer. *Cancers.* 2023. 15. (9):2605. IF:5,200. (Q2).
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1.6. Oncological pathology

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1.6. Oncological pathology

Funded projects

PI	Funding agency	Project	Budget (€)
Dolors Cuevas Sanchez i Francisco Javier Dolcet Roca	Diputació de Lleida	Analysis Of Molecular Alterations And Therapeutic Targets For P53/Pten-Deficient Endometrial Cancers.	50,000
Núria Eritjà Sanchez	Fundación Contigo	Implicación de ARID1A en la remodelación del microambiente tumoral y la reprogramación metabólica en el cáncer endometrial	79,983
Sonia Gatius Calderó	Instituto de Salud Carlos III ISCIII	Homologous recombination deficiency in high-grade endometrial cancers. Biomarkers and impact of intratumor heterogeneity.	115,000
Xavier Matias-Guiu Guia	Agencia Gestió Ajuts Universitat i Recerca AGAUR	Ajut per donar suport a les activitats dels grup de càncer ginecològic i afins (GinA)	40,000
Xavier Matias-Guiu Guia	Instituto de Salud Carlos III ISCIII	Integrative genomic, digital imaging and clinical information towards Precision Oncology Optimization – INGENIO	88,870.83
Xavier Matias-Guiu Guia	Instituto de Salud Carlos III ISCIII	Plataformas Biomodelos y Biobancos	401,012

Active projects

PI	Funding agency	Project	Budget (€)
Anna Macià Armengol i Rosa Maria Martí	Instituto de Salud Carlos III ISCIII	Análisis del microambiente tumoral del melanoma cutáneo asociado al perfil genético y/o a la aparición de resistencias	87,120
Núria Eritjà Sanchez	Instituto de Salud Carlos III ISCIII	Papel de ARID1A en la carcinogénesis endometrial dependiente de contexto. Análisis de los mecanismos moleculares y posibles implicaciones terapéuticas	87,120
Felipe Vilardell Villellas i Anabel Soroll Bardaji	Diputació de Lleida	Development of precision therapies for triple negative breast cancer based on CRISPR/Cas12a ribonucleoproteins	50,000
Rosa Maria Martí Laborda	Instituto de Salud Carlos III ISCIII	Análisis del secretoma en el melanoma humano asociado al perfil genético y a la aparición de resistencias. Identificación de biomarcadores y/o dianas terapéuticas de aplicación clínica	93,170
Sonia Gatius Calderó i Eloi Garí Masol	Diputació de Lleida	Clinical and functional identification of metastatic colonization biomarkers.	50,000
Xavier Matias-Guiu Guia	Fundació La Marató de TV3	Personalized Immunotherapy for Endometrial Cancer; Acronym: ExCITE (Endometrial Cancer Immunotherapy)	100,000
Xavier Matias-Guiu Guia	Instituto de Salud Carlos III ISCIII	Incorporación de nuevas áreas temáticas y nuevos grupos al consorcio CIBER	63,500
Xavier Matias-Guiu Guia	Instituto de Salud Carlos III ISCIII	Plataforma de Biobancos y Biomodelos	205,700
Xavier Matias-Guiu Guia i Agueda Martínez Barriocanal	Diputació de Lleida	EPH Receptor Signaling in Endometrial Cancer	50,000

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1.7. Research group of Cancer Biomarkers (GReBiC)

Our research group is translational, multidisciplinary and young. It is composed of medical doctors specialized in Medical Oncology, Internal Medicine, Radiotherapy Oncology and Clinical Analysis; and basic researchers trained in Biosciences (Biology, Biochemistry, Biomedicine and Biotechnology) with a high degree of cohesion. The work of our group focuses on three main lines of research related to cancer: i) Digestive tumors: colorectal cancer, gastric cancer and hepatocellular carcinoma; ii) Breast cancer and iii) Pleural effusion. All three lines address high-prevalence diseases in our society that are associated with a high mortality rate. We work with basic and translational research approaches to respond to the great challenges posed by these pathologies, which are: providing markers for diagnosis, stratifying the risk of recurrence or metastasis and predicting the good therapeutic response to different treatments. In addition, new highly innovative therapies based on gene editing are being developed in our group.

Publications

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1.7. Research group of Cancer Biomarkers (GReBiC)

- Porcel JM, Cordovilla R, Tazi R, Barrios D, Pérez J, Bastos H, Martínez R, Flandes J, Cases E, Recalde B, Botana M. Efficacy and Safety of Indwelling Catheter for Malignant Pleural Effusions Related to Timing of Cancer Therapy: A Systematic Review. Arch. Bronconeumol. 2023. 59. (9);p. 566-574. IF:8,000. (Q1).
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Funded projects

PI	Funding agency	Project	Budget (€)
Maria Alba Sorolla Bardaji	Agencia Gestió Ajuts Universitat i Recerca AGAUR	Ajut per donar suport a les activitats dels grup de recerca consolidat de Biomarcadors en Càncer (GREBIC)	40,000
Maria Alba Sorolla Bardaji	Instituto de Salud Carlos III ISCIII	"Exosomal short-chain non-coding RNA profiling of pleural fluid for the non-invasive diagnosis of squamous cell lung	107,500
Serafin Morales Murillo	Pfizer Slu	Development of Computer Application (Apps) for Information and Monitoring of Patients with Breast Cancer at the Hospital Arnau de Vilanova De Lleida	49,500
Silvia Bielsa Martin	Sociedad Española de Medicina Interna - SEMI	Inteligencia artificial para predecir la causa de un derrame pleural: generación de modelos de diagnóstico etiológico	27,930



1.7. Research group of Cancer Biomarkers (GReBiC)

Active projects

PI	Funding agency	Project	Budget (€)
Anabel Sorolla Bardaji	Instituto de Salud Carlos III ISCIII	Development of Precision Therapies for triple negative breast cancers based on CRISPR/CAS9 ribonucleoproteins.	117,370
Anabel Sorolla Bardaji	Instituto de Salud Carlos III ISCIII	Contrato Miguel Servet Proyecto	40,000
Anabel Sorolla Bardaji i Felipe Vilardell Villellas	Diputació de Lleida	Development of precision therapies for triple negative breast cancer based on CRISPR/Cas12a ribonucleoproteins	50,000
Jose Manuel Porcel Pérez	Instituto de Salud Carlos III ISCIII	"Biopsia líquida utilizando el sobrenadante del líquido pleural y el plasma para el estudio del perfil mutacional en el cáncer de pulmón"	96,800
Jose Manuel Porcel Pérez i David de Gonzalo Calvo	Diputació de Lleida	Construcción de un algoritmo diagnóstico y pronóstico del derrame pleural maligno secundario a cáncer de pulmón mediante firmas de RNA no codificante y Machine Learning	50,000
Robert Montal Roura	Fundación Merck Salud	Inmuno-oncología de precisión para el Adenocarcinoma Gástrico.	30,000
Robert Montal Roura	Grupo Tratamiento de los Tumores Digestivos	Editing of TERT promoter mutations with CRISPR/Cas9 technology for the treatment of Hepatocellular carcinoma	40,000
Robert Montal Roura	Instituto de Salud Carlos III ISCIII	Biomarcadores de Respuesta a Inmunoterapia mediante la Inmunofenotipificación Exhaustiva del Adenocarcinoma Gástrico.	98,010
Robert Montal Roura	Sociedad Española de Oncología Médica SEOM	AYUDA SEOM - JUAN RODÉS 2021	40,000
Robert Montal Roura	Sociedad Española de Oncología Médica SEOM	Biomarcadores en biopsia líquida de colangiocarcinoma avanzado para una inmuno-oncología de precisión	30,000
Serafin Morales Murillo	Adamed Laboratorios, S.L.U	Selección de Tratamiento con Quimioterapia neoadyuvante en pacientes con cáncer de mama en estadio precoz y con receptores hormonales positivos mediante la determinación de la plataforma ONCOTYPE, CF DNA en sangre periférica y cambios del marcador K167 E	9,000
Silvia Bielsa Martin	Instituto de Salud Carlos III ISCIII	Ensayo clínico randomizado: lavados con suero salino vs tratamiento estándar en el derrame pleural paraneumónico complicado o empiema	43,560

Laboratories

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Area 2. Chronic diseases, surgery and health care

Area coordinator: Dr. José Manuel Valdivielso Revilla and Dr. Montserrat Gea Sanchez

The area contains 8 groups dedicated to determining the pathophysiological mechanisms of vascular, renal, metabolic and pulmonary diseases. In addition, research is being conducted on new surgical methods and strategies to promote healthy aging.

Groups

2.1 Cardiac Physiology and Pathology

2.2 Digestive Diseases Research Group – DdRG

2.3 Experimental surgery

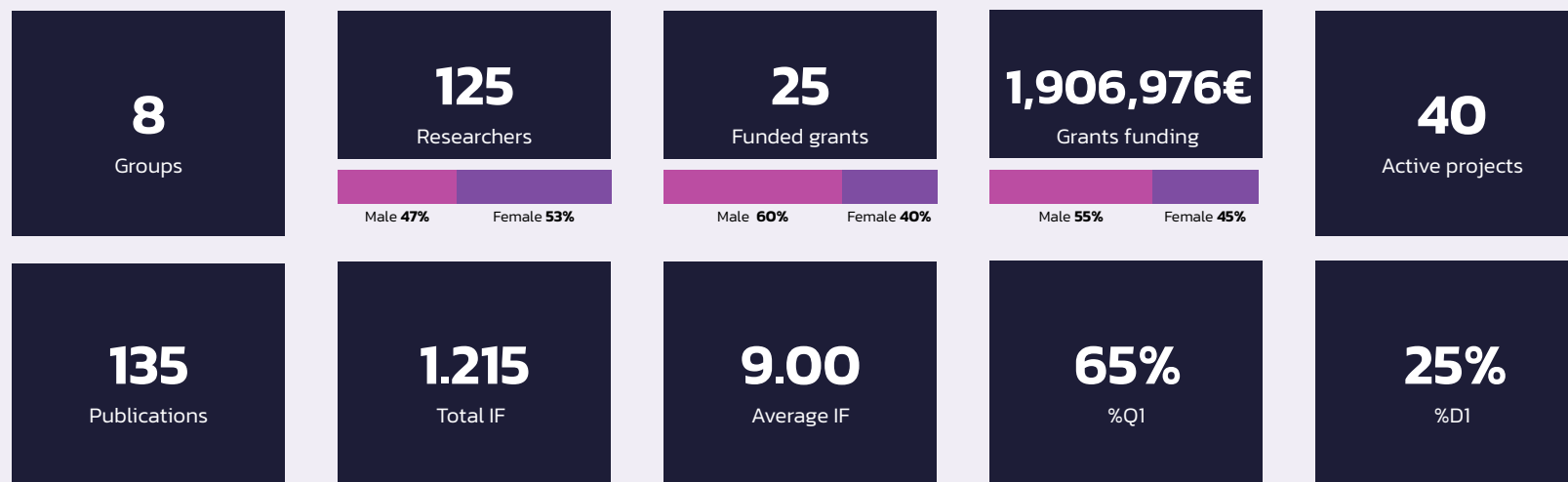
2.4 Precision Medicine in Chronic Diseases Group

2.5 Research Group in Immunology and Metabolism (GRIM)

2.6 Research group of health care (GReCS)

2.7 Translational research in respiratory medicine group

2.8 Vascular and renal translational research group





2.1. Cardiac Physiology and Pathology

The Cardiac Physiology and Pathology group is formed by researchers with a strong clinical background. The principal investigator is Dr. Fernando Worner.

The group has participated in relevant clinical trials in cardiovascular disease and in multiple nationwide multicenter registries, which has allowed it to become part of a network of centers with interest in cardiovascular research.

The objectives of the group in the coming years are, in addition to consolidating its clinical research base, the progressive development of translational projects that link clinical and basic research, as well as the development of animal models. Among our lines of development are, a) the study of coronary microvascular dysfunction in patients with angina, b) the search for strategies to reduce reperfusion injury and microvascular obstruction in patients with myocardial infarction, c) the analysis of advanced cardiac imaging parameters and biochemical markers involved in the evolution of atrial fibrillation, d) the study of entities related to myocardial infarction with no obstructive coronary arteries (MINOCA), such as myocarditis or spontaneous coronary artery dissection, and the study of cardiac involvement by COVID-19.

Publications

- Barreiro M, Pueyo PP, Roubin SR, Corominas DM, Urbarri A, Bachiller RE, Rozado J, Álvarez LG, Fernández LS, Domínguez F, Figal DP. Consenso de expertos sobre el diagnóstico y el tratamiento de la miocarditis asociada con infección o vacunación contra el SARS-CoV-2. *Rev Esp Cardiol.* 2023. 76. (7):p. 555-563. IF:7,050. (Q1).
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- Vicent L, Alvarez J, Vazquez R, Gonzalez JR, Rivera M, Segovia J, Pascual D, Bover R, Worner F, Fernandez F, Ariza A, Martinez M. Coronary Artery Disease and Prognosis of Heart Failure with Reduced Ejection Fraction. *J. Clin. Med.* 2023. 12. (8):3028. IF:3,900. (Q2).
- Barriuso I, Gayán J, Pastor P. Más vale tarde que nunca: evaluación multimodal de la miocardiopatía arritmogénica en el paciente anciano. *Arch. Cardiol. Mex.* 2023. 93. (3):p. 366-368.
- Barreiro M, Pueyo PP, Raposeiras S, Corominas DM, Urbarri A, Bachiller RE, Rozado J, Álvarez LG, Fernández LS, Domínguez F, Figal DP. Myocarditis-related

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– García M, Sanz R, Sabaté M, Velázquez M, Veiga G, Ojeda S, Avanzas P, Cortés C, Trillo R, Pérez A, Gutiérrez A, Becerra V, Lozano F, Pérez de Prado A, Del Val D, Bastante T, Alfonso F. Spanish Registry on SCAD I. Spontaneous coronary artery dissection and ST-segment elevation myocardial infarction: Does clinical presentation matter?. *Int. J. Cardiol.* 2023. 373. p. 1-6. IF:3,500. (Q2).

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2.2. Digestive Diseases Research Group – DdRG

The Digestive Diseases Research Group gathers a combination of researchers around common objectives on the study of the epidemiology, prevention, diagnosis and treatment of digestive diseases. The research activities of our group are mainly clinical, original or collaborative, although we are eager to participate in fundamental basic research projects. Current lines of research focus on digestive endoscopy, inflammatory bowel disease, liver diseases, pancreatic diseases and gastrointestinal diseases and nutrition. Soon, we will also establish a research line in digestive motility and functional diseases.

Publications

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Funded projects

PI	Funding agency	Project	Budget (€)
Francesc Xavier Molero Richard	Instituto de Salud Carlos III ISCIII	Contribution of dysfunctional CFTR in the development and aggressiveness of pancreatic cancer. Stimulation of pancreatic cancer growth and metastasis by CFTR down regulation in stellate cells.	141,775.19
Patricia Huelin Alvarez	Gilead Sciences SL	Estrategia de criba de hepatitis "D" en subpoblación inmigrante con elevada prevalencia de hepatitis "B" elevada (PROVINCIA LLEIDA)	29,790

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2.3. Experimental surgery

The Experimental Surgery group is a multidisciplinary group made up of professionals from the fields of surgery, anaesthesia, veterinary medicine, technical research and management who work to develop research projects in surgical pathology, either by designing experimental models with large animals (pigs) to facilitate translational research, or by participating in multicentre clinical trials to innovate and improve clinical outcomes, and to maintain continuous training in diagnostic and surgical techniques for professionals in health and animal sciences, through hybrid simulation.

The research of the experimental surgery group is mainly carried out at the facilities of the CREBAD Centre of the IRBLleida in Torrelameu, which has the necessary infrastructure to obtain experimental models in pigs, which allow, in the long run, to extrapolate the findings of the research lines to human clinical practice.

Publications

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SB, Congregado M, Obiols C, Call S, Quero F, Ramos R, Rodríguez A, Simón CM, Embun R. Results in mediastinal lymph node staging of surgical lung cancer: Data from the prospective cohort of the Spanish Video-Assisted Thoracic Surgery Group. *Cir. Esp.* 2023. 101. (6):p. 408–416. IF:1,900. (Q3).

– Santacruz CC, Resina MM, Baez FDG, Collado LM, Rubio MBS, Valderrama OC, Rulf JM, Vigataga ES, Barrabes GF, Rufino JE, Granon JS, Kissler J. "Optimal recovery" after colon cancer surgery in the elderly, a comparative cohort study: Conventional care vs. enhanced recovery vs. prehabilitation. *Cir. Esp.* 2023. 101. (6):p. 426–434. IF:1,900. (Q3).

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– Jericó C, Puértolas N, Osorio J, Miranda C, Santamaría M, Artigau E, Galofré G, Garsot E, Luna A, Aldeano A, Olona C, Pulido L, Pera M. Cost analysis of a patient blood management program for patients undergoing gastric cancer surgery. *Eur J Surg Oncol.* 2023. 49. (1):p. 293–297. IF:3,800. (Q1).

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Funded projects

PI	Funding agency	Project	Budget (€)
Jorge J.Olsina Kissler i Marina Laplana Lafaja	Diputació de Lleida	Mejora del Diagnóstico en Cáncer de Páncreas (MEDI-CAPA)	50,000



2.4. Precision Medicine in Chronic Diseases Group

The Group of Precision Medicine in Chronic Diseases is a multidisciplinary group that integrates different professional profiles for development of translational research. Our main research lines are focused on the personalized management of patients with chronic diseases. The aim of the group is to understand the physiopathological components of the chronic diseases, in order to: i) achieve an accurate classification of the patients, ii) to develop non-pharmacological strategies and precision medicine tools to promote disease prevention, treatment and management, iii) contribute of sustainability of health and care systems in chronic diseases, iv) to create mHealth platforms for clinical monitoring, telemedicine and personalized follow-up.

The main line of investigation combines basic, clinical and translational research:

- Animal models of intermittent hypoxia.
- Molecular profile of cardiovascular risk in patients with Obstructive Sleep Apnea.
- Precision Medicine in Obstructive Sleep Apnea

Publications

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– Dakterzada F, Benitez ID, Targa A, Carnes A, Pujol M, Jove M, Mínguez O, Vaca R, Sanchez M, Barbe F, Pamplona R, Pinol G. Cerebrospinal fluid lipidomic fingerprint of obstructive sleep apnoea in Alzheimer's disease. *Alzheimers Res Ther*. 2023. 15. (1):p. 134-134. IF:9,000. (D1).

– Targa A, Benitez ID, Moncusí A, Dakterzada F, Mínguez O, Vaca R, Dalmases M, Sanchez M, Barbe F, Pinol G. Breathing cessation events that compose the apnea-hypopnea index are distinctively associated with the adverse outcomes in Alzheimer's disease. *Alzheimers Res Ther*. 2023. 15. (1):p. 123-123. IF:9,000. (D1).

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2.4. Precision Medicine in Chronic Diseases Group

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2.4. Precision Medicine in Chronic Diseases Group

Active projects

PI	Funding agency	Project	Budget (€)
Gerard Torres Cortada i Ferran Barbé Illa	Instituto de Salud Carlos III ISCIII	Pacientes Normotensos con Apnea del Sueño: Impacto Diferencial del Tratamiento con CPAP según el Patrón Circadiano de Presión Arterial. Ensayo Clínico Aleatorizado. Estudio MOISÉS	147,015
Manuel Sánchez de la Torre	Instituto de Salud Carlos III ISCIII	Caracterización de los mecanismos del daño vascular inducido por la apnea del sueño en la hipertensión nocturna y posibles dianas terapéuticas. Estudio HYPERSLEEP.	275,275
Manuel Sánchez de la Torre i Ferran Barbé Illa	Diputació de Lleida	Normotensive Patients with Sleep Apnea: Differential Impact of CPAP Treatment According to the Circadian Blood Pressure Pattern. A Randomized Controlled Trial. The MOISES study.	50,000

RESEARCH TEAM

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2.5. Research Group in Immunology and Metabolism (GRIM)

The Research Group in Immunology and Metabolism (GRIM) is subdivided into 2 nodes that represent the basic and clinical research of the group.

Basic node: Immunology and Immunopathology Group (GRIIP)

The GRIIP is the basic research node of the Research Group in Immunology and Metabolism (GRIM). The group of the University of Lleida (UdL) and the Biomedical Research Institute of Lleida (IRBLleida) is currently constituted by two Principal Investigators, Joan Verdaguer and Concepció Mora, and their respective research units. Both investigators have a long history as leading researchers in R & D for more than a decade and a half in the field of immunology and autoimmunity. Both researchers are members of the same research group recognized by the Generalitat (SGR) of the UdL and IRBLleida since its inception.

The research objective of the group is the study of the mechanisms of loss of immunological tolerance in autoimmune endocrine diseases, and more specifically in Type 1 Diabetes (T1D), and in the study of tools for the diagnosis and treatment of these diseases. The group also aims to lay the foundations on a future immunotherapy of T1D and other endocrinopathies of autoimmune origin, through participation and collaboration with different research and care groups.

Clinical node: Obesity, Diabetes and Metabolism Research Group (ODIM)

The ODIM Research Group has worked in recent years on 2 main lines of research: (i) Being able to predict the response to bariatric surgery (BC), both in terms of weight and metabolic response, and (ii) The study of the mechanisms by which diabetes has a negative impact on lung function and breathing during sleep. Although both lines emerged independently, they have eventually synergised with each other. Our group's research is mainly clinical, although with a clear translational application, fostering collaboration with external groups complementary to our own.

Two of the members of the group are not principal investigators in publicly funded competitive projects. 80% have a PhD degree in health sciences or are currently working on their doctoral thesis.

Most of the team members are specialists in Endocrinology and Nutrition, but our group also includes nursing graduates and graduates in human nutrition and dietetics.

We combine funded research projects with the development of clinical trials promoted by both the researcher and the laboratory. In recent years we have become one of the most recruiting centres in our country in the studies in which we participate.

Publications

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2.5. Research Group in Immunology and Metabolism (GRIM)

– Chico A, Navas de Solís S, Lainez M, Rius F, Cuesta M. Efficacy, Safety, and Satisfaction with the Accu-Chek Insight with DiabeLoop Closed-Loop System in Subjects with Type 1 Diabetes: A Multicenter Real-World Study. *Diabetes Technol. Ther.* 2023. 25. (4):p. 242–249. IF:5,400. (Q1).

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Funded projects

PI	Funding agency	Project	Budget (€)
Blanca Salinas Roca	Universitat de Lleida UdL	"Monitorització de l'impacte en indicadors de salut i a nivell socioeconòmic de l'ús de Pasta Nutricional enriquida en població maternoinfantil: Programa integrat en UnTeNu+23"	10,543.38
Carolina Lopez Cano i Milica Bozic	Diputació de Lleida	Unraveling the role of piwi-interacting RNAs in the pathogenesis of obesity-induced kidney disease. Identification of potential biomarkers and therapeutic targets (RENOPIWI)	50,000
Juan Verdaguer Autonell	Instituto de Salud Carlos III ISCIII	OncoNeoVac, un nuevo enfoque inmunoterapéutico para el tratamiento del melanoma.	168,619
Albert Lecube Torrelló	Instituto de Salud Carlos III ISCIII	Plataforma de soporte a la Investigación Clínica	183,570
Raquel Ruano	Associació de diabètics de Catalunya, Delegació de Lleida	Impacto de los trastornos de la respiración nocturna en las características y evolución de la úlcera del pie diabético.	20,000
Juan Verdaguer Autonell	Agència Gestió Ajuts Universitat i Recerca AGAUR	Ajuts per donar suport a les activitats dels grups de recerca SGR-21: Grup de Recerca en Immunologia i Metabolisme (GRIM)	0



2.5. Research Group in Immunology and Metabolism (GRIM)

Active projects

PI	Funding agency	Project	Budget (€)
Albert Lecube Torelló	Instituto de Salud Carlos III ISCIII	¿Conocer la predisposición genética del paciente con obesidad ayuda a mejorar la eficacia de la cirugía bariátrica?	153,670
Albert Lecube Torelló	Instituto de Salud Carlos III ISCIII	Susceptibilidad genética para predecir la pérdida de peso tras la cirugía bariátrica	839,298.9
Albert Lecube Torelló	Instituto de Salud Carlos III ISCIII	Utilidad del estudio genético como predictor de respuesta a la cirugía bariátrica: estudio de cohortes y mecanismos implicados (Estudio GENOBS)	202,070
Albert Lecube Torelló i Adriano Targa Dias Santos	Diputació de Lleida	Comprendiendo mejor la interacción entre los mecanismos etiopatogénicos de la obesidad: Hacia un modelo predictivo de base genética.	50,000
Carolina Lopez Cano	Instituto de Salud Carlos III ISCIII	El efecto de la diabetes mellitus tipo 2 y la obesidad sobre la cronodisrupción. La hipoxia nocturna como nexo de unión.	62,920
Concepción Mora Giral	Instituto de Salud Carlos III ISCIII	Infraestructuras Científicas	275,000
Josep León Mengíbar	Acadèmia de Ciències Mèdiques i de la Salut	Impacte dels trastorns de la respiració nocturna en les característiques i evolució de les úlceres del peu en pacients amb diabetis (Estudi PEU)	10,000
Juan Verdaguer Autonell	Ministerio de Ciencia e Innovación	Modelación de la microbiota intestinal en las etapas iniciales del desarrollo de la diabetes autoinmune en el ratón NOD, modelo de la diabetes tipo 1 humana.	121,000

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2.6. Research group of health care (GReCS)

The group is mainly made up of nurses and physiotherapists from both clinical practice (Santa Maria University Hospital, Arnau de Vilanova University Hospital and Primary Care) and teaching (Faculty of Nursing and Physiotherapy of the University of Lleida). Her main areas of research are active and healthy ageing, Social Determinants of Health and Health Services. The GReCS group participates in several projects in Spain, Europe and worldwide.

Thanks to its potential, GReCS has established a stable collaboration with the Nursing and Healthcare Research Unit (Investén-isciii), focused on Best Practice Prominent Organisations (BPPO), funded by the Ministry of Health and Long-Term Care of the Government of Ontario and the Instituto de Salud Carlos III, part of the Spanish Ministry of Economy and Finance. As part of the Spanish Collaborating Centre of the Joanna Briggs Institute, the group is involved in the implementation of Evidence-Based Nursing Practice in various clinical settings, through an agreement signed between the Instituto de Salud Carlos III (Unidad de Investigación en Enfermería y Asistencia Sanitaria: Investén-isciii) and the Spanish Regional Health Systems.

Publicacions

- Julve J, Genua I, Quifer P, Yanes Ó, Barranco M, Hernández M, Junza A, Capellades J, Granado M, Alonso N, Castelblanco E, Mauricio D. Circulating metabolomic and lipidomic changes in subjects with new-onset type 1 diabetes after optimization of glycemic control. *Diabetes Res. Clin. Pract.* 2023. 197. p. 110578–110578. IF:5,100. (Q2).
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- Rojo MI, Bermúdez M, Castro E, Farràs C, Torres G, Pamplona R, Lecube A, Valdivielso JM, Fernández E, Julve J, Castelblanco E, Franch J, Alonso N, Granado M, Mauricio D, ILERVAS C. Low adherence to the Mediterranean diet is associated with increased prevalence and number of atherosclerotic plaques in the ILERVAS cohort. *Atherosclerosis*. 2023. 380. p. 117191–117191. IF:5,300. (Q2).
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- Torralbas J, Valls V, Roca J, Sastre M, Campoy C, Sala D, Sánchez M. Affectivity and Sexuality in Adolescents with Autism Spectrum Disorder from the Perspective of Education and Healthcare Professionals: A Qualitative Study. *Int. J. Environ. Res. Public Health*. 2023. 20. (3): IF:4,614. (Q1).
- Bravo C, Minano E, Carballo L, Barba MMCY, Solé S, Rubí F, Catalan D. Beliefs and Self-Perceptions of Spanish Mental Health Professionals about Physical Therapy in Mental Health: An Observational Survey Study. *Healthcare (Basel)*. 2023. 11. (24):3136. IF:2,800. (Q2).
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2.6. Research group of health care (GReCS)

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2.6. Research group of health care (GReCS)

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2.6. Research group of health care (GReCS)

Funded projects

PI	Funding agency	Project	Budget (€)
Carolina Climent Sanz	Ministerio de Igualdad	Una intervención web de educación terapéutica sobre dolor y sueño en mujeres con fibromialgia: enfoque de metodología de investigación mixta	28,412.7
Erica Tula Briones Vozmediano	Instituto de Salud Carlos III ISCIII	Trabajo Agrícola, Migración, Precariedad y Salud (Proyecto Agromisalud II)	83,750
Esther Rubinat Arnaldo	European Comission EU	DistriMuSe: Distributed Multi-sensor Systems for Human Safety and Healt	257,946.25
Helena Fernandez Lago	Instituto de Salud Carlos III ISCIII	Cognitive Game Gait: solución para la rehabilitación de la marcha y de la cognición	0
Montserrat Gea Sanchez	Fundació La Marató de TV3	The effect of a workplace active pauses intervention on the reduction of cardiovascular risk factors in call center workers: a mixed methods study	193,161.43

Active projects

PI	Funding agency	Project	Budget (€)
Erica Tula Briones Vozmediano	Instituto de Salud Carlos III ISCIII	Trabajo agrícola y migración en España: Precariedad Sociolaboral y Salud (PSLyS)	51,425
Esther Rubinat Arnaldo i Montserrat Gea Sanchez	European Comission EU	NextPerception - Next generation smart perception sensors and distributed intelligence for proactive human monitoring in health, wellbeing, and automotive systems	87,801.88
Francesc Valenzuela Pascual	European Comission EU	MOORE4MEDICAL - Project Consortium Agreement for Research, Development and Innovation Actions	121,056.25
Helena Fernandez Lago	Instituto de Salud Carlos III ISCIII		62,920
Esther Rubinat Arnaldo i Montserrat Gea Sanchez	European Comission EU	NextPerception - Next generation smart perception sensors and distributed intelligence for proactive human monitoring in health, wellbeing, and automotive systems	87,801.88
José Tomás Mateos Garcia	Ministerio de Consumo	Determinantes socioeconómicos del juego patológico en población adolescente de Cataluña	113,484

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2.7. Translational research in respiratory medicine group

The group consists of basic, clinical and epidemiological researchers, who work at the Biomedical Research Institute of Lleida (IRBLleida), a collaborating center of the University of Lleida. The principal investigator is Ferran Barbé Illa.

Since 2008, the TRRM group has belonged to the Diseases Network Research Centre (CIBERes) platform, as Group 35. Group 35 is currently one of the leading exponents of the Spanish Sleep Network of the Spanish Pneumology and Thoracic Surgery Society (SEPAR). We work alongside researchers from many specialties in order to approach the study of the pathophysiology of obstructive sleep apnea syndrome (OSA) and its consequences. The research excellence of the TRRM group has been recognized internationally.

Publicacions

– Henríquez M, Benítez I, Belmonte T, Jorquera J, Jorquera J, Cigarroa I, Burgos M, Sanhueza R, Jeria C, Fernandez I, Nova E, Barbé F, Targa A, Labarca G. Association between Acute Respiratory Distress Syndrome Due to COVID-19 and Long-Term Sleep and Circadian Sleep-Wake Disorders. *J. Clin. Med.* 2023. 12. (20):6639. IF:3,900. (Q2).

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2.7. Translational research in respiratory medicine group

– de Gonzalo D, Molinero M, Benítez ID, Perez M, García N, Ortega A, Postigo T, García MC, Belmonte T, Rodríguez C, González J, Torres G, Gort C, Moncusí A, Estella Á, Tamayo L, Martínez de la Gándara A, Socías L, Peñasco Y, de la Torre MDC, Bustamante E, Gallego E, Martínez I, Martín MC, Vidal P, López J, Pérez F, Caballero J, Añón JM, Loza A, Carbonell N, Marin J, Jorge RN, Barberà C, Ceccato A, Fernández L, Ferrer R, García D, Lorente JÁ, Menéndez R, Motos A, Peñuelas O, Riera J, Bermejo JF, Torres A, Barbé F. A blood microRNA classifier for the prediction of ICU mortality in COVID-19 patients: a multicenter validation study. *Respir. Res.* 2023. 24. (1):p. 159–159. IF:5,800. (Q1).

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2.7. Translational research in respiratory medicine group

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2.7. Translational research in respiratory medicine group

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Funded projects

PI	Funding agency	Project	Budget (€)
Adriano Targa Dias Santos	Instituto de Salud Carlos III ISCIII	Contrato Miguel Servet - Proyecto	40,000
David de Gonzalo Calvo	Fundación Eugenio Rodríguez Pascual	Análisis de Endotipos Pulmonares en Pacientes Post-COVID: Un Estudio Integral	24,429
David de Gonzalo Calvo	Gilead Sciences SL	Deciphering the Pulmonary Sequelae in the POSTCOVID patient: Introducing the Endotype Concept.	49,375
David de Gonzalo Calvo	Instituto de Salud Carlos III ISCIII	Towards the Understanding and Diagnosis of the Persistent Pulmonary Sequelae in the Critically Ill Patient: Introducing the Endotype Concept (e-postcritical project)	215,000
Ferran Barbé Illa	Agencia Gestió Ajuts Universitat i Recerca AGAUR	Ajut per donar suport a les activitats dels grup de recerca consolidat Translational Research in Respiratory Medicine	0
Jessica Gonzalez Gutierrez	Instituto de Salud Carlos III ISCIII	"Longitudinal recovery trajectories after an acute respiratory distress syndrome, a new understanding. The TENACITY study."	183,750

Active projects

PI	Funding agency	Project	Budget (€)
Adriano Targa Dias Santos i Albert Lecube Torelló	Diputació de Lleida	Comprendiendo mejor la interacción entre los mecanismos etiopatogénicos de la obsidad: Hacia un modelo predictivo de base genética.	50,000
David de Gonzalo Calvo	Fundació La Marató de TV3	A systems biology approach to understand COVID-19 physiopathology and predict its outcome (SYSTEMS-BIO COVID) (2021-046-1)	160,007.5
David de Gonzalo Calvo	Instituto de Salud Carlos III ISCIII	Transcriptómica y machine learning para asistir en la toma de decisiones clínicas en pacientes con sospecha de apnea obstructiva del sueño	147,620



2.7. Translational research in respiratory medicine group

Active projects

PI	Funding agency	Project	Budget (€)
David de Gonzalo Calvo i Jose Manuel Porcel Pérez	Diputació de Lleida	Construcción de un algoritmo diagnóstico y pronóstico del derrame pleural maligno secundario a cáncer de pulmón mediante firmas de RNA no codificante y Machine Learning	50,000
Ferran Barbé Illa	Agencia Gestió Ajuts Universitat i Recerca AGAUR	INVESTIGO 2022: Investigació translacional en medicina respiratòria	66,217.84
Ferran Barbé Illa	Institut Català de la Salut ICS	Premi a la trajectòria investigadora als hospitals de l'ICS 2022	5,000
Ferran Barbé Illa i Gerard Torres Cortada	Instituto de Salud Carlos III ISCIII	Pacientes Normotensos con Apnea del Sueño: Impacto Diferencial del Tratamiento con CPAP según el Patrón Circadiano de Presión Arterial. Ensayo Clínico Aleatorizado. Estudio MOISÉS	147,015
Ferran Barbé Illa i Manuel Sánchez de la Torre	Diputació de Lleida	Normotensive Patients with Sleep Apnea: Differential Impact of CPAP Treatment According to the Circadian Blood Pressure Pattern. A Randomized Controlled Trial. The MOISES study.	50,000
Ferran Barbé Illa	Instituto de Salud Carlos III ISCIII	Impacto del Manejo de los Trastornos Respiratorios Durante el Sueño en el control de la hipertensión sistémica: Proyecto METASLEEP	2,344,100
Jordi de Batlle Garcia	Instituto de Salud Carlos III ISCIII	Big Data para la predicción del riesgo de complicaciones durante y después del ingreso en pacientes crónicos con monitorización intensiva en las primeras 24h de ingreso.	121,000
Jordi de Batlle Garcia i Milica Bozic	Instituto de Salud Carlos III ISCIII	Contrato Miguel Servet – Proyecto	40,000

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2.8. Vascular and renal translational research group

Vascular and Renal Translational Research (VRTR) Group from the IRBLleida is a multidisciplinary group with basic and clinical scientists working in an integrated environment. The main focus of our research group is the identification of factors involved in the progression of chronic kidney disease (CKD) and cardiovascular complications in CKD from the basic/translational and the clinical point of view. Through an array of diverse experimental approaches that include molecular biology, biochemistry, in vivo animal models of disease in rodents and swine, and state-of-the-art vascular imaging techniques, scientists of VRTR group join their efforts in solving challenging scientific problems.

VRTR group has been successfully leading the NEFRONA and ILERVAS project, with main objective in investigating vascular disease and hidden kidney disease. VRTR group holds collaborations with various international research groups in the USA, Canada, Netherlands, Italy and France. Researchers from the VRTR group are actively involved in several national and international EU-funded consortia.

Publicacions

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Ana María Martínez Bardají
Virtudes Maroa de Lamo
Victoria Pacheco García
M. Teresa Vidal Balleste
M. Elisabet Samsó Piñol



2.8. Vascular and renal translational research group

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Bassa JC, Amenos AC, Jimenez EM, Lopez RM, Guldris SC, Prieto SL, Mongay LC, Comerma I, Jove MTC, Izquierdo MC, de Alvaro F, Ojanguren CH, de la Fuente GD, Pino MD, Izquierdo RDT, Dotori M, Duarte V, Torres SE, Reyes MJF, Rodriguez MLF, Fernandez G, Serrano AG, Canton CG, Herrera A, Mena MG, Sacaluga LG, Aguilar M, Gorriz JL, Loza EH, Lerma JL, Canada AL, Alvarez JPM, Alemany NM, Garcia JM, Castela AM, Villaescusa MM, Martinez I, Eguren IM, Los Huertos SM, Mirco RM, Vila AM, Diaz A, Gonzalez JFN, Nieto J, Carreno A, Fernandez EN, Ortiz A, Fernandez B, Paraiso V, Fontan MP, Domingo AP, Haces CP, Garrido MDP, Velasco MP, Mari CP, Gorriñ MR, Rubio E, Ruiz P, Lazo MS, Puerto A, Tomero J, Sanchez JE, Lorman RS, Saracho R, Sarrías M, Seron D, Soler MJ, Barrios C, Sousa F, Toran D, Molina FT, Carrasco J, Cortes IV, del Perugia MMV, Ruiz RCV. Gender-specific risk factors and outcomes of hyperkalemia in CKD patients: smoking as a driver of hyperkalemia in men. *Clin Kidney J.* 2023. 17. (1):sfad212. IF:4,600. (Q1).

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2.8. Vascular and renal translational research group

Wen CP, Wheeler DC, Yatsuya H, Yamagata K, Yang JW, Young A, Zhang H, Zhang L, Levey AS, Gansevoort RT. Estimated Glomerular Filtration Rate, Albuminuria, and Adverse Outcomes: An Individual-Participant Data Meta-Analysis. JAMA-J. Am. Med. Assoc. 2023. 330. (13):p. 1266-1277. IF:120,700. (D1).

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Funded projects

PI	Funding agency	Project	Budget (€)
Jose Manuel Valdivielso Revilla	Agencia Gestió Ajuts Universitat i Recerca AGAUR	Ajut per donar suport a les activitats dels grup de recerca consolidat de Translacional Vascular i Renal	0
Jose Manuel Valdivielso Revilla	Instituto de Salud Carlos III ISCIII	El primer Estudio de asociación de genoma completo (GWAS) con enfermedad coronaria poblacional a 10 años en más de 100.000 participantes para personalizar la prevención cardiovascular en España	541,660.67
Marcelino Bermudez Lopez	Instituto de Salud Carlos III ISCIII	ANGEL: A machine learning algorithm to predict atherosclerotic cardiovascular disease.	58,937.5
Milica Bozic i Carolina Lopez Cano	Diputació de Lleida	Unraveling the role of piwi-interacting RNAs in the pathogenesis of obesity-induced kidney disease. Identification of potential biomarkers and therapeutic targets (RENOPIWI)	50,000
Serafin Cambray Carner	Instituto de Salud Carlos III ISCIII	WOMen Molecular Biology of ATtherosclerosis (WOMBAT)	63,750

Active projects

PI	Funding agency	Project	Budget (€)
Alfons Segarra Medrano	Instituto de Salud Carlos III ISCIII	Relación entre glicofomas de IgA1 e IgA2, actividad clínica y activación del complemento en la nefropatía IgA	56,870
Auria Eritja Sanjuan i Milica Bozic	Instituto de Salud Carlos III ISCIII	Movilidad de personal investigador contratado en el marco de las AES (M-AES)	11,385
Cristina Martinez Martinez	Instituto de Salud Carlos III ISCIII	Interacción entre huésped-microbiota y defectos en la integridad de la mucosa intestinal implicados en el origen del daño glomerular en el síndrome nefrótico idiopático.	84,700
Jose Manuel Valdivielso Revilla	Agencia Gestió Ajuts Universitat i Recerca AGAUR	Preservació la membrana peritoneal abundant noves vies per inhibir la transició mesotelio-mesenquimal.	20,000
Jose Manuel Valdivielso Revilla	Instituto de Salud Carlos III ISCIII	Papel de PTEN en la reabsorcion tubular renal de proteínas. Implicaciones en nefropatias proteinuricas	165,770
Jose Manuel Valdivielso Revilla	Instituto de Salud Carlos III ISCIII	SPAIN CKD CAUSE (SPACKDC)	312,400



2.8. Vascular and renal translational research group

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Active projects

PI	Funding agency	Project	Budget (€)
Jose Manuel Valdivielso Revilla i Maria Mercedes Ibarz Escuer	Diputació de Lleida	Influence of SARS-COV-2 infection in atherosclerosis development. "El BUS DE LA SALUT" study	50,000
Juan Miguel Diaz Tocados	Fundación Senefro	Beca de la Fundación Senefro para estancias de socios de la S.E.N en otros centros 2022	0
Juan Miguel Diaz Tocados	Fundación Senefro	Papel de la Fosfotasa PTEN en el Desarrollo de las Alteraciones Óseas Asociadas a la Enfermedad Renal Crónica y la Regulación de la Síntesis Osteocítica de FGF23 y Esclerostina.	24,000
Milica Bozic	Instituto de Salud Carlos III ISCIII	Descifrando el papel de SNCA en la regulación de la autofagia y el daño renal: implicaciones mecanísticas, terapéuticas y pronósticas.	123,420
Milica Bozic i Auria Eritja Sanjuan	Instituto de Salud Carlos III ISCIII	Movilidad de personal investigador contratado en el marco de las AES (M-AES)	20,585
Milica Bozic i Jordi de Battlle Garcia	Instituto de Salud Carlos III ISCIII	Contrato Miguel Servet - Proyecto	40,000



Area 3. Epidemiology, infectious diseases and public health

Area coordinator: Dr. Oriol Yuguero Torres and Dr. Alba Belles Belles

In this area we want to respond to epidemiological challenges with clinical and basic researchers. We combine our research to see the impact on public health and the environment around us of all the pathologies we attend in our care centers.

Groups

3.1 Applied epidemiology

3.2 ERLab, research in emergency medicine

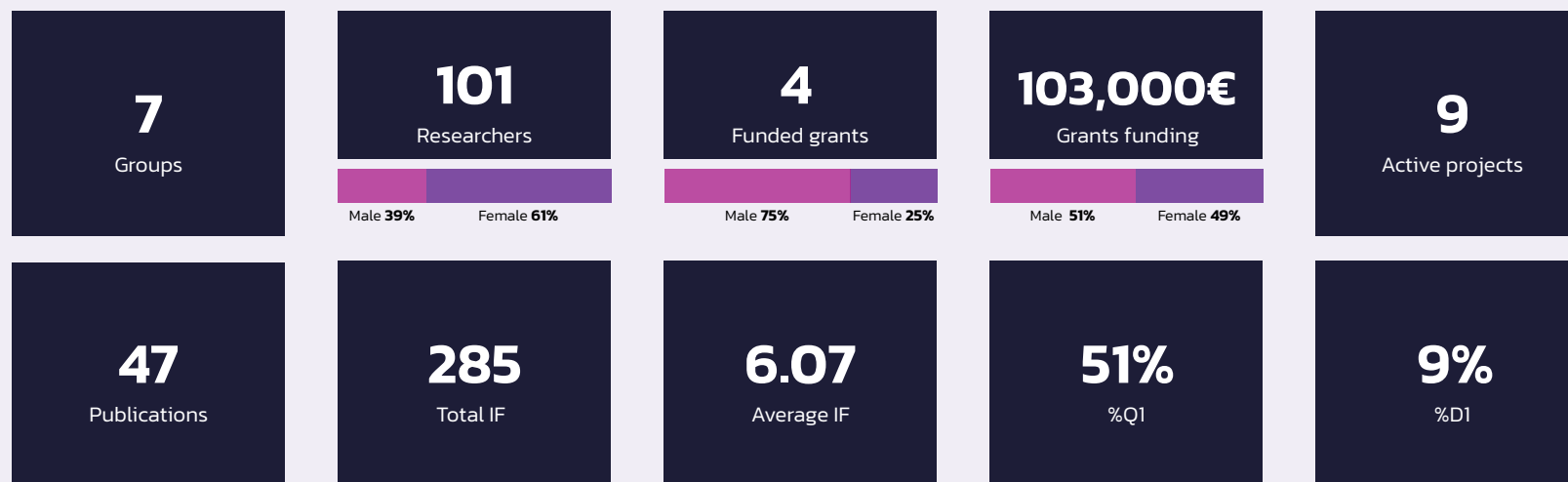
3.3 Indicators and specifications of the quality in the Clinical Laboratory

3.4 Intensive Medicine

3.5 Multidisciplinary Clinical Research Group on Musculoskeletal Pathology, Fragility and Pain Management

3.6 Pharmacoepidemiology and Pharmacodynamics (P&P)

3.7 Research in clinical microbiology and antibiotic resistance





3.1. Applied epidemiology

This is a multidisciplinary group set up by doctors specializing in Preventive Medicine and Public Health and specialists in Family and Community Medicine that research the applications of epidemiology in the study of epidemic outbreaks, the investigation of risk factors for transmissible diseases, the estimation of coverage of periodic preventive activities in primary health care and pharmacoepidemiology. The main lines of research are the investigation of epidemic outbreaks for Norovirus, factors for HIV infection in immigrants, risk factors for tuberculous infection in contacts with patients and vaccines and international travel.

Publicacions

- Espies N, Fernandez J, Justribo E, Aramburu J, Bernet A, Marquez A, Godoy P, Torres OY. Results of a Community-Based Screening Program for Chlamydia trachomatis Genital Infection in Young People Aged 18–25 Years. *Cureus*. 2023. 15. (10):e46916.
- Domínguez Á, Soldevila N, Toledo D, Parrón I, Millet JP, Barrabeig I, Godoy P, On Behalf Of Transmission Of Tuberculosis In Catalonia Spain Working G. Factors Associated with Treatment Prescription to Pulmonary Tuberculosis Contacts in Catalonia (2019–2021): A Population-Based Epidemiological Study. *Vaccines (Basel)*. 2023. 11. (12):1800. IF:7,800. (Q1).
- García C, Artigues E, Mirada G, Estany P, Sol J, Ortega M. Impact of an Intervention to Promote the Vaccination of Patients with Inflammatory Bowel Disease. *Vaccines (Basel)*. 2023. 11. (11):1649. IF:7,800. (Q1).
- Godoy S, Parron I, Millet JP, Cayla JA, Follia N, Carol M, Orcau A, Alseda M, Toledo D, Ferrus G, Plans P, Barrabeig I, Clotet L, Dominguez A, Godoy P. Losses in the Care Cascade for Latent Tuberculosis Infection in the Tracing Contact Studies. *Pathogens*. 2023. 12. (12):1403. IF:3,700. (Q2).
- Orós M, Siscart J, Perejón D, Serna MC, Godoy P, Salinas B. Ethnic Disparities and Obesity Risk Factors in Pregnant Women: A Retrospective Observational Cohort Study. *Nutrients*. 2023. 15. (4):926. IF:5,900. (Q1).
- Florensa D, Mateo J, Solsona F, Galván L, Mesas M, Piñol R, Espinosa L, Godoy P. Acetylsalicylic Acid Effect in Colorectal Cancer Taking into Account the Role of Tobacco, Alcohol and Excess Weight. *Int. J. Environ. Res. Public Health*. 2023. 20. (5):IF:4,614. (Q1).
- Martínez J, Comas C, García C, Crespo M, Biendicho P, Vila T, Reventoz F, Aran L, Arola N, Tarragona E, Pujol J. Population Older than 69 Had Similar Fatality Rates Independently If They Were Admitted in Nursing Homes or Lived in the Community: A Retrospective Observational Study during COVID-19 First Wave. *Geriatrics*. 2023. 8. (3):48.
- Martínez I, Bullón V, Soldevila N, Torner N, Palma D, García M, Pérez G, Burgui C, Castilla J, Godoy P, Domínguez A, Toledo D. Assessment of Knowledge and Attitudes Over Time

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- Huguet A, Artigues E, Sol J, Godoy P, Bravo MO. Effects of the COVID-19 Pandemic on the Decision and Doubts About Vaccination in Catalonia: Online Cross-sectional Questionnaire. *JMIR Form Res*. 2023. 7. e41799.
- Siscart J, Perejón D, Serna MC, Oros M, Godoy P, Sole E. Prevalence, risk factors, and consequences of hypothyroidism among pregnant women in the health region of Lleida: A cohort study. *PLoS One*. 2023. 18. (10):e0278426. IF:3,700. (Q2).
- Arispe I, Sol J, Gil AC, Trujillano J, Bravo MO, Torres OY. Comparison of heart, grace and TIMI scores to predict major adverse cardiac events from chest pain in a Spanish health care region. *Sci Rep*. 2023. 13. (1):p. 17280–17280. IF:4,600. (Q2).
- Alseda M, Godoy P, Bach P, Soldevila N, Cornejo T, Corominas L, Grau M, Domínguez À, Working Group for the Study of Outbreaks of Acute Gastroenteritis in C. Two successive outbreaks of acute gastroenteritis due to norovirus GII.6 in a holiday camp house. *Sci Rep*. 2023. 13. (1):p. 15558–15558. IF:4,600. (Q2).
- Cornejo T, Soldevila N, Coronas L, Alseda M, Godoy P, Razquín E, Sabaté S, Guix S, Rodríguez V, Bartolomé R, Domínguez A, Working Group for the Study of Outbreaks of Acute Gastroenteritis in C. Epidemiology of GII.4 and GII.2 norovirus outbreaks in closed and semi-closed institutions in 2017 and 2018. *Sci Rep*. 2023. 13. (1):p. 1659–1659. IF:4,600. (Q2).
- Parrón I, Carol M, Bes N, Izquierdo C, Godoy P, Barrabeig I, Sala MR, Minguell S, Ferras J, Rius C, Martínez AI, Domínguez À, Working Group for the Study of Outbreaks of Acute Gastroenteritis in C. The impact of COVID-19 pandemic on the incidence of acute gastroenteritis outbreaks in Catalonia (Spain). *Epidemiol. Infect.* 2023. 152. e10. IF:4,200. (Q2).
- García D, Gomez D, Hernando V, Ruiz M, Simon L, Sastre M, Sierra MJ, Godoy P, Diaz A. Estimates of mpox effective reproduction number in Spain, April–August 2022. *Epidemiol. Infect.* 2023. 151. e112. IF:4,200. (Q2).
- Caballero P, Astray J, Domínguez Á, Godoy P, Barrabeig I, Castilla J, Tuells J, Los autores (. Validación del cuestionario sobre vacunas y reticencia a vacunarse en la Sociedad Española de Epidemiología. *Gac. Sanit.* 2023. 37. p. 102329–102329. IF:1,900. (Q3).
- Florensa D, Mateo J, Solsona F, Galván L, Mesas M, Piñol R, Espinosa L, Godoy P. Low-dose acetylsalicylic acid for cancer prevention considering risk factors: A retrospective cohort study. *Ann Epidemiol*. 2023. 84. p. 60–66. IF:5,600. (Q1).

RESEARCH TEAM

Group leader

Pere Godoy Garcia

Researchers

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Marta Ortega Bravo
Didac Florensa Cazorla
Josep Montserrat Capdevila
Miquel Alseda Graells
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3.1. Applied epidemiology

– Plaza JP, Lopez CM, Godoy P. Psychosocial impact of COVID-19 on the professionals of the Epidemiological Surveillance Services of Catalonia. Rev Esp Salud Publica. 2023. 97. e202311094. IF:1,100. (Q4).

Funded projects

PI	Funding agency	Project	Budget (€)
Marta Ortega Bravo i Mariona Jove Font	Diputació de Lleida	Development of dynamic models for the personalized prevention and treatment of age-related diseases	50,000

Active projects

PI	Funding agency	Project	Budget (€)
Pere Godoy Garcia	Instituto de Salud Carlos III ISCIII	Factores asociados a la transmisión de SARS-CoV-2 en los convivientes de Cataluña y Navarra y efectividad de las vacunas y de las medidas no farmacológicas para reducir la transmisión.	76,230
Pere Godoy Garcia	Instituto de Salud Carlos III ISCIII	Incidencia y factores predictores de tuberculosis y del cumplimiento del tratamiento de la infección tuberculosa latente en una cohorte de expuestos a Mycobacterium tuberculo	62,920

RESEARCH TEAM

Group leader

Pere Godoy Garcia

Researchers

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Marta Ortega Bravo

Didac Florensa Cazorla

Josep Montserrat Capdevila

Miquel Alseda Graells

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3.2. ERLab, research in emergency medicine

ERLab is the only research group linked to emergency pathology research in Catalonia and the rest of the country. It is made up of healthcare professionals from Hospital Emergency Departments, Primary Care Emergency Departments and the out-of-hospital area.

Ours is a group made up of professionals with a great dedication to care, which is why the COVID-19 pandemic has meant that our tasks have been greatly reorganised. Even so, we have been able to carry out research and publish the results of our work. And over the years of the group's trajectory, we have been awarded various competitive projects. We have always maintained a public health vocation, since Arnau de Vilanova is the only 2nd level hospital in our health region and territory.

Our group has established working alliances with other research groups of the IRBLleida, as well as with the Department of Legal Medicine of the Faculty of Medicine of the University of Lleida or with the Chair of Social Innovation, also of the University of Lleida. With the Medical Emergency System, we work on joint projects in Catalonia.

Faced with the challenge of the situation of emergency professionals, we also collaborate with the Galatea Foundation to find solutions to improve emotional well-being and carry out research projects in this field.

We are currently carrying out two competitive projects and other small projects aimed at improving our care for the patients we attend throughout the emergency process.

Publicacions

– Huguet A, Artigues E, Sol J, Godoy P, Bravo MO. Effects of the COVID-19 Pandemic on the Decision and Doubts About Vaccination in Catalonia: Online Cross-sectional Questionnaire. *JMIR Form Res.* 2023. 7. e41799.

– Cornejo T, Soldevila N, Coronas L, Alseda M, Godoy P, Razquín E, Sabatè S, Guix S, Rodríguez V, Bartolomé R, Domínguez A, Working Group for the Study of Outbreaks of Acute Gastroenteritis in C. Epidemiology of GII.4 and GII.2 norovirus outbreaks in closed and semi-closed institutions in 2017 and 2018. *Sci Rep.* 2023. 13. (1):p. 1659-1659. IF:4,600. (Q2).

– Orós M, Siscart J, Perejón D, Serna MC, Godoy P, Salinas B. Ethnic Disparities and Obesity Risk Factors in Pregnant Women: A Retrospective Observational Cohort Study. *Nutrients.* 2023. 15. (4):926. IF:5,900. (D2)(Q1).

– Florensa D, Mateo J, Solsona F, Galván L, Mesas M, Piñol R, Espinosa L, Godoy P. Acetylsalicylic Acid Effect in Colorectal Cancer Taking into Account the Role of Tobacco, Alcohol and Excess Weight. *Int. J. Environ. Res. Public Health.* 2023. 20. (5):4,614. (Q1).

– Florensa D, Mateo J, Lopez S, Torres A, Solsona F, Godoy P. Exploring Cancer Incidence, Risk Factors, and Mortality in the Lleida Region: Interactive, Open-source R Shiny

Application for Cancer Data Analysis. *JMIR Cancer.* 2023. 9. (1):e44695.

– Martínez J, Comas C, García C, Crespo M, Biendicho P, Vila T, Reventoz F, Aran L, Arola N, Tarragona E, Pujol J. Population Older than 69 Had Similar Fatality Rates Independently If They Were Admitted in Nursing Homes or Lived in the Community: A Retrospective Observational Study during COVID-19 First Wave. *Geriatrics.* 2023. 8. (3):48.

– García D, Gomez D, Hernando V, Ruiz M, Simon L, Sastre M, Sierra MJ, Godoy P, Diaz A. Estimates of mpox effective reproduction number in Spain, April–August 2022. *Epidemiol. Infect.* 2023. 151. e112. IF:4,200. (D4)(Q2).

– Florensa D, Mateo J, Solsona F, Galván L, Mesas M, Piñol R, Espinosa L, Godoy P. Low-dose acetylsalicylic acid for cancer prevention considering risk factors: A retrospective cohort study. *Ann Epidemiol.* 2023. 84. p. 60–66. IF:5,600. (Q1).

– Alseda M, Godoy P, Bach P, Soldevila N, Cornejo T, Corominas L, Grau M, Domínguez À, Working Group for the Study of Outbreaks of Acute Gastroenteritis in C. Two successive outbreaks of acute gastroenteritis due to norovirus GII.6 in a holiday camp house. *Sci Rep.* 2023. 13. (1):p. 15558–15558. IF:4,600. (Q2).

– Caballero P, Astray J, Domínguez Á, Godoy P, Barrabeig I, Castilla J, Tuells J, Los autores (. Validación del cuestionario sobre vacunas y reticencia a vacunarse en la Sociedad Española de Epidemiología. *Gac. Sanit.* 2023. 37. p. 102329–102329. IF:1,900. (Q3).

– Espies N, Fernandez J, Justribo E, Aramburu J, Bernet A, Marquez A, Godoy P, Torres OY. Results of a Community-Based Screening Program for Chlamydia trachomatis Genital Infection in Young People Aged 18–25 Years. *Cureus.* 2023. 15. (10):e46916.

– Arispe I, Sol J, Gil AC, Trujillano J, Bravo MO, Torres OY. Comparison of heart, grace and TIMI scores to predict major adverse cardiac events from chest pain in a Spanish health care region. *Sci Rep.* 2023. 13. (1):p. 17280–17280. IF:4,600. (Q2).

– Siscart J, Perejón D, Serna MC, Oros M, Godoy P, Sole E. Prevalence, risk factors, and consequences of hypothyroidism among pregnant women in the health region of Lleida: A cohort study. *PLoS One.* 2023. 18. (10):e0278426. IF:3,700. (Q2).

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3.2. ERLab, research in emergency medicine

– Domínguez Á, Soldevila N, Toledo D, Parrón I, Millet JP, Barrabeig I, Godoy P, On Behalf Of Transmission Of Tuberculosis In Catalonia Spain Working G. Factors Associated with Treatment Prescription to Pulmonary Tuberculosis Contacts in Catalonia (2019–2021): A Population-Based Epidemiological Study. *Vaccines (Basel)*. 2023. 11. (12):1800. IF:7,800. (Q1).

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Funded projects

PI	Funding agency	Project	Budget (€)
Oriol Yuguero Torres	Agencia Gestió Ajuts Universitat i Recerca AGAUR	Ajut per donar suport a les activitats dels grup de recerca consolidat en Urgències i Emergències.	0
Oriol Yuguero Torres i Aida Serra Maqueda	Diputació de Lleida	Extracellular vesicles profiling for the discovery of specific biomarkers associated to the initiation and early development of atrial fibrillation	50,000

Active projects

PI	Funding agency	Project	Budget (€)
Oriol Yuguero Torres	Fundación ASISA	La narrativa escrita de quién enferma y/o acompaña	2,500
Oriol Yuguero Torres	Fundación INV.M.Mutua Madrileña	Biomarcadores séricos en el servicio de Urgencias como indicador de lesión cerebral post-TCE y pronóstico de morbimortalidad	70,000
Oriol Yuguero Torres	Institut Català de la Salut ICS	Premi investigador/a jove ICS 2021	5,000

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3.3. Indicators and specifications of the quality in the Clinical Laboratory

Interdisciplinary group with medical specialists belonging to the Clinical Laboratories of the Catalan Institute of Health. The group's work is based on consensus and shared experience as guarantors of effectiveness and efficiency. The main objective is to establish quality indicators and specifications for the design and evaluation of strategies for the continuous improvement of processes, in order to increase patient safety. One of the lines of work of the group is the variability, adequacy and efficiency of the actions undertaken in demand.

Publicacions

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– Gomez A, Martin BM, Haro N, Pozo OJ. Determination of well-being-related markers in nails by liquid chromatography tandem mass spectrometry. *Ecotoxicol Environ Saf.* 2023. 267. p. 115586–115586. IF:6,800. (D1).

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– Llorente AA, Garrido JS, Hermida OT, Andrade FG, Martín AV, Villacampa AF, Romero JV. The Correlation of Two Different Real-Time PCR Devices for the Analysis of CYP2C19 Pharmacogenetic Results. *Sci. Pharm.* 2023. 91. (4):51.

Active projects

PI	Funding agency	Project	Budget (€)
Maria Mercedes Ibarz Escuer i Jose Manuel Valdivielso	Diputació de Lleida	Influence of SARS-COV-2 infection in atherosclerosis development. "El BUS DE LA SALUT" study	50,000

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3.4. Intensive Medicine

The group's research is focused on improving safety in relation to the follow-up of patients with nosocomial infection, pulmonary disorders and/or artificial nutrition, as well as monitoring the quality of life of post-ICU patients, the assessment of the severity of the patients' conditions and the construction of models to predict outcome.

Publicacions

– Barea JA, Llupart JA, Pérez J, Quintana M, Serviá L, Guerrero F, González J, Molina I, Sánchez J, Chico M, Grupo de Trabajo de Neurointensivismo Trauma de la SEMICYUC Y. Validación externa de la Escala de Coma de Glasgow con valoración pupilar en pacientes con traumatismo craneoencefálico grave. *Emergencias*. 2023. 35. (1):p. 39–43. IF:5,500. (Q1).

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3.4. Intensive Medicine

– Arispe I, Sol J, Gil AC, Trujillano J, Bravo MO, Torres OY. Comparison of heart, grace and TIMI scores to predict major adverse cardiac events from chest pain in a Spanish health care region. *Sci Rep.* 2023. 13. (1):p. 17280–17280. IF:4,600. (Q2).

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– Sánchez AD, Pérez AN, Pérez M, Sonet MT, Buendia YD, Ballujera PO, López MR, Riera JS, Olmo A, Torra EV, García MA, Villamayor MI, Ibars RMC, Zelaya IO, Chica JP, Anglès CR, Tomasa TM, Serra AB, Casanova EJ, De Molina FJG, AKICOV GRP. "Acute kidney injury in critically ill patients with COVID-19: The AKICOV multicenter study in Catalonia". *PLoS One.* 2023. 18. (4):e0284248. IF:3,700. (Q2).

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3.5. Multidisciplinary Clinical Research Group on Musculoskeletal Pathology, Fragility and Pain Management

Our research group is clinical and multidisciplinary to promote patient-centered medicine encompassing diverse and complementary visions of musculoskeletal pathology.

It is composed of medical health personnel, nurses, and physiotherapists from different levels of care and two hospitals in the same territory but with differentiated patient and pathology profiles.

The doctors come from training in various specialties related to a greater or lesser extent with musculoskeletal pathology such as Orthopedic Surgery, Geriatrics, Physical Medicine and Rehabilitation or the Pain Clinic, forming 8 strongly interrelated subgroups:

1. Spine
2. Pain
3. Rehabilitation
4. Traumatology
5. Prosthetics
6. Upper limb
7. Ortho-geriatrics and Fragility
8. Neurosurgery

Funded projects

PI	Funding agency	Project	Budget (€)
Jaume Peroy Garcia	Sociedad Española de Columna Vertebral GEER	Efectividad de la inyección de anestésicos locales en herida quirúrgica en contexto post operatorio inmediato. comparación entre la ropivacaina al 50% con suero fisiológico frente a la no administración	3,000

with many common projects and others more specific

The work of our group focuses on four main lines of research:

1. Aspects related to perioperative surgery in Orthopaedic Surgery and Traumatology.
2. Clinical measurement of treatment, surgical, semi-invasive and non-invasive results.
3. Evaluation of the repercussions of fragility, especially in the hospital setting in relation to hip fractures.
4. Risk assessment through big data analysis systems / Machine Learning.

Publicacions

– Solé P, González J, Gil A, Peroy J, Jové R, Mas J. Impact of COVID-19 pandemia on spine surgery in 2nd level hospital. Rev Esp Cir Ortop Traumatol. 2023. 67. (4).p. 255-262.

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3.6. Pharmacoepidemiology and Pharmacodynamics (P&P)

The Pharmacoepidemiology and Pharmacodynamics (P&P) Research Group is a multidisciplinary group that includes medical doctors from different specialties, pharmacists from different specialties, and graduates in nursing. The research areas include topics in basic, clinical and epidemiological Pharmacology. The group aims to evaluate the efficacy, safety and efficiency of medical technology linked to the use of drugs, either as prevention or treatment of diseases. It also focuses on the analysis of drug use patterns as a starting point to achieve their rational application.

Its objectives are focused on the following basic areas:

- Medical oncology
- Infectious diseases
- Inflammatory diseases
- Drug Repurposing
- Artificial nutrition
- Neuropharmacology
- The safety and effectiveness of medications
- Pharmacoeconomics

The fundamental tool of pharmacoepidemiology is the clinical trial. For this reason, the group's is actively participating in multicenter national or international clinical trials for the development of new drugs in the different areas of interest.

The Pharmacodynamic part of the group is focused on deciphering the mechanism of action of new drugs and the identification of new, previously unnoticed, applications of the approved drugs.

Publicacions

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- Barreiro M, Pueyo PP, Roubin SR, Corominas DM, Uribarri A, Bachiller RE, Rozado J, Álvarez LG, Fernández LS, Domínguez F, Figal DP. Consenso de expertos sobre el diagnóstico y el tratamiento de la miocarditis asociada con infección o vacunación contra el SARS–CoV–2. *Rev Esp Cardiol.* 2023. 76. (7):p. 555–563. IF:7,050. (Q1).

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3.6. Pharmacoepidemiology and Pharmacodynamics (P&P)

Active projects

PI	Funding agency	Project	Budget (€)
Judit Ribas Fortuny	Ministerio de Ciencia e Innovación	Reposicionamiento contra el Crohn: cribado de una librería de fármacos aprobados por FDA que frenen la muerte celular por TNF- α en modelos genéticos deficientes en autofagia	110,110

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3.7. Research in clinical microbiology and antibiotic resistance

Our group is made up of specialists in Clinical Microbiology and Clinical Analysis. The lines of research belong to different fields of Microbiology and include infectious diseases caused by bacteria, viruses, fungi and parasites.

The work of our group focuses on two main lines of research:

- The study and characterisation of the different mechanisms of antibiotic resistance, the main virulence factors of pathogenic microorganisms isolated from clinical samples and the surveillance of the clones circulating in our environment.
- The study and active surveillance of respiratory viruses circulating in the community as well as the surveillance of other microorganisms causing emerging infectious diseases.

Publicacions

– Ramirez M, Trujillano J, Espluges A, Reñé M, Santín M, Sánchez A, Bernet A, Gros L, Falguera M. Time to sputum conversion in patients with pulmonary tuberculosis: A score to estimate the infectious period. *J. Clin. Tuberc. Other Mycobacterial Dis.* 2023. 31. p.

100361-100361.

– Espies N, Fernandez J, Justribo E, Aramburu J, Bernet A, Marquez A, Godoy P, Torres OY. Results of a Community-Based Screening Program for Chlamydia trachomatis Genital Infection in Young People Aged 18–25 Years. *Cureus.* 2023. 15. (10):e46916.

– Bayo SM, Belles AB, Sanchez IP, Gonzalez EL, Arnuelos JA, Sanchez AB, Gonzalez MG. Fungal corneal abscess caused by Exophiala dermatitidis. *Rev. Esp. Quim.* 2023. 36. (4):p. 425–426. IF:1,900. (Q4).

– Bellés A, Prim N, Mormeneo S, Villalón P, Valiente M, Jover A, Aixalà N, Bernet A, López E, Prats I, García M. Changes in Group A Streptococcus emm Types Associated with Invasive Infections in Adults, Spain, 2023. *Emerg. Infect. Dis.* 2023. 29. (11):p. 2390–2392. IF:11,800. (D1).

– Mormeneo S, Bellés A, Vázquez D, Planella de Rubinat M, Bayas DC, Morales A, Jover A, López É, Prim N, García M. Antibiotic Susceptibility and Clarithromycin Resistance Determinants in Helicobacter pylori in the Northeast of Spain: A One-Year Prospective Study. *Antibiotics-Basel.* 2023. 12. (2):356. IF:4,800. (Q1).

Active projects

PI	Funding agency	Project	Budget (€)
Alba Muñoz Santa	Fundación Jose Luis Castaño SEQC	Ayudas para profesionales jóvenes para Tesis Doctoral 2022 (SEQC)	7,500
Albert Bernet Sanchez	European Comission EU	RELECOV 2.0	176,04.49

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Area 4. Neurosciences

Area coordinator: Dr. Ana Garcera Teruel and Dr. Gerard Piñol Ripoll

Neuroscience is a multidisciplinary area that studies the nervous system in its structure, function, development and pathology. IRBLleida groups investigate neurological and psychiatric diseases addressing molecular, cellular and clinical aspects.

Groups

4.1 +Pec Proteomics

4.2 Biological foundations of mental disorders

4.3 Clinical neurosciences

4.4 Cognition and Behavior Study Group

4.5 Evolutionary Developmental Neurobiology

4.6 Experimental Neuromuscular Pathology

4.7 Neurocognition, psychobiology of the personality and behavioral genetics

4.8 Neuroimmunology

4.9 Neuronal Signalling Unit

9

Groups

81

Researchers

Male 36%

Female 64%

7

Funded grants

Male 43%

Female 57%

396,250€

Grants funding

Male 72%

Female 28%

22

Active projects

67

Publications

402

Total IF

6.00

Average IF

58%

%Q1

25%

%D1



4.1. +Pec Proteomics

+PPRG aims to apply next-generation clinical proteomics, mass spectrometry and Systems Biology to the uncovering of altered intercellular communication mechanisms associated with neuropathology and systemic pathologies. Our young research group emphasizes those research actions focused on providing further understanding on the molecular basis of neurodegeneration and dementia-associated neuropathology.

In a related vein, we prioritize bench-to-bedside research focusing on further understand the potential of extracellular vesicles (EVs), considered as basic units of an intricate intercellular communication mechanism, and their potential roles in the development of diagnostic, stratification and clinical prognostic markers, as well as highly biocompatible nanovectors in advanced therapeutic applications in the field of personalised medicine.

Publications

- Sánchez JA, Fernández M, Guo X, Mulet M, Ngan SC, Iyappan R, Katoueezadeh M, Sze SK, Serra A, Gallart X. Trioxidized cysteine in the aging proteome mimics the structural dynamics and interactome of phosphorylated serine. *AGING CELL*. 2023. 23. (3):e14062. IF:7,800. (D1).
- Gallart X, Lorca C, Mulet M, Sánchez JA, Lisa J, Ngan SC, Iyappan R, Katoueezadeh M, Serra A, Sze SK. Differential systemic decellularization in vivo to study molecular changes in each vasculature layer in murine models of disease. *STAR Protoc*. 2023. 4. (3):p. 102524–102524.
- Gallart X, Muntane G, Martorell L, Amigo N, Correig X, Ribalta J, Sanchez V, Labad J, Vilella E. Gradual Increase in Inflammation-Linked Glycoproteins and a Proatherogenic Lipoprotein Profile in the Early Stages of Psychosis as Characterized by H-1 NMR Blood Analysis. *J. Proteome Res*. 2023. 22. (7):p. 2271–2280. IF:4,400. (Q1).

Funded projects

PI	Funding agency	Project	Budget (€)
Aida Serra Maqueda	Instituto de Salud Carlos III ISCIII	BP-EVs como nanotrasportadores para la liberación avanzada de compuestos.	178,650
Aida Serra Maqueda i Oriol Yuguero Torres	Diputació de Lleida	Extracellular vesicles profiling for the discovery of specific biomarkers associated to the initiation and early development of atrial fibrillation	50,000

- Gallart X. Featured Papers in <i>NeuroSci</i>. *NeuroSci*. 2023. 4. (2):p. 103–104.
- Panahi M, Hase Y, Gallart X, Mitra S, Watanabe A, Low RC, Yamamoto Y, Sepulveda D, Hainsworth AH, Ihara M, Sze SK, Viitanen M, Behbahani H, Kalaria RN. ER stress induced immunopathology involving complement in CADASIL: implications for therapeutics. *Acta Neuropathol. Commun*. 2023. 11. (1):p. 76–76. IF:7,100. (Q1).
- Hemu X, Chan NY, Liew HT, Hu S, Zhang X, Serra A, Lescar J, Liu CF, Tam JP. Substrate-binding glycine residues are major determinants for hydrolase and ligase activity of plant legumains. *New Phytol*. 2023. 238. (4):p. 1534–1545. IF:9,400. (D1).
- Roy R, Lorca C, Mulet M, Sánchez JA, Baratas A, de la Casa M, Espinet C, Serra A, Gallart X. Altered ureido protein modification profiles in seminal plasma extracellular vesicles of non-normozoospermic men. *Front Endocrinol (Lausanne)*. 2023. 14. p. 1113824–1113824. IF:5,200. (Q1).
- Lorca C, Mulet M, Arévalo C, Sanchez MÁ, Perez A, Perrino M, Bach A, Aguilar A, Vilella E, Gallart X, Serra A. Plant-derived nootropics and human cognition: A systematic review. *Crit Rev Food Sci Nutr*. 2023. 63. (22):p. 1–25. IF:10,200. (D1).

Publications (books)

- Cristina Lorca, María Fernández-Rhodes, Jose Antonio Sánchez Milán, María Mulet, Julia Lisa, Xavier Gallart-Palau and Aida Serra. Chapter 6: BP-EVs: A novel source of EVs in the nanocarrier field. *Extracellular vesicles – Applications and therapeutic potential*. 2023. IntechOpen. DOI: 10.5772/intechopen.107771
- Lucilla Parnetti, Federecio Paolini Paoletti, Xavier Gallart. Feature papers in *neurosci: from consciousness to clinical neurology*. 2023. MDPI Books. DOI: 10.3390/books978-3-0365-7847-7

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4.1. +Pec Proteomics

Active projects

PI	Funding agency	Project	Budget (€)
Aida Serra Maqueda, Xavier Gallart Palau i Maria Mur Lain	IBEC	Validación de las BP-EVs como una nueva generación de nanovectores para la liberación focalizada de fármacos en el sistema nervioso central	178,650
Xavier Gallart Palau	Instituto de Salud Carlos III ISCIII	Marcadores de pronóstico y estratificación en vesículas extracelulares cerebrales circulantes en plasma para identificar alteraciones incipientes de la unidad neurovascular en el Alzheimer.	93,170
Xavier Gallart Palau i Iolanda Batalla Llordes	Diputació de Lleida	Extracellular vesicles from industrial by-products: next generation nanocarriers in biomedicine	50,000
Xavier Gallart Palau	Instituto de Salud Carlos III ISCIII	Contrato Miguel Servet Proyecto	40,000
Aida Serra Maqueda	Ministerio de Ciencia e Innovación	Caracterización de las vesículas extracelulares derivadas del microbioma oral circulantes y presentes en cerebro en la enfermedad del Alzheimer por biología de sistemas	151,500

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4.2. Biological foundations of mental disorders

The Group comprises mainly members of the Psychiatry service of the Santa Maria University Hospital, Lleida and biomedical research is conducted by sub-teams that share a common interest in the study of the biological bases of various mental disorders, mainly bipolar disorder, psychotic disorder and personality disorder.

Publications

- Torres MM, Campanera EC, Paredero JP. Clonidine reduces the need for antipsychotics in conduct disorders associated with intellectual disability and mental illness: A case series. *Span. J. Psychiatry Ment. Health.* 2023. 16. (3)p. 204-205.
- Pampols S, Gisbert A, Resa B, Jiménez A, Forcada I, Llorca V. Neuroleptic Malignant Syndrome Associated With Lurasidone A Case Report. *J. Clin. Psychopharmacol.* 2023. 43. (6)p. 548-549. IF:2,900. (Q3).
- Llorca V, Bioque M, Font M, Gich I, Mur M. Correlation between C-reactive protein and the inflammatory ratios in acute schizophrenia inpatients: are they associated?. *J Psychiatr Res.* 2023. 165. p. 191-196. IF:4,800. (Q2).
- Adrados M, Llorca V, Lain MM, Porcar CA, Nicolau E, Ibarra L, Jiménez A, Buil E, Budny F, Resa B, Velásquez VG, Arenas L, Irigoyen M, López J. Trajectories of children and adolescents attending a psychiatric emergency unit during the COVID-19 confinements: 2020-2022 longitudinal study. *Child Adolesc. Psychiatry Ment. Health.* 2023. 17. (1)p. 66-66. IF:5,600. (D1).
- de la Vega D, Irigoyen M, Carballo JJ, Guija JA, Giner L. Suicidal thoughts and burnout among physicians during the first wave of the COVID-19 pandemic in Spain. *Psychiatry Res.* 2023. 321. p. 115057-115057. IF:11,300. (D1).

Active projects

PI	Funding agency	Project	Budget (€)
Gemma Vall Boada	Fundació La Marató de TV3	Assaig clínic de fase III, aleatoritzat, controlat amb comparador actiu, per estudiar l'eficàcia i la seguretat del programa de REMediació Cognitiva Integral (INCREM) en pacients amb Depressió.	62,187.5
Iolanda Batalla Llordes i Xavier Gallart Palau	Diputació de Lleida	Extracellular vesicles from industrial by-products: next generation nanocarriers in biomedicine	50,000
Maria Mur Lain	Fundació La Marató de TV3	Disentangling clinical, neurobiological, and genetic correlates of first-episode mania in Bipolar. The NOTION Project	55,607.5
Maria Mur Lain, Xavier Gallart Palau i Aida Serra Maqueda	European Commission EU	Validación de las BP-EVs como una nueva generación de nanovectores para la liberación focalizada de fármacos en el sistema nervioso central	178,650

– Guilera T, Chart JP, Blasco MDC, Calvo P, Piernas RA, Ramírez I, Rodríguez C, Prieto R, Gabarda I, Prados JL, Diaz M, Martín M. Lurasidone for the treatment of schizophrenia in adult and paediatric populations. *Drugs Context.* 2023. 12.

– Rodrigo M, Manuel M, Lobato LL, Rodriguez N, Roman M, Musull E, Rodrigo E, Pifarré J, Miró Y. Human-Animal Bond Generated in a Brief Animal-Assisted Therapy Intervention in Adolescents with Mental Health Disorders. *Animals.* 2023. 13. (3):358. IF:3,000. (D1).

– Irigoyen M, Porras A, Vega D, Arenas L, Agraz M, Torterolo G, Sánchez M, Fuentes D, Adrados M, Puigdevall M. Psychiatric Emergencies and Suicide Attempts Before and During COVID-19 Lockdown in Spain. *Crisis.* 2023. 45. (1)p. 8-17. IF:3,000. (Q2).

– Ruschak I, Montesó P, Rosselló L, Aguilar C, Sánchez L, Toussaint L. Fibromyalgia Syndrome Pain in Men and Women: A Scoping Review. *Healthcare (Basel).* 2023. 11. (2):223. IF:2,800. (Q2).

– Irigoyen M, Albert C, Borrás C, Puigdevall M, González A. Suicide survivors. A population at risk. *Eur. J. Psychiatr.* 2023. 37. (3)p. 199-200. IF:1,800. (Q4).

– Llorca V, Irigoyen M, Sánchez M, Torterolo G, Arenas L, Buil E, Adrados M, Nicolau E, Albert C, Ibarra L, Puigdevall M. Urgent care and suicidal behavior in the child and adolescent population in a psychiatric emergency department in a Spanish province during the two COVID-19 states of alarm. *Rev. Psiquiatr. Salud Ment.* 2023. 16. p. 76-83. IF:9,200. (D1).

– Irigoyen M. THE NEED TO ESTABLISH A SUICIDE RISK PROTOCOL IN HOSPITALIZATION UNITS. *Actas Esp. Psiquiatr.* 2023. 51. (1)p. 44-45. IF:1,500. (Q4).

– Irigoyen M, Nicolau E, González A, Adrados M, Buil E, Ibarra L, Albert C, Arenas L, Sánchez M, Torterolo G, Puigdevall M, Llorca V. Characteristics of patients treated for suicidal behavior during the pandemic in a psychiatric emergency department in a Spanish province. *Rev. Psiquiatr. Salud Ment.* 2023. 16 Suppl 1. p. 68-75. IF:9,200. (D1).

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4.3. Clinical neurosciences

The Clinical Neurosciences Group was created with the aim of bringing together all the neurological research carried out in the Lleida hospital environment in 2008. It is led and coordinated by Dr. Francesc Purroy. Currently, it is a translational research group formed by different professional profiles (neurologists, radiologists, psychologists, nurses, vascular surgeons, psychologists, clinical biochemists, biologists, and biotechnologists).

The group aims to improve the diagnosis, prognosis and treatment of patients who have suffered a stroke through the identification of biomarkers (neuroimaging, biological) and the understanding of the molecular mechanisms involved in strokes. Currently, it is developing a clinical trial of remote ischemic tolerance in patients with ictus code criteria (study REMOTECAT- trialsgov NCT03375762). It is part of the RICORS-ICTUS Network.

Publications

- Yuguero O, Vena A, Bernal M, Martínez M, Farre J, Purroy F. Platelet levels and age are determinants of survival after mild-moderate TBI: A prospective study in Spain. *Front. Public Health.* 2023. 11. p. 1109426-1109426. IF:5,200. (Q1).
- Bonaterra A, Benitez S, Pancorbo O, Rodriguez D, Vert C, Rovira A, Freijo MM, Tur S, Martinez M, Cardona P, Vera R, Lebrato L, Arenillas JF, Perez S, Dominguez A, Fàbregas JM, Mauri G, Montaner J, Sanchez JL, Hernandez M. Association of candidate genetic variants and circulating levels of ApoE/ApoJ with common neuroimaging features of cerebral amyloid angiopathy. *Front. Aging Neurosci.* 2023. 15. p. 1134399-1134399. IF:4,800. (Q2).
- Terceño M, Silva Y, Bashir S, Chamorro Á, Perez de la Ossa N, Hernández M, Castaño C, Camps P, Wenger D, Cardona P, Molina C, Rodríguez A, Canovas D, Purroy F, Salvat M, Serena J, On Behalf Of The Catalan Stroke Code And Reperfusion Consortium C. First pass effect in posterior circulation occlusions: analysis from the cicat registry. *Int. J. Stroke.* 2023. 18. (2):p. 221-228. IF:6,700. (Q1).
- Garcia A, Flores A, Terceno M, Cardona P, Amaro S, Gomis M, Zaragoza J, Krupinski J, Gomez M, Mas N, Cocho D, Catena E, Purroy F, Deck M, Rubiera M, Pagola J, Rodriguez D, Juega J, Rodriguez N, Molina CA, Soro C, Jimenez X, Salvat M, Davalos A, Jovin TG, Abilleira S, de la Ossa NP, Ribo M, RACECAT I. Association of Time of Day With Outcomes Among Patients Triaged for a Suspected Severe Stroke in Nonurban Catalonia. *Stroke.* 2023. 54. (3):p. 770-780. IF:8,300. (D1).
- McCabe JJ, Walsh C, Gorey S, Harris K, Hervella P, Iglesias R, Jern C, Li LX, Miyamoto N, Montaner J, Pedersen A, Purroy F, Rothwell PM, Sudlow C, Ueno Y, Vicente M, Whiteley W, Woodward M, Kelly PJ. C-Reactive Protein, Interleukin-6, and Vascular Recurrence After Stroke: An Individual Participant Data Meta-Analysis. *Stroke.* 2023. 54. (5):p. 1289-1299. IF:8,300. (D1).
- Flores A, Garcia A, Sero L, Ustrell X, Requena M, Pellise A, Rodriguez P, Monrde A, Lara

L, Gonzalez JM, Molina CA, Doncel A, Dorado L, Cardona P, Canovas D, Krupinski J, Mas N, Purroy F, Zaragoza J, Palomeras E, Cocho D, Garcia J, Colom C, Silva Y, Gomez M, Jimenez X, Ros J, Abilleira S, Pérez de la Ossa N, Ribo M, RACECAT I. Influence of vascular imaging acquisition at local stroke centers on workflows in the drip-n-ship model: a RACECAT post hoc analysis. *J. NeuroInterventional Surg.* 2023. IF:4,800. (D1).

– Perez A, Rubio C, Silgado A, Zarzuela F, Goterris L, Paredes F, Sulleiro E. Unexpected false-negative result in a traveller's malaria diagnosis. *J. Travel Med.* 2023. 30. (1):IF:25,700. (D1).

– Yuguero O, Bernal M, Farré J, Martínez M, Vena A, Purroy F. Clinical complications after a traumatic brain injury and its relation with brain biomarkers. *Sci Rep.* 2023. 13. (1):p. 20057-20057. IF:4,600. (Q2).

– Mingot CG, Lasaosa SS, Campas LC, Canaval LC, Sánchez AG, Ruiz LB, Alonso MCM, Moncusi SP, Marsal JV, Carner SC, García FP. Prophylactic treatment can modify vascular risk biomarkers in high-frequency episodic and chronic migraine patients: a pilot study. *Sci Rep.* 2023. 13. (1):p. 19416-19416. IF:4,600. (Q2).

– Purroy F, Ois A, Jove M, Arque G, Sol J, Mauri G, Rodriguez A, Pamplona R, PORTERO M, Roquer J. Lipidomic signature of stroke recurrence after transient ischemic attack. *Sci Rep.* 2023. 13. (1):p. 13706-13706. IF:4,600. (Q2).

– Campo D, de la Riva P, de Arce A, Martínez M, Rodríguez J, Ekiza J, Iruzubieta P, Purroy F, Fuentes B, de Lera M, Krupinski J, Mengual JJ, Palomeras E, Guisado D, Rodríguez M, Ustrell X, Tejada J, de Felipe A, Paré M, Tembl J, Cajaraville S, Garcés M, Serena J. Reperfusion therapy in acute ischaemic stroke due to cervical and cerebral artery dissection: Results from a Spanish multicentre study. *Neurologia (Engl Ed).* 2023. 38. (6):p. 412-418.

– Vicente M, Quilez A, Gil MP, González C, Vázquez D, Mauri G, Sanahuja J, García C, Purroy F. The influence of organisational management on door-to-needle times for fibrinolytic treatment. *Neurologia (Engl Ed).* 2023. 38. (5):p. 313-318.

– Campo D, de la Riva P, de Arce A, Martínez M, Rodríguez J, Ekiza J, Iruzubieta P, Purroy F, Fuentes B, Alfonso MD, Krupinski J, Chirife JJM, Palomeras E, Guisado D, Rodríguez M, Ustrell X, García JT, Mimblera AD, Pare M, Tembl J, Cajaraville S, Garcés M, Serena J. Reperfusion treatment in acute ischaemic stroke due to cervical and cerebral artery dissection: results of a Spanish national multicentre study. *Neurologia.* 2023. 38. (6):p. 412-418. IF:3,900. (Q2).

– Vicente M, Quilez A, Gil MP, Gonzalez C, Vazquez D, Mauri G, Sanahuja J, Garcia C, Purroy F. The influence of organisational management on door-to-needle times for fibrinolytic treatment. *Neurologia.* 2023. 38. (5):p. 313-318. IF:3,900. (Q2).

– Mowla A, Shakibajahromi B, Shahjouei S, Baharvahdat H, Harandi AA, Rahmani F, Mondello S, Rahimian N, Cernigliaro A, Hokmabadi ES, Ebrahimzadeh SA, Ramezani M,

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4.3. Clinical neurosciences

Mehrvar K, Farhoudi M, Naderi S, Fenderi SM, Pishjoo M, Alizada O, Purroy F, Requena M, Tsigoulis G, Zand R. SARS-CoV-2 infection might be a predictor of mortality in intracerebral hemorrhage. *J. Neurol. Sci.* 2023. 444. p. 120497-120497. IF:4,400. (Q2).

– Hernández S, Salvany S, CASANOVAS A, PIEDRAFITA L, Soto MC, Tarabal O, Blasco A, Gras S, Gatius A, Schwab MH, Calderó J, ESQUERDA JE. Persistent NRG1 Type III Overexpression in Spinal Motor Neurons Has No Therapeutic Effect on ALS-Related Pathology in SOD1^{G93A} Mice. *Neurotherapeutics.* 2023. 20. (6):p. 1820-1834. IF:5,700. (Q1).

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Funded projects

PI	Funding agency	Project	Budget (€)
Francisco Purroy Garcia	Agencia Gestió Ajuts Universitat i Recerca AGAUR	Ajut per donar suport a les activitats dels grup de recerca consolidat de Neurociències Clíniques	40,000
Francisco Purroy Garcia	Instituto de Salud Carlos III ISCIII	Estudio multicéntrico de la aplicación del postcondicionamiento isquémico remoto en pacientes con ictus	246,250

Active projects

PI	Funding agency	Project	Budget (€)
Francisco Purroy Garcia	Instituto de Salud Carlos III ISCIII	Determinación del tiempo de inicio del ictus isquémico y el tejido recuperable mediante la firma ómica: OMIC IS BRAIN	185,130
Francisco Purroy Garcia	Instituto de Salud Carlos III ISCIII	RICORS-ICTUS	138,274.4
Manel Portero Otin i Francisco Purroy Garcia	Diputació de Lleida	Perspectives clíniques de la biologia de sistemes aplicada al anàlisi de plaques carotídeas humanas: ILER-CAROTID	50,000

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4.4. Cognition and Behavior Study Group

The Cognition and Behaviour Study Group is a consolidated research group recognised by the Generalitat de Catalunya. It is made up of clinical and basic translational research staff from different specialities (neurology, neuropsychology, biomedical sciences, etc.) led and coordinated by Dr. Gerard Piñol-Ripoll.

The group has national and international competitive funding and currently is participating in several clinical trials of anti-Alzheimer's drugs. It is part of several national and international consortia on neurodegenerative diseases.

Publications

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– Dakterzada F, Benitez ID, Targa A, Carnes A, Pujol M, Jove M, Minguez O, Vaca R, Sanchez M, Barbe F, Pamplona R, Pinol G. Cerebrospinal fluid lipidomic fingerprint of obstructive sleep apnoea in Alzheimer's disease. *Alzheimers Res Ther*. 2023. 15. (1):p. 134–134. IF:9,000. (D1).

– Dakterzada F, Jové M, Huerto R, Carnes A, Sol J, Pamplona R, Piñol G. Cerebrospinal fluid neutral lipids predict progression from mild cognitive impairment to Alzheimer's disease. *Geroscience*. 2023. 46. (1):p. 683–696. IF:5,600. (Q2).

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Mecocci P, Solfrizzi V, Parnetti L, Squassina A, Tremolizzo L, Borroni B, Nacmias B, Sorbi S, Caffarra P, Seripa D, Rainero I, Daniele A, Masullo C, Spalletta G, Williams J, Amouyel P, Jessen F, Kehoe P, Magda T, Rossi G, Sánchez P, Slegers K, Ingelsson M, Andreassen OA, Hiltunen M, Van C, Sims R, van der Flier W, Ruiz A, Ramirez A, Lambert JC, Frikke R. Genetic Associations Between Modifiable Risk Factors and Alzheimer Disease. *JAMA Netw. Open*. 2023. 6. (5):e2313734. IF:13,800. (D1).

– Obis E, Sol J, Andres P, Martin M, Mota N, Galo JD, Piñol G, Portero M, Ferrer I, Jove M, Pamplona R. Lipidomic Alterations in the Cerebral Cortex and White Matter in Sporadic Alzheimer's Disease. *Aging Dis*. 2023. 14. (5):p. 1887–1916. IF:7,400. (Q1).

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4.4. Cognition and Behavior Study Group

Multiancestry analysis of the HLA locus in Alzheimer's and Parkinson's diseases uncovers a shared adaptive immune response mediated by HLA-DRB1*04 subtypes. *Proc. Natl. Acad. Sci. U. S. A.* 2023. 120. (36):e2302720120. IF:11,100. (Q1).

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– Chino B, Torres L, Zelwetro A, Rodríguez IC, Carnes A, Piñol G, Yubero R, Paúl N, Maestú F.

Understanding the Episodic Memory and Executive Functioning Axis Impairment in MCI Patients: A Multicenter Study in Comparison with CSF Biomarkers. *Biomedicines.* 2023. 11. (12):3147. IF:4,700. (Q1).

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Funded projects

PI	Funding agency	Project	Budget (€)
Gerard Piñol Ripoll	Agencia Gestió Ajuts Universitat i Recerca AGAUR	Ajut per donar suport a les activitats dels grup de recerca consolidat d'Estudi de la Cognició i la Conducta	0

Active projects

PI	Funding agency	Project	Budget (€)
Gerard Piñol Ripoll	Instituto de Salud Carlos III ISCIII	Determinación del tiempo de inicio del ictus isquémico y el tejido recuperable mediante la firma ómica: OMIC IS BRAIN	185,130
Gerard Piñol Ripoll i Reinald Pamplona Gras	Diputació de Lleida	La vía de señalización mediada por los lípidos bioactivos diacilglicerol-ácido fosfatídico como biomarcadores para discriminar los estadios iniciales de la enfermedad de Alzheimer del envejecimiento normal	50,000

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4.5. Evolutionary Developmental Neurobiology

The group's research focuses on the study of the amygdala, a very complex brain structure involved in the control of emotions, social behavior and cognition, which is altered in all psychiatric disorders. Currently it is not possible to explain the different outcomes of distinct mental conditions, posing a real challenge on their treatment. To solve this problem, the group is trying to decipher the amygdala at molecular, cellular and circuit levels using an evolutionary development biology approach.

Previous research of the group has shown that the high complexity of the amygdala can be largely explained by the different embryonic origin of its neurons, which conditions their adult phenotype. With this vision in mind, the group is currently developing research to study the transcriptome and the connections of amygdalar neurons with different embryonic origin. Comparison of the results with public databases of genes involved in distinct mental disorders will help to understand the relation between different susceptibility genes to specific amygdalar neurons and networks regulating emotion and social behavior. This will be the first step to design more accurate therapeutic targets for distinct mental disorders and will open the venue for precision medicine in Psychiatry.

Funded projects

PI	Funding agency	Project	Budget (€)
Loreta Maria Medina Hernandez	Agencia Gestió Ajuts Universitat i Recerca AGAUR	Neurobiologia Evolutiva i del Desenvolupament (Evolutionary and Developmental Neurobiology)	60,000

Active projects

PI	Funding agency	Project	Budget (€)
Ester Desflis Barceló	European Commission EU	Variations in stress responsivity in hens: matching birds to environments	458,600
Ester Desflis Barceló i Loreta Medina Hernandez	Ministerio de Ciencia e Innovación	Arquitectura molecular de los centros y redes del cerebro que regulan emoción y cognición: implicaciones para la Psiquiatría.	131,769

Publications

- González S, Font E, Desflis E, Herranz V, García JM. Adult neurogenesis in the telencephalon of the lizard *Podarcis liolepis*. *Front. Neurosci.* 2023. 17. p. 1125999–1125999. IF:5,152. (Q2).
- Medina L, Abellan A, Morales L, Pross A, Metwalli AH, Gonzalez A, Freixes J, Desflis E. Evolution and development of amygdala subdivisions: pallial, subpallial and beyond. *Brain Behav. Evol.* 2023. 98. (1). p. 1–21. IF:1,700. (Q2).
- Pross A, Metwalli AH, Abellán A, Desflis E, Medina L. Subpopulations of corticotropin-releasing factor containing neurons and internal circuits in the chicken central extended amygdala. *J. Comp. Neurol.* 2023. IF:2,500. (Q1).
- Metwalli AH, Pross A, Desflis E, Abellán A, Medina L. Mapping of corticotropin-releasing factor, receptors, and binding protein mRNA in the chicken telencephalon throughout development. *J. Comp. Neurol.* 2023. 531. (14). p. 1389–1424. IF:2,500. (Q1).

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4.6. Experimental Neuromuscular Pathology

The group studies the cellular and molecular basis of neuromuscular disorders, particularly motor neuron diseases such as amyotrophic lateral sclerosis (ALS) and spinal muscular atrophy (SMA). For which we use in vitro and in vivo models, mainly chicken embryo and transgenic mice. Several lines of work are currently underway to examine the role of excitotoxicity, autoimmunity and neuroinflammation in the pathogenesis of ALS and SMA, and to identify new cellular and molecular targets for future therapies. Another important aspect of our research is the analysis of plastic changes at central and peripheral synapses in the context of normal development, aging and diseases affecting motor neurons.

Publications

- Corral M, Arpa B, Rosell E, Egia L, Mora C, Stratmann T, Sanchez A, Casanovas A, Esquerda JE, Mauricio D, Vives M, Verdaguer J. NOD mouse dorsal root ganglia display morphological and gene expression defects before and during autoimmune diabetes development. *Front Endocrinol (Lausanne)*. 2023. 14. p. 1176566–1176566. IF:5,200. (Q1).
- Sansa A, Miralles MP, Beltran M, Celma F, Caldero J, Garcera A, Soler RM. ERK MAPK signaling pathway inhibition as a potential target to prevent autophagy alterations in Spinal Muscular Atrophy motoneurons. *Cell Death Discov*. 2023. 9. (1):p. 113–113. IF:7,000. (Q2).
- Hernández S, Salvany S, Casanovas A, Piedrafito L, Soto MC, Tarabal O, Blasco A, Gras S, Gatius A, Schwab MH, Calderó J, Esquerda JE. Persistent NRG1 Type III Overexpression in Spinal Motor Neurons Has No Therapeutic Effect on ALS-Related Pathology in SOD1 G93A Mice. *Neurotherapeutics*. 2023. 20. (6):p. 1820–1834. IF:5,700. (Q1).

Active projects

PI	Funding agency	Project	Budget (€)
Jordi Calderó Pardo	Fundació La Marató de TV3	"Preclinical Analysis of new combinatorial treatments for spinal muscular atrophy (SMA):	458,600
Jordi Calderó Pardo	Instituto de Salud Carlos III ISCIII	Microscopio Confocal de Barrido	430,000
Jordi Calderó Pardo i Olga Tarabal Mostazo	Ministerio de Ciencia e Innovación	Mecanismos subyacentes a la patología del circuito motor y la miopatía primaria en atrofia muscular espinal: identificación de dianas para terapias combinadas con nusinersen	226,200

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4.7. Neurocognition, psychobiology of the personality and behavioral genetics

The researchers converge in the interest in the search for the biological bases of personality and their disorders. Based on biological-factorial personality research models, the relationship between personality with the endocrine system (gonadal hormones), central nervous system (neurotransmitters and genetic polymorphisms) and neurophysiology (electrophysiology) is investigated. The current research focuses on impulsive-uninhibited personality relationships and emotions with neural monoamphatic neurotransmission (norepinephrine, dopamine, serotonin and MAO), both at a biochemical level (neurotransmitters and metabolites) and at the level of molecular genetics. The biological bases of personality are also investigated through the search of techniques of computerized electrophysiology and functional infrared spectroscopy (fNIR) applied to the study of emotions, cognitive functions and the frontal lobe (Laboratory of Human Behaviour).

Publications

- Aluja A, Balada F, García O, Aymami N, García LF. `Association study of dehydroepiandrosterone sulfate, impulsivity personality traits and moderate alcohol consumption in men. *Pers. Individ. Differ.* 2023. 201. 111924. IF:4,300. (Q2).

- Gutiérrez F, Aluja A, Ruiz J, Peri JM, Gárriz M, Garcia LF, Sorrel MA, Sureda B, Vall G, Ferrer M, Calvo N. Borderline, where are you? A psychometric approach to the personality domains in the International Classification of Diseases, 11th Revision (ICD-11). *Personal. Disord.* 2023. 14. (3):p. 355-359. IF:2,800. (Q2).

- Gutiérrez F, Peri JM, Aluja A, Baillés E, Sureda B, Gutiérrez A, Vall G, Calvo N, Ferrer M, Caverro M, Mallorquí A, Villamón SE, de Alba AM, Rodríguez M. Differentiating Abnormal, Normal, and Ideal Personality Profiles in Multidimensional Spaces. *J. Individ. Differ.* 2023. 44. (4):p. 215-222. IF:1,400. (Q4).

- Cekrljija Đ, Balada F, Garcia LF, Aluja A. Factor invariance of the Humor Styles Questionnaire and its relationship with the HEXACO personality model in a Spanish community sample. *Eur. J. Humour Res.* 2023. 11. (3):p. 123-144.

- Aluja A, Balada F, García O, García LF. Psychological predictors of risky driving: the role of age, gender, personality traits (Zuckerman's and Gray's models), and decision-making styles. *Front. Psychol.* 2023. 14. p. 1058927-1058927. IF:3,800. (Q1).

- Gutiérrez F, Aluja A, Rodríguez C, Gárriz M, Peri JM, Gallart S, Calvo N, Ferrer M, Gutiérrez A, Soler J, Pascual JC. Severity in the ICD-11 personality disorder model: Evaluation in a Spanish mixed sample. *Front. Psychiatry.* 2023. 13. p. 1015489-1015489. IF:4,700. (Q2).

Active projects

PI	Funding agency	Project	Budget (€)
Anton Aluja Fabregat	Ministerio de Ciencia e Innovación	Efecto de la personalidad en la toma de decisiones y actividad de la corteza prefrontal (cpf) mediante espectroscopia funcional por infrarrojo cercano (fnir)	95,590

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4.8. Neuroimmunology

The Neuroimmunology group is a translational group made up of clinical and basic researchers and researchers collaborating with other centres that complement our experience in neuroimmunology. The objectives of our research team are:

- To uncover knowledge of the as yet undiscovered etiopathological processes of multiple sclerosis.
- To identify biomarkers of clinical evolution and / or response to treatment that help the physician to be able to make a treatment personalization with the ultimate goal of improving the patient's quality of life.

The investigation into these clinical evolution markers has led us to delve more specifically into oxidative stress, cholesterol esters, and nutrition. Concerning treatment response markers, we are studying changes in dendritic cells of our patients after disease-modifying treatments.

The principal investigator is Dr. Luis Brieva Ruiz, head of the neurology section of the Arnau de Vilanova University Hospital of Lleida (HUAV) and pioneer in research into multiple sclerosis (MS) and in creating a reference unit in the care of patients with MS in the province of Lleida since 2000. In this unit, the patient has been treated in a comprehensive manner, receiving clinical, pharmacological, cognitive, emotional and rehabilitative care from the moment of diagnosis.

The current professionals who belong to this unit and who make up the Neuroimmunology group in addition to Dr. Brieva are: Dr. Cristina González, Doctor in Neurology at HUAV, Dr. Agustín Sancho, Neurologist at HUAV, Dr. Laura Quibus, Neurologist at HUAV, Silvia Peralta, nurse at the HUAV Day Hospital, Anna Gil, Neuropsychologist and coordinator of the clinical and basic research of the group and the collaborating researchers Dr. Pascual Torres, expert in Biomedicine and laboratory techniques, Dr. Hugo Gonzalo, PhD in metabolic physiopathology and scientific advisor, and Dr. Jose Vicente Hervás, neurologist at the Hospital Broggi de Sant Joan Despi.

Publications

– Vicente M, Quilez A, Gil MP, Gonzalez C, Vazquez D, Mauri G, Sanahuja J, Garcia C, Purroy F. The influence of organisational management on door-to-needle times for fibrinolytic treatment. *Neurologia*. 2023. 38. (5):p. 313–318. IF:3,900. (Q2).

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4.8. Neuroimmunology

– Monreal E, Fernandez JI, Garcia MI, Sainz de la Maza S, Llufríu S, Alvarez R, Casanova B, Comabella M, Ramio L, Martínez JE, Brieva L, Saiz A, Eichau S, Cabrera JM, Villarrubia N, Espiño M, Perez F, Montalban X, Tintore M, Quiroga A, Dominguez MI, Rodriguez F, Chico JL, Lourido D, Alvarez JC, Masjuan J, Costa L, Villar LM. Association of Serum Neurofilament Light Chain Levels at Disease Onset With Disability Worsening in Patients With a First Demyelinating Multiple Sclerosis Event Not Treated With High-Efficacy Drugs. *JAMA Neurol.* 2023. 80. (4):p. 397–403. IF:29,000. (D1).

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COVID-19 vaccination in multiple sclerosis patients treated with a broad spectrum of disease-modifying therapies. *J. Neurol.* 2023. 270. (5):p. 1–12. IF:6,000. (Q1).

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Active projects

PI	Funding agency	Project	Budget (€)
Cristina Gonzalez Mingot	Asociación de Esclerosis Múltiple España (EME)	The Prognostic Value of Cholesterol Esters in the Progression of Multiple Sclerosis" (PROCOLEM)	25,000

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4.9. Neuronal Signalling Unit

The Neuronal Signalling Unit is a research group specialised in the study of the survival of motor neurons and the pathologies associated with the degeneration of these cells. The main focus of study is the molecular mechanisms involved in the loss of motor neuron function and the identification of new therapeutic targets in the context of Spinal Muscular Atrophy (SMA). SMA is a childhood neuromuscular disease of genetic origin characterised by the loss of motor neurons in the spinal cord due to mutation of the SMN1 (Survival Motor Neuron) gene. The SMN1 gene encodes a protein called SMN, the reduction of which causes muscle weakness, atrophy and paralysis through partially identified intracellular alterations. Recently developed therapies aim to increase SMN protein levels in cells. However, there is a percentage of patients who do not respond to such treatment. For this reason, a deeper understanding of the molecular mechanisms

that take place during the development and evolution of the disease will allow the identification of new therapies that, together with the existing ones, will broaden the treatment opportunities for SMA patients.

Publications

- Sansa A, Miralles MP, Beltran M, Celma F, Caldero J, Garcera A, Soler RM. ERK MAPK signaling pathway inhibition as a potential target to prevent autophagy alterations in Spinal Muscular Atrophy motoneurons. Cell Death Discov. 2023. 9. (1):p. 113-113. IF:7,000. (Q2).

Funded projects

PI	Funding agency	Project	Budget (€)
Rosa Maria Soler Tatche	Agència Gestió Ajuts Universitat i Recerca AGAUR	Ajuts per donar suport a les activitats dels grups de recerca SGR-21: Neurobiology of rare diseases - Neurobiologia de malalties minoritàries (NEURADIS)	0

Active projects

PI	Funding agency	Project	Budget (€)
Rosa Maria Soler Tatche	Instituto de Salud Carlos III ISCIII	"Analysis of the beneficial effects of calpain inhibitors treatment and combined therapies on Spinal Muscular Atrophy"	82,280

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Area 5. Nutrition, Metabolism and Cellular Stress

Area coordinator: Dr. Joaquim Ros Salvador and Dr. Ester Vilapriño Terre

We study the ageing process, myocardial differentiation, neurodegenerative diseases and cell signalling in relation to oxidative stress in various cellular, animal and human models, using experimental and theoretical methods.

Groups

5.1 Biochemistry of Oxidative Stress

5.2 Cell signalling and apoptosis group

5.3 Cell Signalling in Yeast

5.4 Metabolic physiopathology

5.5 Nutrition, Metabolism and Microbiota in patients with heart failure (NUTRIMMIC)

5.6 Systems biology and statistical methods for biomedical research

6

Groups

34

Researchers

Male 56%

Female 44%

8

Funded grants

Male 87%

Female 13%

778,000€

Grants funding

Male 94%

Female 6%

14

Active projects

38

Publications

292

Total IF

7.68

Average IF

66%

%Q1

29%

%D1



5.1. Biochemistry of Oxidative Stress

The Biochemistry of Oxidative Stress group analyzes the alteration of mitochondrial functions in Friedreich Ataxia (FA), a rare, cardio-neurodegenerative disease caused by deficient levels of frataxin, a mitochondrial protein. This deficit is due to mutations (mostly GAA triplet insertions) in the FXN gene. The most important features are, among others, ataxia, dysarthria, cardiac hypertrophy; some patients also develop diabetes.

To study this pathology, the group uses primary cultures of neurons –obtained from the dorsal root ganglion– and cardiomyocytes, which are the tissues most affected in this disease, and fibroblast cell lines derived from patients. We have also incorporated a new mouse model FXN151F, with a point mutation that involves a 95% reduction in normal frataxin levels and that shows functional features very close to those observed in FA patients.

At the molecular level, we have observed alterations in the mitochondrial proteome, in mitochondrial iron and calcium homeostasis that impact the redox state of proteins and levels of calcium transporters such as NCLX, mitochondrial pore opening, the function of complexes I–III of the electron transport chain that would affect the rate of respiration and ATP synthesis and, in summary, loss of mitochondrial functions. Based on the results

obtained, and since there is currently no effective cure, we design therapeutic strategies trying to improve the patients' quality of life; in this sense, we are analyzing the effects of different compounds that increase frataxin levels such as calcitriol. We have observed that this vitamin restores altered levels of the aforementioned markers and, therefore, a pilot clinical trial is being carried out in collaboration with IDIBGI. We also test molecules such as leriglitazone, in collaboration with the company Minoryx Therapeutics, focused on restoring the mitochondrial membrane potential and/or mitochondrial biogenesis.

Publications

– Sanz A, Britti E, Delaspre F, Medina M, Pazos M, Tamarit J, Ros J, Cabiscol E. Mitochondrial impairment, decreased sirtuin activity and protein acetylation in dorsal root ganglia in Friedreich Ataxia models. *Cell. Mol. Life Sci.* 2023. 81. (1):p. 12–12. IF:8,000. (Q1).

– Lopez IC, Pijuan J, Navaridas R, Santacana M, Gatius S, Velasco A, Castellà G, Panosa A, Cabiscol E, Pinyol M, Coll L, Bonifaci N, Peña LP, Vidal A, Villanueva A, Gari E, Llobet D, Fajas L, Matias X, Yeramian A. Oxidative stress-induced FAK activation contributes to uterine serous carcinoma aggressiveness. *Mol. Oncol.* 2023. 17. (1):p. 98–118. IF:6,600. (Q1).

Funded projects

PI	Funding agency	Project	Budget (€)
Jordi Tamart Sumalla	Friedrich's Ataxia Research Alliance	Uncovering the function of a conserved site in eukaryotic frataxins.	85,000

Active projects

PI	Funding agency	Project	Budget (€)
Fabien Delaspre	Association Française Ataxie de Friedrich AFAF	Étude comparative de souris 151F pour discerner les premières étapes de la pathogenèse del'Ataxie de Friedreich	28,000
Joaquim Ros Salvador	Ministerio de Ciencia e Innovacion	Desarrollo de la leriglitazona para el Síndrome de Rett y trastornos relacionados	147,800
Joaquim Ros Salvador	Ministerio de Ciencia e Innovacion	Mecanismos de disfuncion mitocondrial y nuevas estrategias terapéuticas en modelos celulares y animales de Ataxia de Friedreich	193,600
Joaquim Ros Salvador	Ministerio de Ciencia e Innovacion	Nuevo fármaco dirigido a la Ataxia de Friedreich	143,750

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5.2. Cell signalling and apoptosis group

The group began research at the University of Lleida in 2001 when Dr. Marta Llovera and Dr. Daniel Sanchis joined to conduct studies on the signaling of survival, differentiation, and death of cells of the nervous system and myocardium. Our research has provided information on relevant aspects of the roles of Calcium / Calmodulin (J Neurochem, 2004; J Biol Chem, 2008) and Tyr-kinase Trk receptors (J Neurochem, 2008; J Neurochem, 2011) in the differentiation process, and neuronal survival, as well as the potential of histone deacetylases as therapeutic tools for the treatment of glioblastoma (Cell Death Dis, 2014). At the same time, we pioneered the loss of apoptotic genes during myocardial development, where they play an important role in the division and differentiation of myocytes (J Cell Sci, 2013; PLoSOne, 2014), and the change of an apoptotic cell death to necrotic cell death during this process, identifying relevant proteins such as EndoG (J Biol Chem, 2006). Deepening the characterization of ENDOG led to the discovery of its involvement in the process of cardiac hypertrophy (Nature, 2011; Redox Biol, 2017) and in the control of cell proliferation (Redox Biol, 2020). Recently, the group has focused

an important part of its effort on investigating key and differential aspects of cardiac fibroblasts as cells essential for the proper functioning of the myocardium (FEBS J, 2022).

Our research is possible thanks to the continuous funding obtained mainly from competitive public calls of Organizations such as La Marató de TV3, the Spanish Ministries of Health (ISCIII) and Science (MICINN) and the Agency for the Management of University Grants (AGAUR) of the Generalitat de Catalunya. Our research work has involved the establishment of collaborations, both international (Eric Olson, UTSouthWestern Medical Center, Dallas, TX, USA; Chris Smith, University of Cambridge, UK; Junmei Ye, China Pharmaceutical University, Nanjing, China), as nationals, mainly with groups from Madrid (CNIC) and Barcelona (Vall d'Hebron Research Institute, IDIBAPS, IRB Barcelona), as well as from IRBLLEIDA itself (groups led by Xavier Dolcet, Manel Portero, Joaquim Ros and Andreu Casali). This has led to the publication of more than 40 articles in indexed international scientific journals and the production of 11 doctoral theses in the last 20 years.

Funded projects

PI	Funding agency	Project	Budget (€)
Daniel Sanchis Morales	Ministerio de Ciencia e Innovacion	Señalización celular en el corazón y metabolismo: supervivencia y nuevas funciones de los fibroblastos cardíacos y el papel de ENDOG en la homeostasis metabólica.	162,500

Active projects

PI	Funding agency	Project	Budget (€)
Daniel Sanchis Morales	Ministerio de Ciencia e Innovacion	Mechanisms involved in the role of EndoG in the development and metabolism of the heart. Relationship of ENDOG and other apoptotic genes with cardiac pathophysiology	96,800

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5.3. Cell Signalling in Yeast

Our current research areas have both a basic and applied orientation:

Basic orientation:

1. Responses to stress mediated by signal transduction pathways (TOR, Ras / PKA, AMPK/Snf1, Pkc1-MAPK, GCN2, PDK1/YPK1 ...).
2. Study of the mechanisms of iron homeostasis, its relationship with the recycling of nutrients through autophagy and its impact on aging and mortality in *Saccharomyces cerevisiae*, with a transnational objective towards studies related to iron deficiency anemia and breast cancer.
3. Humanization of yeast with human ferritins in order to delve into the mechanisms of iron homeostasis and cell survival.

Applied orientation:

4. Design of strategies to increase endogenous iron levels for use as a nutritional supplement.
5. Design strategies for directed evolution to obtain improved strains for use in food production.

Publications

– Montellà S, Pujol N, de la Torre MA. Aft1 Nuclear Localization and Transcriptional Response to Iron Starvation Rely upon TORC2/Ypk1 Signaling and Sphingolipid Biosynthesis. *Int J Mol Sci.* 2023. 24. (3):2438. IF:5,600. (Q1).

Active projects

PI	Funding agency	Project	Budget (€)
M ^a Angeles de la Torre Ruiz	Institut de Recerca Biomèdica de Lleida, IRBLleida	Weaning pigs an animal model to resolve iron deficiency anaemia based on biotechnologically-modified yeast	20,500

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5.4. Metabolic physiopathology

The overall goal of our investigations concerned the role of metabolism and oxidative stress (including free radical chemistry, redox biology and antioxidants) in the aging process and age-associated diseases. We have investigated the role of metabolism and oxidative stress in animal models (vertebrates and invertebrates) and humans in which aging rate and longevity are different or are experimentally modified (e.g. caloric restriction, methionine restriction, and genetic manipulations) or pathologically affected (e.g. metabolic diseases, cardiovascular disease, cancer, neurodegenerative diseases). If the aging process could be slowed or even reverted the incidence of age-related diseases would diminish significantly.

Publications

- Torres P, Pamplona R, Portero M. Cell senescence, loss of splicing, and lipid metabolism in TDP-43-related neurodegenerative processes. *Neural Regen. Res.* 2023. 18. (8):p. 1725-1726. IF:6,100. (Q1).
- Serrano J, Castro E, Garcia A, Moran MI, Gonzalez D, Bermudez M, Valdivielso JM, Espinel AE, Portero M. Antihypertensive Effects of an Optimized Aged Garlic Extract in Subjects with Grade I Hypertension and Antihypertensive Drug Therapy: A Randomized, Triple-Blind Controlled Trial. *Nutrients.* 2023. 15. (17):3691. IF:5,900. (Q1).
- Martín R, Jiménez M, Herrador M, Navas VM, Obis E, Jové M, Pamplona R, Nestares T. Metabolomic Profiling in Children with Celiac Disease: Beyond the Gluten-Free Diet. *Nutrients.* 2023. 15. (13):2871. IF:5,900. (Q1).
- Sánchez E, Sánchez M, López C, Bermúdez M, Valdivielso JM, Farràs C, Pamplona R, Torres G, Mauricio D, Castro E, Fernández E, Lecube A. Is There a Link between Obesity Indices and Skin Autofluorescence? A Response from the ILERVAS Project. *Nutrients.* 2023. 15. (1):203. IF:5,900. (Q1).
- Sancho A, Gil A, González C, Peralta S, Solana MJ, Torres P, Juanes A, Quibus L, Ruiz E, Sanpedro E, Quirant B, Martínez E, Tello CR, Presas S, Rubio SG, Baron BP, Ramio L, Sotoca J, González I, Eichau S, Prieto JM, Quilez MRB, Sabin J, Sánchez AJ, Calatayud GL, Calles C, Sempere AP, Garcas M, Carmona O, Moral E, Hervas JV, Blanco Y, Sola N, Lara NT, Forero L, Brieva L. Seroprevalence of SARS-CoV-2 in Patients with Multiple Sclerosis under Disease-Modifying Therapies: A Multi-Centre Study. *J. Clin. Med.* 2023. 12. (23):7243. IF:3,900. (Q2).
- Gómez A, Mas B, Carreras G, Jové M, Berdún R, Bonmatí A, de Zegher F, Ibañez L, López A, Bassols J. Placental AA/EPA Ratio Is Associated with Obesity Risk Parameters in the Offspring at 6 Years of Age. *Int J Mol Sci.* 2023. 24. (12):10087. IF:5,600. (Q1).
- Portero M, de la Maza MP, Uribarri J. Dietary Advanced Glycation End Products: Their Role in the Insulin Resistance of Aging. *Cells.* 2023. 12. (13):1684. IF:6,000. (Q2).

- Pinilla L, Benítez ID, Gracia E, Torres G, Mínguez O, Vaca R, Jové M, Sol J, Pamplona R, Barbé F, Sánchez M. Metabolipidomic Analysis in Patients with Obstructive Sleep Apnea Discloses a Circulating Metabotype of Non-Dipping Blood Pressure. *Antioxidants.* 2023. 12. (12):2047. IF:7,000. (D1).
- Jové M, Mota N, Obis È, Sol J, Martín M, Ferrer I, Portero M, Pamplona R. Ether Lipid-Mediated Antioxidant Defense in Alzheimer's Disease. *Antioxidants.* 2023. 12. (2):293. IF:7,000. (D1).
- Jové M, Mota N, Obis È, Sol J, Martín M, Ferrer I, Portero M, Pamplona R. Lipid Adaptations against Oxidative Challenge in the Healthy Adult Human Brain. *Antioxidants.* 2023. 12. (1):177. IF:7,000. (D1).
- Dakterzada F, Jove M, Huerto R, Carnes A, Sol J, Pamplona R, Piñol G. Changes in Plasma Neutral and Ether-Linked Lipids Are Associated with The Pathology and Progression of Alzheimer's Disease. *Aging Dis.* 2023. 14. (5):p. 1728-1738. IF:7,400. (Q1).
- Obis E, Sol J, Andres P, Martin M, Mota N, Galo JD, Piñol G, Portero M, Ferrer I, Jove M, Pamplona R. Lipidomic Alterations in the Cerebral Cortex and White Matter in Sporadic Alzheimer's Disease. *Aging Dis.* 2023. 14. (5):p. 1887-1916. IF:7,400. (Q1).
- Dakterzada F, Benitez ID, Targa A, Carnes A, Pujol M, Jove M, Minguez O, Vaca R, Sanchez M, Barbe F, Pamplona R, Pinol G. Cerebrospinal fluid lipidomic fingerprint of obstructive sleep apnoea in Alzheimer's disease. *Alzheimers Res Ther.* 2023. 15. (1):p. 134-134. IF:9,000. (D1).
- Planas L, Launay N, Goicoechea L, Heron B, Jou C, Juliá N, Ruiz M, Fourcade S, Casasnovas C, De La Torre C, Gelot A, Marsal M, Loza P, García À, Fatemi A, Ferrer I, Portero M, Area E, Pujol A. Sphingolipid desaturase DEGS1 is essential for mitochondria-associated membrane integrity. *J. Clin. Invest.* 2023. 133. (10):e162957. IF:15,900. (D1).
- Sol J, Obis È, Mota N, Pradas I, Galo JD, Martin M, Fernández A, Ortega M, Mayneris J, Borrás C, Viña J, de la Fuente M, Mate I, Biarnes C, Pedraza S, Vilanova JC, Brugada R, Ramos R, Serena J, Ramió L, Pineda V, Daunis P, Thió S, Barretina J, Garre J, Portero M, Fernández JM, Puig J, Jové M, Pamplona R. Plasma acylcarnitines and gut-derived aromatic amino acids as sex-specific hub metabolites of the human aging metabolome. *AGING CELL.* 2023. 22. (6):e13821. IF:7,800. (D1).
- Rosell M, Santos E, Motger A, Ramió L, Garre J, Pérez V, Moya A, Jové M, Pamplona R, Puig J, Ramos R, Fernández JM, Mayneris J. Gut microbiota links to serum ferritin and cognition. *Gut Microbes.* 2023. 15. (2):p. 2290318-2290318. IF:12,200. (D1).
- Purroy F, Ois A, Jove M, Arque G, Sol J, Mauri G, Rodriguez A, Pamplona R, PORTERO M, Roquer J. Lipidomic signature of stroke recurrence after transient ischemic attack. *Sci Rep.* 2023. 13. (1):p. 13706-13706. IF:4,600. (Q2).

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5.4. Metabolic physiopathology

– Dakterzada F, Jové M, Cantero JL, Pamplona R, Piñoll G. Plasma and cerebrospinal fluid nonenzymatic protein damage is sustained in Alzheimer's disease. *Redox Biol.* 2023. 64. p. 102772–102772. IF:11,400. (D1).

– Jové M, Mota N, Fernàndez A, Portero M, Barja G, Pamplona R. Phenotypic molecular features of long-lived animal species. *Free Radic. Biol. Med.* 2023. 208. p. 728–747. IF:7,400. (Q1).

– Pamplona R, Jove M, Gomez J, Barja G. Programmed versus non-programmed evolution of aging. What is the evidence?. *Exp. Gerontol.* 2023. 175. p. 112162–112162. IF:3,900. (Q2).

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– Barja G, Pamplona R. Introduction to special issue on 'physiological and evolutionary mechanisms of aging'. *Exp. Gerontol.* 2023. 184. p. 112324–112324. IF:3,900. (Q2).

Funded projects

PI	Funding agency	Project	Budget (€)
Manuel Portero Otin	Fundación Bancaria Caixa d'Estalvis i Pensions de Barcelona La Caixa	The role of defects in mitochondria-associated ER membranes (MAM) to Amyotrophic Lateral Sclerosis	131,000
Manuel Portero Otin	Instituto de Salud Carlos III ISCIII	Desregulación de TDP-43, eje clave en la ELA: Caracterización de firmas lipídicas, transcriptómicas y autofágicas en muestras específicas de pacientes para biomarcadores y reposicionamiento	252,500
Mariona Jove Font i Marta Ortega Bravo	Diputació de Lleida	Development of dynamic models for the personalized prevention and treatment of age-related diseases	50,000
Pascual Torres Cabestany	Fundación Francisco Luzón	Humanised mouse models to study ATG4B cryptic exon involvement in ALS pathogenesis and its potential as disease biomarker (Hum4ALS)	57,000
Reinaldo Ramon Pamplona Gras	Agència Gestió Ajuts Universitat i Recerca AGAUR	Ajuts per donar suport a les activitats dels grups de recerca Fisiopatologia Metabòlica SGR-2021	40,000

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5.4. Metabolic physiopathology

Active projects

PI	Funding agency	Project	Budget (€)
Manuel Portero Otin i Francisco Purroy Garcia	Diputació de Lleida	Perspectivas clínicas de la biología de sistemas aplicada al análisis de placas carotídeas humanas: ILER-CAROTID	50,000
Manuel Portero Otin	Departament de Salut Generalitat CAT	Identification of compounds for inhibition of ACE2 membrane expression	137,264.7
Manuel Portero Otin	Instituto de Salud Carlos III ISCIII	Metabolismo lipídico intracelular, procesamiento de ARNm y estrés celular en la encrucijada de la fisiopatología de la esclerosis lateral amiotrófica	214,170
Mariona Jove Font	Fundación Bancaria Caixa d'Estalvis i Pensions de Barcelona La Caixa	From GFAP mutations in astrocytes to neurodegeneration: exploring a lipid-protein oxidation pathway (ASTROMAD)	275,000
Reinald Pamplona Gras	Fundación Bancaria Caixa d'Estalvis i Pensions de Barcelona La Caixa	Dynamics of the neuronal, metabolomic and neuropsychological signatures underlying the adaptations for motherhood during pregnancy. (babybrain)	101,750
Reinald Pamplona Gras i Gerard Piñol Ripoll	Diputació de Lleida	La vía de señalización mediada por los lípidos bioactivos diacilglicerol-ácido fosfatídico como biomarcadores para discriminar los estadios iniciales de la enfermedad de Alzheimer del envejecimiento normal	50,000

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5.5. Nutrition, Metabolism and Microbiota in patients with heart failure (NUTRIMMIC)

The group is composed of basic and clinical researchers, our research focuses on the field of Heart Failure (HF), a disease with growing prevalence in developed countries. Our research aims to know how the nutritional factors and intestinal microbiota affect the development and prognosis of heart failure. Patients with heart failure show an inflammatory status associated with iron deficit. It is hypothesized that malnutrition and alteration of the gut microbiota are responsible for perpetuating inflammation.

The objective of the clinical line is to determine the nutritional status, adherence to the Mediterranean diet and composition of the gut microbiota of patients with heart failure. The basic line aims to generate a murine experimental model of heart failure and analyze the relationships between microbiota and inflammation.

The observations obtained in the basic line about the relationships between microbiota and inflammation, will allow us to transfer knowledge from basic to the clinical line to design specific nutritional and supplementation strategies in order to modify the composition of the intestinal flora and reduce inflammation.

Publications

- Trullas JC, Morales JL, Casado J, Carrera M, Sanchez M, Conde A, Davila MF, Llacer P, Salamanca P, Chivite D, Jordana R, Villalonga M, Paez MI, Manzano L, Formiga F. Combining loop and thiazide diuretics for acute heart failure across the estimated glomerular filtration rate spectrum: A post-hoc analysis of the CLOROTIC trial. Eur J Heart Fail. 2023. 25. (10):p. 1784-1793. IF:18,200. (D1).
- Ruiz R, Salamanca P, Quesada MA, Yun S, Conde A, Morales JL, Suárez R, García JÁ, Llàcer P, Fonseca EM, Amores B, Martínez Á, Armengou A, Peña JL, López ML, Aramburu Ó, PREVAMIC G. Estimating the Prevalence of Cardiac Amyloidosis in Old Patients with Heart Failure-Barriers and Opportunities for Improvement: The PREVAMIC Study. J. Clin. Med. 2023. 12. (6):2273. IF:3,900. (Q2).
- Trullàs JC, Morales JL, Casado J, Carrera M, Sánchez M, Conde A, Dávila MF, Llàcer P, Salamanca P, Pérez J, Plasín MÁ, Cerqueiro JM, Gil P, Formiga F, Manzano L, CLOROTIC I. Combining loop with thiazide diuretics for decompensated heart failure: the CLOROTIC trial. Eur Heart J. 2023. 44. (5):p. 411-421. IF:39,300. (D1).
- Fernández JM, Casado J, Formiga F, González A, Arévalo JC, Beltrán M, Cerqueiro JM, Llàcer P, Manzano L, Morales JL, Pérez J, Conde A. Executive summary of the 2023 update on the consensus regarding basic conduct during hospital admission for patients with acute heart failure. Rev Clin Esp (Barc). 2023. 223. (8):p. 499-509.

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5.6. Systems biology and statistical methods for biomedical research

This multidisciplinary group is itself composed of multidisciplinary researchers, with expertises ranging from biostatistics to systems and synthetic biology. While we also do research in biomedicine, we are currently widening our focus to include food and environmental security as well as effects of climate change on human activities, as these field will have a very strong medium term impact on human health, via the One Health concept.

Publications

– Basallo O, Perez L, Lucido A, Sorribas A, Marin A, Vilapriño E, Perez L, Albacete A, Martínez C, Fraser PD, Christou P, Capell T, Alves R. Changing biosynthesis of terpenoid

precursors in rice through synthetic biology. *Front. Plant Sci.* 2023. 14. p. 1133299–1133299. IF:5,600. (Q1).

– López MB, Pérez MJ, Rué M, Carles M. Factors influencing intention to participate in breast cancer screening. An exploratory structural model. *PLoS One.* 2023. 18. (2):e0281454. IF:3,700. (Q2).

– Popova E, Alonso P, Álvarez J, Paniagua P, Rué M, Vives M, Font A, Gich I, Martínez C, Ordóñez J, Carles M. Cost-effectiveness of a high-sensitivity cardiac troponin T systematic screening strategy compared with usual care to identify patients with peri-operative myocardial injury after major noncardiac surgery. *Eur. J. Anaesth.* 2023. 40. (3):p. 179–189. IF:3,600. (Q2).

Funded projects

PI	Funding agency	Project	Budget (€)
Rui Carlos Vaqueiro de Castro Alves	Agència Gestió Ajuts Universitat i Recerca AGAUR	Ajuts per donar suport a les activitats dels grups de recerca SGR-21:Modelatge matemàtic i biologia sintètica i de sistemes en biomedicina i biotecnologia Mathematical Systems & Synthetic Biology in Biomedicine and Biotechnology (MathSy2Bio)	0

Active projects

PI	Funding agency	Project	Budget (€)
Albert Sorribas Tello i Ester Vilapriño Terre	Instituto de Salud Carlos III ISCIII	"Development of a simulation environment as a tool to support the design of studies and clinical trials."	43,318
Montserrat Rué Monné	Fundació La Marató de TV3	Liquid biopsies for the identification of mechanisms of resistance to PARP inhibitors in BRCA1/2-associated cancers	68,910

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Rui Carlos Vaqueiro de Castro Alves

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Area 6. Other research areas

Other lines of research includes those researchers that, without being part of a specific research group at IRBLleida, have a relevant scientific production in areas such as family medicine, ophthalmology, fibromyalgia, internal medicine, traumatology, etc.

Publications

– Vega A, Castro L, Carballada F, Alfaya T, Marqués L, Ruíz B. Hymenoptera Allergy Diagnosis through Their Presence on Human Food. *Toxins*. 2023. 15. (12):680. IF:4,200. (Q1).

– Serrano J, Castro E, Garcia A, Moran MI, Gonzalez D, Bermudez M, Valdivielso JM, Espinel AE, Portero M. Antihypertensive Effects of an Optimized Aged Garlic Extract in Subjects with Grade I Hypertension and Antihypertensive Drug Therapy: A Randomized, Triple-Blind Controlled Trial. *Nutrients*. 2023. 15. (17):3691. IF:5,900. (Q1).

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– Herrerías F, Yeramian A, Baena JA, Bueno M, Fleitas C, de la Fuente M, Serrano J, Granado A, Santamaría M, Yeramian N, Zorzano M, Mora C, Lecube A. PKNI Kinase: A Key Player in Adipocyte Differentiation and Glucose Metabolism. *Nutrients*. 2023. 15. (10):2414. IF:5,900. (Q1).

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– Alcubierre N, Granado M, Bogdanov P, Hernández C, Ramos H, Castelblanco E, Real J, Rubinat E, Traveset A, Hernández M, Jurjo C, Vioque J, Navarrete EM, Simó R, Mauricio D. Caffeine and the Risk of Diabetic Retinopathy in Type 2 Diabetes Mellitus: Findings from Clinical and Experimental Studies. *Nutrients*. 2023. 15. (5):1169. IF:5,900. (Q1).

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– Bellés A, Prim N, Mormeneo S, Villalón P, Valiente M, Jover A, Aixalà N, Bernet A, López E, Prats I, García M. Changes in Group A *Streptococcus emm* Types Associated with Invasive Infections in Adults, Spain, 2023. *Emerg. Infect. Dis.* 2023. 29. (11):p. 2390-2392. IF:11,800. (D1).

– Masot O, Ochoa JJ, Paraíso E, Roca J, Miranda J, Lavedán A. The impact of docosahexaenoic acid on maternal mental health: scoping review. *Nutr. Hosp.* 2023. 40. (4):p. 848-857. IF:1,200. (Q4).

– Matute L, Fernández D, Casanova J, Belmonte T, Benítez ID, Rivera K, Garcia M, Cortés C, Peral V, Millán R, Barriuso I, de Gonzalo D, Barbé F, Worner F. Study protocol for the epigenetic characterization of angor pectoris according to the affected coronary compartment: Global and comprehensive assessment of the relationship between invasive coronary physiology and microRNAs. *PLoS One*. 2023. 18. (5):e0283097. IF:3,700. (Q2).

– Siscart J, Perejón D, Serna MC, Oros M, Godoy P, Sole E. Prevalence, risk factors, and consequences of hypothyroidism among pregnant women in the health region of Lleida: A cohort study. *PLoS One*. 2023. 18. (10):e0278426. IF:3,700. (Q2).

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– Rubi F, Masbernat M, Climent C, Soler J, Garcia M, Martiinez O, Valenzuela F. Effectiveness of an exercise intervention based on preactivation of the abdominal transverse muscle in patients with chronic nonspecific low back pain in primary care: a randomized control trial. *BMC Prim Care*. 2023. 24. (1):p. 180-180.

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– Sojo J, López I, Hernández A, Retamar P, Merino de Lucas E, Escolà L, Bereciartua E, García E, Pintado V, Boix L, Natera C, Sorlí L, Borrell N, Amador C, Shaw E, Jover A, Molina J, Martínez RM, Dueñas CJ, Calvo J, Lecuona M, Pomar V, Borreguero

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Area 6. Other research areas

I, Palomo V, Docobo F, Pascual Á, Rodríguez J. Effectiveness of fosfomycin trometamol as oral step-down therapy for bacteraemic urinary tract infections due to MDR *Escherichia coli*: a post hoc analysis of the FOREST randomized trial. *J. Antimicrob. Chemother.* 2023. 78. (7):p. 1658–1666. IF:5,200. (Q1).

– Díez P, García M, Sanz R, Sabate M, Macaya F, Roura G, Jiménez M, Flores X, Moreu J, Fuertes G, Jiménez S, Tizon H, Nogales JM, Velázquez M, Lozano I, Avanzas P, Salamanca J, Bastante T, Alfonso F. Prognostic Implications of Left Ventricular Systolic Dysfunction in Patients with Spontaneous Coronary Artery Dissection. *Eur. Heart J.-Acute Cardiovasc. Care.* 2023. 12. (5):p. 299–305. IF:4,100. (Q2).

– Mingot CG, Lasaoa SS, Campas LC, Canaval LC, Sánchez AG, Ruiz LB, Alonso MCM, Moncusi SP, Marsal JV, Carner SC, García FP. Prophylactic treatment can modify vascular risk biomarkers in high-frequency episodic and chronic migraine patients: a pilot study. *Sci Rep.* 2023. 13. (1):p. 19416–19416. IF:4,600. (Q2).

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Group for the Study and Treatment of Acute Leukemias and MY. Survival improvement of patients with FLT3 mutated acute myeloid leukemia: results from a prospective 9 years cohort. *Blood Cancer J.* 2023. 13. (1):p. 69–69. IF:12,800. (D1).

– Pereyra E, González S, Fernández D. Antiplatelet therapy at discharge for Takotsubo syndrome: Could propensity matching and/or sensitivity analysis be of value? *Response. Rev. Port. Cardiol.* 2023. 42. (6):p. 599–599. IF:1,800. (Q4).

– Alvarez F, Catalan M, Alvarez J, Sanchez M, Palomar M, Fernandez I, Garnacho J, Barcenilla F, Garcia R, Aranaz J, Lozano FJ, Ramirez P, Martinez M. Impact of the ?Zero Resistance? program on acquisition of multidrug-resistant bacteria in

patients admitted to Intensive Care Units in Spain. A prospective, intervention, multimodal, multicenter study. *Med. Intensiv.* 2023. 47. (4):p. 193–202. IF:3,000. (Q3).

– Matas C, Bech JJ, Gatus S, Gomez X, Ribes M, Guasch M, Pedraza N, Casanova JM, Gómez CT, Garí E, Aguayo RS. Biomarkers found in the tumor interstitial fluid may help explain the differential behavior among keratinocyte carcinomas. *Mol. Cell. Proteomics.* 2023. 22. (6):p. 100547–100547. IF:7,000. (D1).

– Ramirez M, Trujillano J, Espluges A, Reñé M, Santín M, Sánchez A, Bernet A, Gros L, Falguera M. Time to sputum conversion in patients with pulmonary tuberculosis: A score to estimate the infectious period. *J. Clin. Tuberc. Other Mycobacterial Dis.* 2023. 31. p. 100361–100361.

– Ferrer M, Manresa M, Font E, Serveto MA, Escobar MA. Benefits of continuous suture of perineal injury in adaptation to motherhood. *Enferm. Clin.* 2023. 33. (1):p. 38–47.

– Huguet G, Puig I, Serrano J, Martín M, Rodríguez M, Moreno JA, Tibau J, Kádár E. Hippocampal neurogenesis and Arc expression are enhanced in high-fat fed prepubertal female pigs by a diet including omega-3 fatty acids and *Bifidobacterium breve* CECT8242. *Eur. J. Nutr.* 2023. 62. (6):p. 2463–2473. IF:5,000. (Q2).

– Pueyo PP, Ruberte EG, Ordas JG, Blanco LM, Figal DP, Moreira JML, Barrado JJG, Calle DG, Bonet LA, Salinas G, Pascual MJC, Martín MP, Llinares JP, Lopez AD, Perez MB, Ocana FC, Garcia JB, Ortega GM, Rodriguez FD, Mateo VM, Crespo MC, Guzman MQ, Martínez LJ, Vinas JA, Lopez JR, Santos SF, Martí PR, Roy LA, Polo JCG, Pinilla JMG, Vallverdu MF, Bueno L, Colome TS, Diz FW. Vaccine-carditis study: Spanish multicenter registry of inflammatory heart disease after COVID-19 vaccination. *Clin Res Cardiol.* 2023. IF:5,000. (Q2).

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HEALTHCARE
FRAMEWORK

ORGANIZATION

CORE FACILITIES

ECONOMIC
INDICATORS

COMMUNICATION

RESEARCH
ACTIVITY

KNOWLEDGE
TRANSFER AND
INNOVATION

RESEARCH ACTIVITY
BY AREAS AND
GROUPS

FUNDRAISING

MAIN FUNDERS



Fundraising

Collaborating companies and organizations



The contributions made by companies and organizations that work with IRBLleida have the mission of promoting, developing, managing and disseminating biomedical research in our region. Donations allow us to investigate in our 5 research areas. IRBLleida has the support of 193 companies and organizations from Lleida.

Why make a donation to IRBLleida?

- To promote health research and have an impact on the quality of life of the population.
- To improve the treatment of many diseases to benefit the health of future generations.
- To collaborate with the scientific community, patients and the public.
- To promote Lleida and the region.
- To share the values of the IRBLleida: responsibility, respect, rigour, generosity in synergy, independence of judgement, fairness in the distribution of resources, social commitment, leadership and enthusiasm.

Information 2023

193

TOTAL COLLABORATING
COMPANIES

23

NEW
COLLABORATORS

256,636€

CONTRIBUTION
TO IRBLLEIDA

Fundraising

	2018	2019	2020	2021	2022	2023
Number of companies and organizations	157	166	135	157	179	193
Donations	190,939	210,056	179,375	202,561	222,784	256,636
Number of IRBLleida friends						227
Donations						19,114

Table 18. Total number of collaborating companies, organizations and friends.

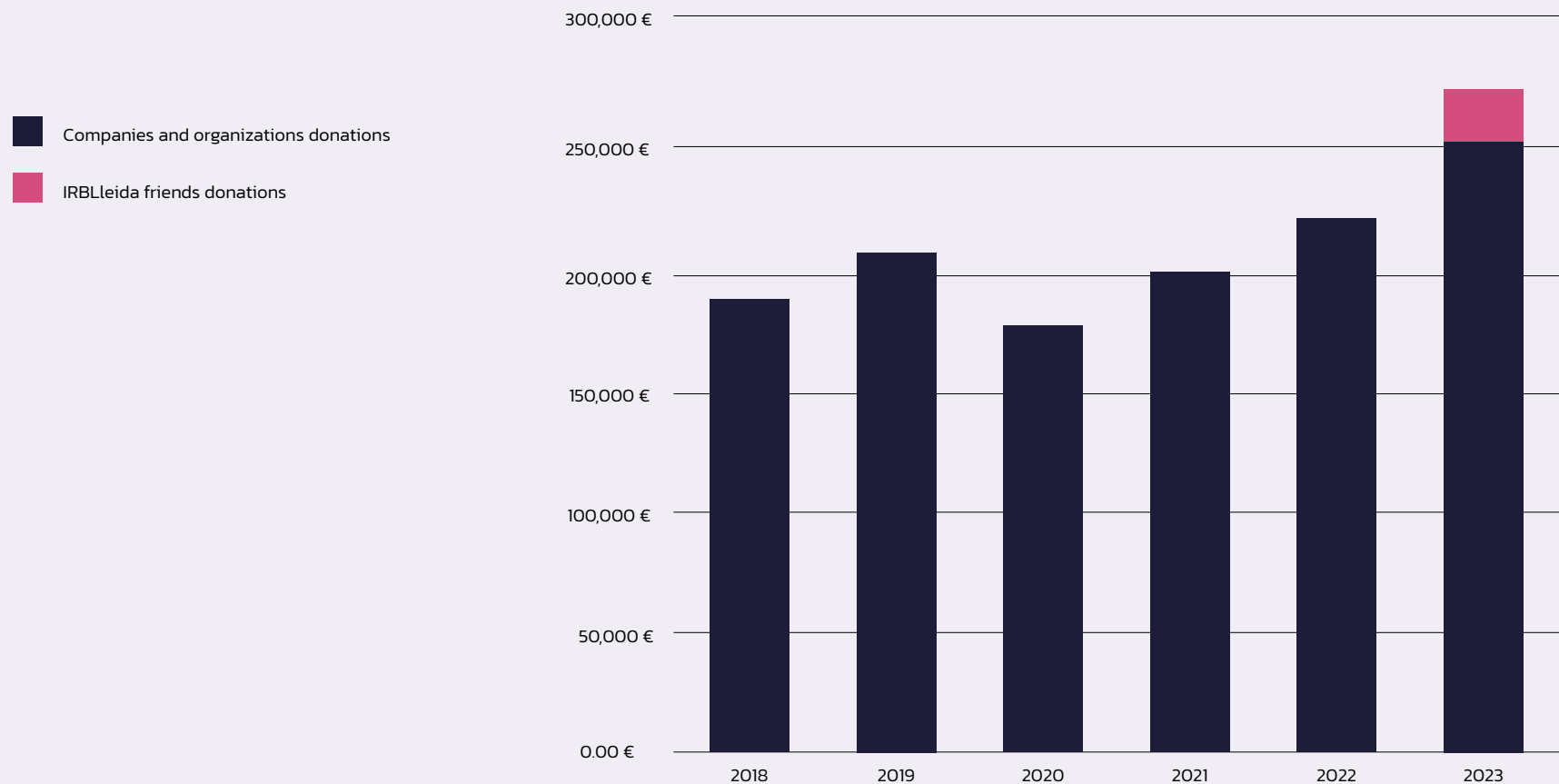


Figure 27. Donations made by companies and organizations since 2018.

Collaborating companies and organizations 2023



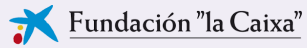
Collaborating companies and organizations 2023











Main funders

Acknowledgements to the main funders



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Diputació de Lleida

La força dels municipis