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Presentation

Since January 2020, I have the honor of directing IRBLLeida. It is with great enthusiasm that I took on the challenge of improving the excellent research and innovation that is carried out at IRBLLeida. I would like to thank Elvira Fernández Giráldez, Reyes Grases Reus and Manuel Sánchez de la Torre, for their hard work directing the Institute during the past years. The results of their dedication are clearly shown in this scientific report. I would also like to thank the members of the different Committees and Commissions that have contributed to the growth of the institute with their effort and generosity.

It is a pleasure to present in this report the scientific contributions and outstanding activities of all the people working at IRBLLeida. The year 2020, with the COVID-19 pandemic, has provided a novel view, a new perspective of the future of biomedical research based on the profound self-confidence in the capacity of the research community to overcome major health threats for the population. In this regard, the scientists at IRBLLeida have made significant contributions, participating in many research projects, six clinical trials and two observational studies aimed at better understanding COVID-19 and improving the therapeutic options available for this devastating pandemic.

During this difficult year, the number of publications and their quality has been maintained, with a total of 283 articles published in 2020 and 60% of them in the first quartile of their field of research, reflecting the efforts of our researchers to reach higher quality objectives every year. Meanwhile, our budget raised to reach 5,3 M €, confirming the economical robustness of the Institute against the uncertainty caused by the unique pandemic situation faced. Maintaining a balanced budget over time has been made possible through the sustained support of our Board of Trustees, the capacity of the 36 research groups at IRBLLeida to obtain competitive funding and the generosity of the local society making significant donations for biomedical research.

Our proposal for the future is to support the growth of the Institute, always aiming for the highest standards of excellence, by generating results that can eventually be translated into improvements in the health of the population. This will require renewed efforts on the promotion of the internationalisation of our research and the translation of the results to the productive sector, two aspects that will help us consolidate as a translational research institute with international recognition. We are ready to face the new challenges of 2021, hopefully slowly returning to the normal activity of the Institute after the COVID-19 pandemic and the exceptional funding opportunities that are to come from the local, national and EU administrations.
Main achievements

- **333** Researchers
- **389** Total staff
- **39** Principal researchers
- **283** Scientific publications
- **1,395** Total IF
- **4,93** Medium FI
- **60%** Scientific production Q1
- **38** New competitive projects
- **64** Observational studies active (14 new in 2020)
- **134** Active clinical trials (34 new in 2020)
- **5,3M** Budget
- **135** Companies and entities collaborators
Care and teaching framework
Care and teaching framework

IRBLleida acts as a cluster of all biomedical research carried out in Lleida and is associated to two institutions that conduct health research and implement innovation policies:

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

It also interacts with the Lleida Agri-Food Science and Technology Park and Agrotecnio, the centre for research in agrotechnology at the School of Agrifood and Forestry Science and Engineering (ETSEA) of the Universitat de Lleida. The Lleida Health Region includes the counties of Les Garrigues, La Noguera, Pla d’Urgell, La Segarra, El Segrí 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 the western fringe, the Pyrenees and even the Terres de l’Ebre, make Lleida a centre of attraction that goes beyond the district itself (with 370,000 inhabitants) to cover the needs of its 370,000 inhabitants. In terms of teaching, the 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. The IRBLleida has a large animal facility located in Torrelameu, equipped with state-of-the-art experimental operating theatres, with the main objective of training surgeons, and facilities to carry out research activity in the porcine model.

Healthcare activity in data

With regard to the Arnau de Vilanova University Hospital (HUAV), the available data show 250,637 outpatient consultations, of which 64,522 are first visits and 186,115 are subsequent visits. With regard to telemedicine visits, 93,264 were carried out and 36,424 day hospital sessions were held. There were 72,720 emergency visits during 2020.

It is a hospital with 438 stable beds (380 conventional beds, 42 adult critical beds, 8 adult semi-critical beds and 8 neonatal ICU beds). During peak periods, the centre also has 38 temporary conventional hospitalisation beds. The staff is made up of 2,219 professionals at the HUAV (including the MIRs) and 1,457 professionals at the Primary Care level.

The HUAV has been accredited for MIR teaching since 1984.

With regard to the Santa Maria University Hospital (HUSM), in 2020 there were 107,306 outpatient visits, of which 36,195 are first visits and 71,111 are subsequent visits. There were also 2,329 hospital discharges, 35,369 telemedicine visits, 5,081 day hospital sessions and 115,506 rehabilitation sessions. With regard to mental health and addiction care, 1,096 admissions and 935 admissions to the social and healthcare area were made.

The hospital has 97 beds available for specialised care (93 beds for conventional hospitalisation and 5 critical beds), 30 beds for social and health care and 54 beds for mental health care. The staff is made up of 1,147 professionals at the HUSM.
Organization

1. Organization
2. Delegate commission
3. Internal scientific committee
4. External scientific committee
5. Research council
6. Clinical research ethics committee
7. Animal experimentation ethics committee
8. Internal comissions
1. Organization

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

- **Governing**: the executive board and the delegate commission.
- **Consultative**: the internal scientific committee, the external scientific committee and the research council.
- **Direction and management**: the scientific director and the manager.

**SCIENTIFIC DIRECTION**

Director  
Dr. Diego Arango

Deputy director  
Dr. Manuel Sánchez de la Torre

**IRBLLEIDA MANAGEMENT OFFICE**

Management  
Ms. Reyes Grases

Secretary  
Ms. Naiara Vilaginés

Human resources, financial and clinical trials  
Ms. Eva López  
Ms. Noelia Pérez  
Ms. Elena Moscatel  
Ms. Silvia Aresté  
Ms. Anna Fernández

Reception and concierge  
Mr. Fernando Tortras  
Ms. Georgina Tortras

Business development (project promotion and management, scientific production, valorisation and transfer)  
Ms. Irene Rosell  
Dr. Núria Bahi  
Dr. Serafí Cambray  
Ms. Judith Muñoz

Fundraising  
Mr. Josep M. Bosch

Communication and public engagement  
Ms. Meritxell Soria
1. Organization

The governance, representation and senior management of IRBLleida will correspond to the Executive Board, which has all the necessary powers to achieve its foundational aims. Its composition in 2020 was as follows:

**President**  
Hon. Ms. Alba Vergés i Bosch  
Health Minister of the Generalitat of Catalonia

**First Vice-President**  
Hon. Ms. Maria Àngels Chacón i Feixas  
Enterprise and Knowledge Minister of the Generalitat of Catalonia

Hon. Mr. Ramon Tremosa i Balcells  
Enterprise and Knowledge Minister of the Generalitat of Catalonia

**Second Vice-President**  
Dr. Jaume Puy Llorens  
Rector of the University of Lleida

Dr. Francesc Xavier Grau Vidal  
Secretary for Universities and Research of the Department of Business and Knowledge of the Generalitat de Catalunya

**Member**  
Dr. Robert Fabregat Fuentes  
Director General for Health Research and Innovation of the Ministry of Health of the Catalan Government

Ms. Montserrat Llavayol Giralt  
Deputy Director General for Health Research and Innovation of the Ministry of Health of the Government of Catalonia

Mr. Joan Talarn i Gilabert  
President of the Diputació de Lleida

Dr. Joan Gómez Pallarès  
Director General of Research of the Department of Enterprise and Knowledge of the Generalitat de Catalunya

Ms. Divina Farreny Justribó  
Manager of the Lleida Health Region and the Alt Pirineu and Aran Region

Dr. Francesc Xavier Grau Vidal  
Secretary for Universities and Research of the Department of Business and Knowledge of the Generalitat de Catalunya

Dr. Lluís Rovira Pato  
Director of the Institució CERCA

Ms. Iolanda Font de Rubiat  
Deputy Director General for Research of the Department of Enterprise and Knowledge of the Generalitat of Catalonia

Mr. Ramon Saladrigues Solé  
Manager of the University of Lleida

Dr. Joaquim Ros Salvador  
Vice-rector of Research at the University of Lleida / Professor at the Faculty of Medicine of the University of Lleida

Dr. Albert Sorribas Tello  
Professor at the Faculty of Medicine of the University of Lleida

Dr. Ramon Sentís Berges  
Territorial manager of the Catalan Institute of Health in Lleida

Dr. Núria Nadal Braqué  
Director of Primary Health Care of the Catalan Health Institute in Lleida

Dr. Pilar Vaqué Castilla  
Director of Primary Health Care of the Catalan Health Institute in Lleida

Dr. Ferran Barbé Illa  
Head of the Pneumology Department at the Arnau de Vilanova University Hospital in Lleida

Last meeting: 10/12/2020
2. Delegate commission

Dr. Robert Fabregat Fuentes  
Director General for Health Research and Innovation of the Ministry of Health of the Catalan Government

Dr. Joan Gómez Pallarès  
Director General of Research of the Department of Enterprise and Knowledge of the Generalitat de Catalunya

Dr. Lluís Rovira Pato  
Director of the Institució CERCA

Mr. Ramon Saladrigues Solé  
Manager of the University of Lleida

Dr. Joaquim Ros Salvador  
Vice-rector of Research at the University of Lleida / Professor at the Faculty of Medicine of the University of Lleida

Dr. Ramon Sentís Berges  
Territorial manager of the Catalan Institute of Health in Lleida

Last meeting: 20/11/2020
3. Internal scientific committee

The Internal Scientific Committee is the IRBLeida's advisory body for its strategic and operational lines. It also supports the evaluation of the IRBLeida's different calls for proposals and the evaluation of projects. Its composition in 2020 was as follows:

**President**
Dr. Diego Arango del Corro  
Scientific director

**Member**
Dr. Ferran Barbé Illa  
Head of group, translational research in respiratory medicine group

Dr. Montserrat Gea Sánchez  
Head of group, research group of health care (GRECS)

Dr. Esther Rubinat,  
Principal investigator, Research group of health care (GRECS)

Dr. Loretá Medina Hernández  
Head of group, evolutionary developmental neurobiology

Dr. Josep Montserrat Capdevila  
Primary care representative

Dr. Josep Pifarré Paredero  
Medical director of the department of mental health, Gestid de Serveis Sanitaris

Dr. José Manuel Porcel Pérez  
Head of group, cancer biomarkers (GReBiC)

Dr. Manel Porteró Otín  
Principal investigator metabolic physiopathology

Dr. Francesc Purroy García  
Head of group, clinical neurosciences group

Dr. Joaquim Ros Salvador  
Head of group, oxidative stress biochemistry

Dr. Montse Rué Monné  
Head of group, systems biology and statistical methods for biomedical research

Dr. Joan Antoni Schoenenberger Arnaiz  
Chairman of the committee of ethics and clinical research (CEIC) of the Arnau de Vila nova University Hospital in Lleida

Dr. Eduard Solé Mir  
Chairman of the committee of ethics and clinical research (CEIC) of the Arnau de Vila nova University Hospital in Lleida

Dr. Alfons Segarra Medrano,  
Principal investigator, vascular and renal translational research group

Dr. Albert Sorribas Tello  
Head of group, systems biology and statistical methods for biomedical research

Dr. Jordi Torres Rosell  
Head of group, cell cycle group

Dr. Jorge Juan Olsina  
CREBA director

Ms. Eva López  
Quality manager

Dr. Serafí Cambray  
Head of innovation

Dr. José Manuel Valdivielso Revilla  
Training manager

Last meeting: 09/11/2020
4. External scientific committee

The Executive Board appoints an External Scientific Committee and its president, at the proposal of the Delegate Committee. The External Scientific Committee, made up of various members of recognised experience, acts as an advisory body to the Board of Trustees in the tasks entrusted to it and must meet at least once a year. The members of the External Scientific Committee must be appointed by the Board of Trustees for a term of five years, which may be extended indefinitely for equal periods of time.

The functions of the External Scientific Committee are:
- To ensure the scientific quality of the Institute.
- To advise the scientific director, who must be the secretary in the performance of his or her duties.
- To report to the Executive Board on the general progress of the Institute in relation to the suitability of the strategic lines, the quality of scientific production and strategic vision.
- To report on the Institute’s scientific and economic report.

The members who took part in 2020 are:

**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 Genomics (IBFG). Associate Professor of the University of Salamanca

**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. Cristina Casals Carro**  
Professor at the Complutense University of Madrid, Department of Biochemistry and Molecular Biology. Director of the Master’s Degree in Biochemistry, Molecular Biology and Biomedicine at the Complutense University of Madrid

**Dr. Antonio Guasch-Valverdú**  
Nephrologist, Emory University Hospital. Research Area: hypertension, kidney transplant

**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. Teresa Moreno Casbas**  
Senior Nurse. The Nursing Research Coordination and Development Unit (Investén-ISCIII), General Sub-Directorate of Networks and Cooperative Research Centres, ISCIII

**Dr. Josep Rodés-Cabau**  
Cardiologist, Institute of Cardiology and Neurology of Quebec, Canada, Deputy Editor JACC

**Dr. Carlos Rodríguez-Galindo**  
DANA / Farber / Boston Children’s Cancer and Blood Disorders Center. Director of the Global Health Initiative. Medical director of pediatric oncology clinical trials. Solid Tumors Programme Director

**Dr. Mariano Rodríguez Portillo**  
Nephrologist, Professor of Nephrology, Queen Sofia Hospital (Córdoba), Coordinator of Teaching and Research at this centre, IP Maimonides Cordoba Biomedical Research Institute

Last meeting: 03/12/2020
5. Research Council

It is an advisory body to the Internal Scientific Committee chaired by the Institute's scientific director. The Research Council comprises the Heads of the Research Groups and the principal investigators (researchers with active projects funded by accredited external agencies) of IRBLleida.

Last meeting: 28/01/2020
6. Clinical research ethics committee

The Ethics Committees on Research Ethics with Medicines (CEIm) are committees independent of the promoters of research projects and researchers whose purpose is to ensure the correction from a methodological, ethical and legal point of view of any research project that involves any physical or psychological risk to the human being (RD 1090/2015), ethical and legal point of view of any research project that involves any physical or psychological risk to human beings (RD 1090/2015, of 4 December, and Order of 24 October 2006).

The members who have taken part in 2020 are:

**President**
Dr. Eduard Solé Mir
Paediatrician

**Vice-president**
Dr. Xavier Gómez Arbonés
Physician

**Secretariat**
Ms. Núria Badia SanMartín
Biologist

**Members**
Dr. José Ramón Casas Iglesias
Physician

Ms. Montse Salanilla Puértolas
Alienates health professions

Dr. Joan Costa Pagès
Physician, clinical pharmacologist

Ms. Lourdes Echevarría Cortada
Representative of the user attention unit

Ms. Concepció Fonayet
Grau graduate in nursing

Ms. Assumpta Fortuny Capafons
Patients representative

Dr. Xavier Galindo Ortego
ENT physician

Mr. Leonardo Galván Santiago
Primary care pharmacist

Dr. Marta Ortega Bravo
Primary care pharmacist

Dr. Eugeni Joan Paredes Costa
Primary care pharmacist

**Patients representative**
Dr. Manel Portero Otín
Physician

Dr. Francesc Purroy García
Neurologist

Ms. Esther Ribes Murillo
Primary care pharmacist

Dr. Joan Antoni Schoenenberger Arnaiz
Hospital pharmacist

Mr. Francesc Vergés Agustí
Law graduate

Dr. Oriol Yuguero Torres
Representative of the healthcare ethics committee

Mr. Raül Llevot Pérez
Lawyer and expert with sufficient knowledge of data protection

Last meeting: 09/11/2020
6. Clinical research ethics committee

Its area of influence is as follows:

**Health centres:**
- CENTRE SOCIOSANITARI DE PUIGCERDÀ
- HOSPITAL UNIVERSITARI ARNAU DE VILANOVA DE LLEIDA
- HOSPITAL UNIVERSITARI DE SANTA MARIA CLÍNICA NOSTRA SENYORA
del Perpetu Socors Fundació Sant Hospital
- HOSPITAL COMARCAL DEL PALLARS ESPITAU VAL D’ARAN
- HOSPITAL JAUME D’URGELL

**Primary Care centres:**
- PUIGCERDÀ
- LES BORGES BLANQUES SANTA MARIA

**Research centres**
- Lleida Biomedical Research Institute Fundació Dr. Pifarré Foundation (IRBLeida)
- IRBLeida Biobank

**Other centres**

**BALAGUER**
- CAP Balaguer - Specialised care provided by GSS
- Day Centre
- Adult Mental Health Centre

**CERVERA**
- CAP Cervera - Specialised care provided by GSS
- Adult Mental Health Centre la Segarra

**EL PONT DE SUERT**
- CAP El Pont de Suert - Specialised care provided by GSS

**LLEIDA**
- Blood and Tissue Bank – HUAV
- CAP Balàfia - Pardinyes - Secà de Sant Pere - Specialised care provided by GSS
- Centre Medic & Podològic La Salut
- Hospital de Dia Miquel Martí i Pol
- Institut de Diagnòstic per la Imatge
- Residència Lleida-Balàfia I
- Residència Lleida Balàfia II
- Unitat de Diàlisi Sistemes Renals, SA
- University of Lleida

**MOLLERUSSA**
- CAP Mollerussa - Specialised care provided by GSS
- CAP Adult Mental Health

**PONTS**
- CAP Ponts - Specialised care provided by GSS

**LA SEU D’URGELL**
- Adult Mental Health Centre Fundació Sant Hospital

**SORT**
- Adult Mental Health Centre el Pallars Sobirà

**TREMP**
- CAP Adult Mental Health Tremp

**TÀRREGA**
- CAP Adult Mental Health Tàrrega
- CAP Tàrrega - Specialised care provided by GSS
- Mental Health Day Centre
The Animal Experimentation Ethics Committee (CEEA) of the UdL was created with the aim of supporting researchers and teachers in their scientific and teaching work 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 who have taken part in 2020 are:

**President**
Dr. Joaquim Ros Salvador  
Vice-Rector for Science and Technology Policy at the UdL / Dr. Olga Martin Belloso, Vice-Rector for Science and Technology Policy at the UdL

**Secretariat**
Dr. Carme Piñol Felis  
SCT Animal Welfare Advisor - Rodent/Raptile Animal Facility - Departament de Medicina de la UdL

**Members**
Dr. José A. Moreno Martínez  
Animal Welfare Advisor ETSEA center - Department of Animal Science of the UdL

Dr. Daniel Babot Gaspà,  
Researcher at the ETSEA of the Department of Animal Science of the UdL

Dr. Xavier Gómez Arbonés  
Researcher in Medicine at the Department of Medicine of the UdL

Dr. Frederic Casals Martí,  
Researcher at the ETSEA of the Department of Animal Science of the UdL

Last meeting: 15/12/2020

**President and secretariat**
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. Carme Mias Carballal  
CREBA surgical coordinator, general surgeon at the Hospital Universitari Arnau de Vilanova and associate professor at the University of Lleida

Dr. José Manuel Valdivielso Revilla  
Researcher at IRBLLeida 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. Sara Puy  
CREBA veterinary surgery

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

Last online evaluation: July 2020
8. Internal comissions

IRBLleida is structured into different committees and commissions to organize its activity, research and comply with the different directors of the research institutes.

8.1. Internal comission 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 internal proposals (from IRBLleida members or grants coordinated by IRBLleida) that are submitted to different calls (staff, projects, training ...), both coordinated by the IRBLleida and by other funding sources.

Functions
- To establish the appropriate evaluation criteria for each call for applications that requires 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 for applications, which will subsequently be reviewed and, if necessary approved by the Internal Scientific Committee and the IRBLleida Board of Directors.
- To communicate the results of the assessment to the IRBLleida management.
- To respond to possible complaints and/or grievances related to points 1 and 2.
- To review and approve proposals submitted to ISCIII calls for proposals.
- To monitor periodically the internal grants that may be required.
- To produce reports on the evaluations carried out (feedback). In case of consultation, comments on the proposal can be made available to each candidate/researcher.

Members
- Dr. Manel Portero Otín
  President
- Dr. Serafí Cambray Carner
  Secretariat
- Dr. Nuria Bahí Pla
  Member
- Dr. Joan Blanco Blanco
  Member
- Dr. Silvia Bielsa Martín
  Member
- Dr. Cristina Martínez Martínez
  Member
- Dr. Jose Manuel Valdivielso Revilla
  Member
8.2. Biosafety commission

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

The 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. The Committee is entitled to request from the research personnel responsible for a given project or procedure with biosafety implications, any additional information considered necessary to carry out its functions.
- 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 register 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 Committee.
- To issue the certificates required of it in accordance with its competences.
- Proposing, when necessary, the improvement of facilities/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 Committee’s remit.
- To assess 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 Committee is guaranteed.
- To guarantee the necessary coordination with the scientific and technical services of the IRBLleida, the Ethics and Animal Experimentation Committee (CEEA) of the University of Lleida, the Ethics and Animal Experimentation Committee (CEEA) of CREBA and the Ethics Committee for Research with Medicines.
- Any other function attributed to it by law or by the governing bodies of the IRBLleida.

Members
- Dr. Maria Ruiz Miró  
  President
- Dr. Marta Rafel Borrell  
  Secretary
- Dr. Nuria Bahí Pla  
  Member
- Dr. Marcelí Bermúdez López  
  Member
- Dr. Eloi Garí Marsol  
  Member
- Ms. Eva López Truco  
  Member
- Dr. Carme Piñol Felis  
  Member
- Dr. Judith Ribas Fortuny  
  Member

Contact  
comitebiosseguretat@irblleida.cat
The aim of the IRBLleida Equality Committee is to facilitate compliance with existing legislation on equality and diversity management. The members of the Committee 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.

8.3. Equality commission

Functions
• To share the IRBLleida 2021-2024 Equality Plan with all workers to incorporate improvements suggestions and final approval by voting.
• To register the IRBLleida 2021-2024 Equality Plan in REGCON. (Register of Collective Agreements) of the Ministry of Labor and Social Economy of the Spanish Government.
• To guarantee an egalitarian selection process and guarantee equal opportunities in the access, selection and permanence of staff.
• To promote staff participation in the area of equal opportunities.
• 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 incorporate the gender perspective in the mission, vision and values of the organization.

Members
Dr. Águeda Martínez Barriocanal  
President
Ms. Elena Moscatel Mendelsohn  
Secretariat
Mr. Ivan Hidalgo Muñoz  
Member
Dr. Marceli Bermúdez López  
Member
Dr. Serafí Cambray Carner  
Member
Ms. Irene Rosell Mena  
Member
Ms. Meritxell Soria Yenez  
Member

Contact
igualtat@irb lleida.cat
8.4. Quality commission

The IRBLeida Quality Committee is the central body for IRBLeida’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 IRBLeida’s governing bodies of the processes and results of quality assessment.
  f) To assess quality issues.

Members
- Mr. Joan Vives Tomas
  President
- Ms. Elena Moscatel Mendelsohn
  Secretary
- Ms. Laura Batalla Peinado
  Member
- Mr. Xavier Cabré Ollé
  Member
- Dr. Anna Casanovas Llorens
  Member
- Ms. Eva López Truco
  Member
- Dr. Maria Ruiz Miró
  Member
- Dr. Joan Antoni Schoenenberger Arnaiz
  Member
- Mr. Eduard Solé Mir
  Member

Working group
- Mr. Joan Vives Tomas
  President
- Ms. Elena Moscatel Mendelsohn
  Secretary
- Ms. Eva López Truco
  Member
- Dr. Maria Ruiz Miró
  Member
- Ms. Meritxell Soria Yenez
  Member

Contact
qualitat@irbleida.cat
8.5. Teaching committee

The 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
- Organisation of External Seminars and Friday Seminars.
- Identification of training needs in scientific aspects for IRBLleida staff.
- Establishment of a Training Plan and prioritisation of training activities.

Members
- Dr. Diego Arango del Corro
  President
- Mr. Lluís Surroca Bertran
  Secretary
- Dr. Rui Alves Vaqueiro de Castro
  Member
- Dr. Glòria Arqué Fusté
  Member
- Dr. Silvia Bielsa Martín
  Member
- Dr. Anna Casanovas Llorens
  Member
- Dr. Fabien Delaspre
  Member
- Dr. Esther Desfilis Barceló
  Member
- Ms. Maria Alba Gairí Burgués
  Member
- Dr. Dolores Garcia Olmo
  Member
- Dr. Cristina Martínez Martínez
  Member
- Ms. Aurora Pérez Gómez
  PhD student
- Ms. Meritxell Soria Yenez
  Member
- Dr. José Manuel Valdivielso Revilla
  Vocal
The IRBLleida Works Council is the representative body of the company’s employees. The members of the Committee are elected democratically for 4-year mandates and the number of representatives to be appointed is related to the number of staff contracted to the company.

Functions

- Advice and defense of workers’ rights.
- Ordinary meetings with Management.
- Negotiation of the Collective Agreement or other collective agreements with the Management.
- Inspection of the decisions, actions and omissions of the Management in labor matters.

Members

- Ms. Meritxell Martín Gari
  President
- Ms. Raquel Martí Cabús
  Member
- Dr. Marta Rafel Borrell
  Member
- Ms. Laura Rumi Carrera
  Member
- Dr. M. Alba Sorolla
  Member
- Ms. Meritxell Soria Yenez
  Member
- Mr. Fernando Tortras Pastor
  Member
- Dr. Joan Valls Marsal
  Member
- Dr. José Manuel Valdivielso Revilla
  Member
The IRBLleida Technical Training Commission is responsible for preparing and managing the training of staff with a contract with IRBLleida.

Functions
- To design the training plan for staff under contract with the IRBLleida linked to the Institute’s general objectives.
- To monitor training activities, to control their quality and the access to training activities.
- To control the cost derived from the training activities through the tripartite training fund or FUNDAE.

Members
- Dr. José Manuel Valdivielso Revilla
  President
- Mr. Lluís Surroca Bertran
  Secretary
- Ms. Meritxell Martín Garí
  Member
- Ms. Elena Moscatel Mendelsohn
  Member
- Mr. Joan Vives Tomàs
  Member
8.8. Joint commission

The Joint Committee is integrated by the management and executive staff of IRBLleida and the heads of the departments of Basic Medical Sciences, Medicine and Experimental Medicine of the University of Lleida (UdL).

Functions

• To coordinate the management of the activity, the distribution of equipment and the general maintenance of equipment.

Members

Dr. Diego Arango del Corro
Dr. Jacint Boix Torras
Dr. Elisa Cabisco Catalan
Dr. Carme Piñol Felis
Mr. Joan Vives Tomas
Strategic lines and singular areas

1. CREBA
2. The health bus
1. CREBA

The Center for Applied Biomedical Experimental Research (CREBA) is devoted to research and training in the field of biomedicine.

Promoted by the Diputació de Lleida and the Institut de Recerca Biomedical of Lleida, CREBA was created in response to the growing demand for specialized and quality facilities for translational research and continuing education of researchers and health professionals.

Taking advantage of the wide productive activity of our province, the CREBA specializes in techniques and models applied to pigs as an experimental animal, which currently has a growing interest in the field of biomedicine.

In addition to the purely technical and scientific lines of work, CREBA is very active on transparency and dissemination of their scientific activity in schools and social groups.

CREBA has teaching and simulation classrooms, as well as four large operating rooms equipped with cutting edge technology for open, laparoscopic surgery or other techniques interventionists. It also has a housing area of pigs.
2. The health bus, a transversal project of the IRBLleida

"The Health Bus" is a successful experience. Since January 2019, it has continued to visit numerous municipalities in the province of Lleida in order to review a total of 1,827 patients, previously visited in 2015, with the aim of learning about the evolution of atheromatosis, the hidden kidney disease and peripheral arterial pathology, after 4 years. The project, led by the Vascular and Renal Translational Research Group, has the participation of four other IRBLleida groups: Translational Research in Respiratory Medicine, Immunology and Metabolism Research Group (GRIM), Clinical Neurosciences and Metabolic Pathophysiology.

Health benefit: Thanks to “El Bus de la Salut” we have detected numerous hidden (unknown) pathologies of great prevalence:

- Arterial diseases (84.5% of people visited).
- Kidney disease (24% of people visited).
- Diabetes (4.6% of people visited).
- Prediabetes (49.2% of people visited).
- Hypertension (35% of people visited).

The importance of its detection lies in the fact that an intervention (pharmacological or not) can prevent morbidity and mortality and the resulting disabilities. In addition, being an asymptomatic population, it helps to strengthen the commitment to make lifestyle changes in order to control the risk factors for cardiovascular diseases.

- Benefit in saving health resources in pathologies of high morbidity and mortality and disabilities. Treatment of potentially preventable diseases in hospitals (myocardial infarctions, strokes, dialysis treatment, transplantation ...) accounts for a large proportion of the health budget, as well as significant costs in dependencies and social.

- Equity in Health Care:
  - ‘The Health Bus’ generates knowledge integrating traditional risk factors, environmental and socio-economic factors. The massive analysis of all these data will allow the application of personalized medicine in pathologies in which risk estimation is applied without taking into account the individual vulnerability or the environment.
  - Brings diagnostic technologies closer to rural areas distant from hospital centers, allowing prevention to avoid health problems that lead to greater dependence and thus reducing the quality of life of patients.

- Reinforces the role of nursing professionals, who are responsible for the studies carried out in ‘El Bus de la Salut’.

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Scientific services

1. Biobank
2. Microscopy and citometry
3. Biostatistics
4. Cell culture
5. Animal housing facility
6. Pharma
7. Immunohistochemistry
8. Lipidomics
9. Respiratory medicine and chronic pathologies
10. Proteomics and genomics
11. Vascular image laboratory-UDETMA
12. CREBA
1. Biobank

The IRBLleida’s Biobank, authorized by the Department of Health of Catalonia on April 29 2013 and entered in the ISCIII National Register of Biobanks with reference B.0000682, is the unit in charge of the central management of human samples and associated personal data for research purposes. Biobank’s tasks are focused on the procurement, storage, management and distribution of large collections of human biological samples for the scientific community, guaranteeing the quality of samples at each step, promoting, facilitating and performing collaborative biomedical research using human biological samples in accordance with current Spanish law.

IRBLleida’s Biobank is a member of the regional Tumour Bank Network of Catalonia (XBTC) and the Spanish Biobank Network (RNBB).

The IRBLleida Biobank supports biomedical research in Lleida, from the healthcare system (Arnau de Vilanova University Hospital and Santa Maria Hospital), and from the University of Lleida. The Biobank started as a cancer tumour bank, thanks to a special initiative of the Spanish Ministry of Education and Science in 2004. During the years 2008, 2013 and 2017, the Carlos III Institute of Health has granted various grants for the adaptation, maintenance, improvement and participation in the Biobank Platform (RNBB). During this time the Biobank has created different types of sample collections from neurology, endocrinology, internal medicine, respiratory medicine, oncology and others with different types of samples such as serum, plasma, blood, nucleic acids, pleural fluid, etc. During 2020, the Biobank has adapted to the current SARS-CoV2 pandemic by modifying the sample processing room with increased biosecurity and creating new sample collection circuits for patients with COVID-19. At the end of 2020, the Biobank became part of the new ISCIII Platform, the Biobank and Biomodels Platform.

Integration of new donations to the collections during 2020:
- TUMOR BANK - 871
- PLEURAL LIQUID BANK - 64
- STROKE - 299
- ALZHEIMER – 149
- SLEPP APNEA – 281
- COVID-19 - 1315
- EL BUS DE LA SALUT – 513

The Biobank is UNE EN ISO 9001: 2015 certified. The scope of application of the IRBLleida Biobank’s quality management system covers all activities of analysis and service, from the reception, processing, storage and sending of biological samples from donors for biomedical research.

The IRBLleida Biobank is coordinated and assigned to the Clinical Research Ethics Committee of the Arnau de Vilanova University Hospital.

The members of the External Scientific Committee of the Biobank are:
1) Dr. Judith Pallarès
2) Dr. Jordi Tarragona
3) Dr. Rosa Mª Martí Laborda
4) Dr. Joan Viñas

Services platform
- Assignment of human biological samples for research projects.
- Project management and collections of human biological samples.
- Automated extraction of nucleic acids from human biological samples.
- Ethical, scientific and legal advice for the treatment of samples and clinical data.
2. Microscopy and Cytometry

The Microscopy and Cytometry Service is divided into two locations, one for the Flow Cytometry Unit and the other for the Confocal Microscopy Unit. Both units are located in the basement of the Biomedicine building, in laboratories B-1.5 and B-1.1 respectively.

The Flow Cytometry Unit currently has a digital analyzer cytometer FACS Canto-II (from Becton Dickinson) with three lasers 4-2-2 configuration, capable of analyzing up to eight different colours. The cytometer is equipped with a computer to control the operation and comes installed with FacsDiva v. 6.1.1 analysis software. Also available is a magnetic cell separator device, Automac Pro (Miltenyi Biotec) in a cabin class II bioasafety.

In addition, the service also offers additional software for different applications such as ModFit LT for the analysis of cell cycle FCAP Array experiments CBA (BD) and two analysis software file licenses for FlowLogic cytometry (Inivai). Other facilities available in the Cytometry Service are: a 4ºC refrigerator, a vortex, a set of micropipettes, a printer, and computer independent analysis data.

Services offered include: cell cycle studies, oxidative stress (various fluorescent probes) studies for immunophenotyping, apoptosis (annexin V, caspase 6, phosphorylated histone H3, etc ...), analysis concentration of cytokines by cytometric bead array (CBA BD), among others.

The Confocal 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)).
- Olympus BX51 epifluorescence microscope (10x, 20x, 40x, 60x objectives (oil)).
- Zeiss Axioskop 2 clear field microscope with color camera, but also equipped with an LED source and monochrome camera to display fluorescence. It is equipped with 2.5x, 10x, 20x, 40x, 60x lenses (oil).
- Leica CM1950 cryostat with automatic cutting.
- Leica CM3000 cryostat.
- Microme cryostat.
- Leica RM2235 microtome.
- Vibratome Leica VT 1000S.

Flow Cytometry

Usual studies:
- Apoptosis
- Cell Cycle
- Immunophenotyping
- Oxidative stress
- Bead arrays

Collaboration in scientific articles: 4

Confocal Microscopy

Collaboration in scientific articles: 11
3. Biostatistics

The Biostatistics Unit (UBiostat) aims to provide methodological support and training in statistics to researchers. At UBiostat, we work with researchers to better design studies, analyze data, and extract useful information to advance research.

The functions of the UBiostat are:
- Provide methodological advice in the design, data analysis and publication of studies.
- Participate in multidisciplinary teams to improve data collection, validation and integration processes.
- Organize and participate in research statistics and methodology courses.

DETAILS

Scientific Advisor
Dr. Montse Martínez

Technical Manager
Dr. Montse Martínez

Team
Dr. Joan Valls
Dr. Carles Forné

Participation in research projects: 5
Collaborations with research groups: 39
Publications: 9
Teaching in university degrees: 4
Courses or seminars given: 1
4. Cell culture

The Cell Culture Service (SCT-CC) is a research support infrastructure, in self-service or with the support of technical staff, to grow in vitro all types of mammalian cells allowing its study and characterization at the physiological, biochemical and molecular level. The service also supports the accreditation of the ministry of activities with type II GMOs.

The service is also in charge of the supervision, maintenance and training of the facilities with biological containment of level 2+ for the manipulation of human samples in general or SARS-CoV-2 +.

The main objectives of the service are:

- Ensure the proper functioning and compliance with regulations in the different spaces and equipment for cell culture.
- Train its users in the preservation of asepsis and biosecurity in the different techniques of cell culture, as well as to carry out the detection and prophylaxis of contaminants such as mycoplasma.
- Advise both on technical issues and on the design and/or execution of experiments.
- Maintenance of their own cell stock and the one from research groups in liquid nitrogen.

Usual services:

- Maintenance, expansion and freezing of stable or primary cell cultures.
- Treatment of cell cultures with specific drugs.
- Transfection/infection/electroporation of cell cultures with foreign or suppressive genes.
- Production of genetically transformed cell lines in a stable way.
- Lentivirus production.
- Production of 3D cell cultures.
- Observation of kinetics and cell migration.
- Cell Culture preparation for subsequent studies of fluorescence, cytometry, immunoprecipitation, etc.

 DETAILS

Scientific advisor
Dr. Judit Ribas

Technical manager
Dr. Marta Rafel

Support technician
Mr. Iván Hidalgo

Facilities:
- 2 rooms for cell lines, 2 rooms for primary cell cultures, 1 room for binocular magnifying glasses.
- 1 NCB2 + negative pressure chamber for human primary culture and manipulation of human samples with or without the presence of Sars-CoV-2.
- 1 positive pressure room for long-lasting or delicate cell lines (stem cells...).

Equipment
- Incubators at 37°C at 5% CO₂.
- Laminar flow hoods.
- BioIIA flow hoods.
- Thermostatic baths.
- Centrifuges (one with anti-aerosols).
- Inverted phase contrast and fluorescence microscopes with coupled camera.
- Binocular magnifiers, fluorescence magnifier with built-in camera.
- Hypoxia hood.

Users: 69 users, 28 groups
5. Animal housing facility

The animal housing facility offers different services to researchers, including:

- 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 centers.
- 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 animal handling, care 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.

In detail

The rodent animal house facilities occupy two floors with an area of 1,200 m². It has a large housing area for animals free of pathogens and other opportunistic germs (SOPF) of 326.05 m² and a SOPF laboratory of 27.33 m², equipped with PhotonImager® for in vivo image capture.

It also has a quarantine area of 45.49 m². In addition to a conventional housing area of 75.93 m², and laboratories, operating rooms and autopsy rooms adding a total of 54.97 m², equipped with magnifying glasses, microscopes and isoflurane anesthesia machines.

DETAILS

Responsible
Dr. Carme Piñol

Appointed veterinarian
Dr. José Antonio Moreno

Staff
Mr. Albert Ardèvol
Ms. Leticia Fabre
Ms. Núria Moix
Ms. Jessica Pairada
Mr. Marc Collado
Mr. Iván Aparicio
The mission of the IRBLleida Pharma Scientific-Technical Service LLEIDA is to support Clinical Research of the Institute in everything they need to carry out any clinical trial with medications. To develop this mission the unit aims to achieve the following objectives:

- Offer technical support and advice to research groups that request it on the design of the study, coordination and realization of the same in the field assistance.
- Help clinical trials be conducted in compliance with Good Standards Clinical Practice (NBPC) in research.

**Facilities and equipment**

The Pharma Scientific-Technical Service platform integrates different professionals who are in charge of the coordination, realization and management of the clinical trial. The basic structure consists of: a project manager, a pharmacist, a laboratory technician and a nurse.

Our service have available all the tools and computer programs to carry out the study; the facilities are the appropriate for the current activity and includes a dispensary to perform the specific tasks of nursing, a laboratory with HPLC analysis systems and temperature-controlled areas for nursing preservation of test drugs.

**Type of studies**

The Pharma Scientific-Technical Service supports all types of clinical trials, from the moment of approach of the main hypothesis and design of the project, up to the coordination and organization of the clinical trial. This service also manages the necessary procedures to present and approve, if necessary, the studies at the level of CEIMs and regulatory agencies.

Before requesting the services of the Pharma Scientific-Technical Service, the principal investigator (PI) have to fill in an Application questionnaire and meet with the head of the unit to jointly analyze the study and develop an action plan.
7. Immunohistochemistry

The Service offers support in the processing of:
- Tissues (human, animal) included in paraffin.
- Frozen tissues.
- Cytologies.
- In vitro cell cultures.

Services:
- Preparation of paraffin and frozen blocks.
- Microtomy.
- Histological staining (Hematoxylin-Eosin).
- Special stains (Histochemistry).
- Immunohistochemical protocol for the detection of proteins in human, porcine 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).
- Analysis of immunohistochemical images using the ACIS® III Instrument and the specific software Quant modul (3D HISTEC).
- In situ hybridization using FISH (Fluorescent in situ Hybridization) or CISH (Chromogenic in situ Hybridization).
- Optical microscopy.
- Quality controls.

DETAILS

Scientific Responsible
Dr. Xavier Matias-Guiu

Technical Responsible
Dr. Maria Santacana

Collaborating faculty staff
Ms. Sònia Gatius
Dr. Judit Pallarés

Collaborating technical staff
Ms. Maria Carrelé (CIBER)

Collaboration in research projects
- Internal: 21
- External: 3

Collaborations with research groups: 24

Nº of immunohistochemistry stainings: 2027
Lipidomics is a newly emerged discipline that studies lipid species and their metabolism on a large scale. The Lipidomics Service has state-of-the-art equipment and technology to perform lipidomics and metabolomics analyzes with high sensitivity, selectivity and specificity.

**Services**
- Experimental design and advice for sampling.
- Sample processing with standardized protocols.
- Quality controls at every step.
- Lipid profile analysis with GC-FID.
- Undirected lipidomic analysis with LC-MS type QTOF.
- Directed lipidomic analysis with LC-MS type QQQ.
- Non-targeted metabolomic analysis with QTOF-type LC-MS.
- Targeted metabolomic analysis with LC-MS type QQQ.
- Data processing, bioinformatics and statistical analysis.
- Access to databases and interpretation of results.

**Aplicaciones**
- Biomarker discovery and development of diagnostic tests.
- Identification of targets for drug development.
- Monitoring of the effects caused by nutrients and drugs.
- Integration of results with other omics.

**Equipment**
- GC gas chromatography equipment (Agilent 7890A) coupled to an FID flame ionization detector (Agilent Technologies, Barcelona, Spain).
- GC detection system coupled to a mass spectrometer (Agilent 6890, Agilent Technologies).
- Two UPLC liquid chromatography equipment (Agilent 1290 Infinity Quaternary Pump).
- Two QTOF mass detection systems (QTOF LC / MS G6520A and 6545, Agilent Technologies).
- QQQ mass detection system (Triple Quad 6420 LC / MS Agilent Technologies).
- Specific software for bioinformatics analysis (MassHunter Data Acquisition, MassHunter Qualitative Analysis, MassHunter Quantitative Analysis, MassHunter Mass Profiler, Agilent).
9. Respiratory medicine and chronic pathologies

The Scientific and Technical Service of Respiratory Medicine and Chronic Pathologies provides specialized support for performing respiratory functional tests and monitoring activities specializing in the field of respiratory medicine and chronic diseases.

The service has access to specific technical equipment and has polysomnography, respiratory polygraphy, actigraphy, spirometers, devices for ambulatory blood pressure monitoring (MAPI), among others, for the provision of the services offered.

Justification and objectives:
1. The study of respiratory diseases.
2. Promote health and learning new techniques for exploring and treating respiratory diseases.
3. Advance in the study of personalized medicine.
4. Encourage the development and implementation of new technologies to assess respiratory diseases.
5. Provide technical support and advice, under request, to research groups on possible experimental applications as well as the processing of samples for each of the applications.
6. Contribute to the training in diagnostic techniques of health professionals in general and in particular to pneumology physicians, especially in teaching programs and progressive evaluation, as well as in the professional development of all professionals related to respiratory diseases (technical, statistical, nursing and medical...).
7. Provide expert advice in the field of respiratory diseases to researchers inside and outside IRBLleida.
8. Promote a cross-cutting interaction between research, innovation and knowledge transfer.
9. Develop and exploit the clinical, analytical, image and biobank databases of all the populations studied and make them available to other research groups.
The Genomics and Proteomics Platform of the UdL is located on the 4th floor of the Biomedicina 2 building, inside IRBLleida. 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. Its main objective is to use its experience to provide scientific and technological support in the area of proteomics and genomics, knowledge difficult to find in other fields.

The Service is open to researchers from the UdL, the IRBLleida and to other universities, public or private entities, who want to access its human and technological potential.

Usual genomic studies
- Gene and miRNA expression.
- Genotyping on basis of different molecular markers.
- Gene variation.
- DNA methylation.
- NGS applications.
- Genotyping of SNPs by MALDI-TOF mass spectrometry.
- Detection and quantification of microorganisms and GMOs.
- Determination of viral load.

Usual 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 mass spectrometry.
- Identification of proteins on a large scale, in samples of medium complexity (eg subproteomes, protein complexes, ...) by means of LC-MALDI-MS / MS.
11. Vascular image laboratory - UDETMA

The Scientific and Technical Service of the Laboratory of Vascular Imaging (UDETMA) of the Biomedical Research Institute of Lleida (IRBLleida), is currently located in the UDETMA (Unit of Detection and Treatment of Aterothrombotic Diseases), on the ground floor of the Biomedicina II building of IRBLleida.

**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: assessing individually the health of the arteries and the impact of risk on them.
3. Calculate the vascular age and if 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 charge (total plaque area, number of affected territories), 3D ultrasound, contrast ultrasound microbubbles for the study of vasa vasorum...
6. Training on diagnostic techniques for atheromatous disease for health professionals (X-ray technicians, nurses, doctors...)
7. Provide expert advice in the field of atherothrombotic disease to IRBLleida researchers and external researchers.
8. Support research, innovation and knowledge transfer.
9. Have clinical, analytical, image and biobank databases of all the populations studied, and make them available to different research groups (internal and external).
CREBA (Center for Applied Biomedical Experimental Research) is dedicated to carry out research and training in biomedicine. It is promoted by the Diputació de Lleida and the Institut de Recerca Biomèdica de Lleida. CREBA was born in response to the growing demand for facilities specialized and quality for translational research and continuing education of health professionals.

CREBA was officially inaugurated on September 1, 2016 by Molt Hon. Mr. President of the Generalitat, Carles Puigdemont, and His Excellency Mr. President of the Diputació de Lleida, Joan Reñé.

Facilities

- Three surgery rooms equipped with 3D laparoscopic technology and indocyanine green detection.
- Surgical training room with five fully equipped tables.
- Complete equipment for conventional, endoscopic surgery and interventional radiology.
- Simulation room with devices for learning in laparoscopic surgery.
- Teaching room connected to a videoconference system (capacity for 30 people).
- Meeting room (capacity for 10 people).
- Laboratory for the preparation of biological samples.
- Stable area for long-term animal survival.

www.creballeida.org
Twitter: @creballeida
Facebook: creballeida
LinkedIn: Company/creba
Communication

1. Corporate image
2. Institutional representation and public relations
3. Promotional material
4. Internal communication
5. External communication
1. Corporative image

Corporate image: use of corporate colours of the IRBLleida logo in different elements, such as presentations, welcome manual, greetings cards...

2. Institutional representation and public relations

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.

Another of the activities carried out by the Communication Department are monthly meetings with local communication references in the healthcare field (Department of Health, Primary Care and Arnau de Vilanova University Hospital).

Summary of activities 2020

- VISITS
  - 21/02/2020
  Torrevicens Institute, Lleida. Workshop at the laboratory of the Vascular and Renal Translational Research Group.

- SEMINARS
  - Collaboration in the reservation of spaces and internal and external communication of the different seminars by means of publication on the website or e-mail dissemination.

- SEMINARS
  - 25 Friday seminars
  - 14 External seminars
  - 11 RISCAT seminars
  - 10th extraordinary workshop Jesús Montoliu
3. Promotional material

IRBLleida general leaflet

Welcome pack

IRBLleida’s Corporate Social Responsibility Report 2019 and bookmark: 12 activities

Amic/amiga IRBLleida campaign.

IRBLleida Roll-ups
4. 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 entities and companies.

Social activities:

**Fruit Day Pilot Programme - AECC**

**IRBLleida carnival**

**Adhesion to the European Mobility Week**

**Blood Donation Marathon**

**Own campaigns on social networks** (#joemquedoacasa, World Breast Cancer Day)

**Researchers’s Night**

**II Jornada Som Recerca**
5. External communication

Press

In 2020, 72 press releases were sent out, generating 501 press impacts.

- Web (57.29%)
- Newspaper (32.94%)
- Agency (3.59%)
- TV (2.99%)
- Radio (2.19%)
- Magazine (0.80%)
- Podcast (0.20%)
5. External communication

Social Media

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</table>
Fundraising
The contributions made by companies and entities that work with IRBLleida have the mission of promoting, developing, managing and disseminating biomedical research in Lleida. Donations allow us to investigate major diseases such as cancer, stroke, multiple sclerosis, diabetes, pleura, aging, the nervous system, the cardiovascular system, disorders and respiratory infections, and mental disorders, among others, to provide better services to our population. At present, IRBLleida has the support of 135 companies and entities from Lleida, whose help the search for their groups has produced important results.

Why donate to the 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 our children, grandchildren and 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.
Fundraising

- **Major donors (more than 12,000 €)**: 2016: 20,000 €, 2017: 20,000 €, 2018: 47,000 €, 2019: 32,000 €, 2020: 158,000 €
- **Microfunding**: 2016: 0 €, 2017: 0 €, 2018: 1,140 €, 2019: 3,972 €, 2020: 1,708 €
- **Other activities (Confinarun, Paquita Ràfales)**: 2016: 0 €, 2017: 0 €, 2018: 0 €, 2019: 15,000 €, 2020: 33,845 €
Fundraising

Catalonia companies and entities

- Tamarite de Litera: 1
- Zaragoza: 1
- Escaldes-Engordany: 1
- Lleida
- Tarragona
- Barcelona
- L’Hospitalet del Llobregat: 1
- Reus: 1
- Vilaseca: 1
- L’Hospitalet del Llobregat: 1
- Girona
- La Roca del Vallès: 1
- Llinars del Vallès: 1
- Pineda de Mar: 1
- Sant Cugat del Vallès: 1
- Barcelona: 4
Collaborating companies and Entities
Collaborating companies and Entities

[Images of collaborating companies and entities]
Research activity
Global data on scientific production

In 2020, IRBLleida researchers produced a total of 283 scientific publications, of which 267 are original publications, 13 review articles and 3 letters.

Of the total number of indexed publications in 2020, 60.4% belong to the first quartile of the specialty (171 publications) and 19.1% to the second quartile (54 publications). This represents that 79.5% of the scientific production of the IRBLleida has been made in the best journals of the specialty. Of the indexed scientific publications of 2020, 21.2% have been published in first decile journals.

Table 1. Scientific production 2020. Number of publications and accumulated impact factor (IF), according to the 2019 Journal Citation Report.

<table>
<thead>
<tr>
<th></th>
<th>Publications</th>
<th>Average IF</th>
<th>Cumulative IF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Articles</td>
<td>267</td>
<td>4.88</td>
<td>1,303.0</td>
</tr>
<tr>
<td>Reviews</td>
<td>13</td>
<td>6.38</td>
<td>83.0</td>
</tr>
<tr>
<td>Letters</td>
<td>3</td>
<td>2.96</td>
<td>8.9</td>
</tr>
<tr>
<td>Total</td>
<td>283</td>
<td>4.92</td>
<td>1,349.9</td>
</tr>
</tbody>
</table>

Table 1. Scientific production 2020. Number of publications and accumulated impact factor (IF), according to the 2019 Journal Citation Report.

Publications according to Typology

Figure 1. Scientific production in percentage of publications according to typology (article, review and other types of publications).

Publications by Quartile

Figure 2. Scientific production for 2020 by specialty quartiles. Percentage of publications per quartile (Q).
Global data on scientific production

The accumulated impact factor and the number of publications have slightly decreased in 2020 compared to 2019, but the average impact factor is the highest of all the historical series. Figures 5 and 6 show the evolution of scientific production in the last 5 years, in number of publications, number of cumulative citations and average and cumulative impact factor (JCR).

**Nº publications by quartile**

<table>
<thead>
<tr>
<th>Quartile</th>
<th>No IF</th>
<th>Q4</th>
<th>Q3</th>
<th>Q2</th>
<th>Q1</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>15</td>
<td>13</td>
<td>30</td>
<td>54</td>
<td>171</td>
</tr>
</tbody>
</table>

**1st quartile and decile historical series**

Figure 3. Total number of scientific publications per specialty quartile (Q).

Figure 4. First quartile and decile historical series.

**Publications and citations historical series**

Figure 5. 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 6. Evolution of the accumulated Impact Factor (IF) [bars] and average Impact Factor (points). The 2020 IF has been calculated according to the 2019 journal citation report.
Global data on scientific production

Of the 2020 publications 50% have been led by IRBLleida researchers (Figure 7), 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. The 32.5% of publications have been in international collaboration (Figure 8), and 91% of publications have been in international journals (Figure 9).

**Publications leadership**

- Co-authorship: 50.18%
- Leadership: 48.82%

**Collaborations on publications**

- Own: 12.7%
- National: 54.7%
- International: 32.51%
Global data on scientific production

Impact Scope

In 2020 IRBLleida researchers have requested a total of 53 projects in national competitive public calls, of which 23 have been granted.

Project success rate

In 2020 IRBLleida researchers have requested a total of 53 projects in national competitive public calls, of which 23 have been granted,
Global data on scientific production

Clinical Practice Guidelines 2020
During 2020 IRBLleida researchers have published 7 clinical practice guidelines in indexed scientific journals or as a non-indexed document.

<table>
<thead>
<tr>
<th>Kind of document</th>
<th>Title</th>
<th>Researcher</th>
<th>Research group</th>
<th>Scope</th>
</tr>
</thead>
<tbody>
<tr>
<td>Article</td>
<td>WHO classification of tumors of the female genital tract (2019-20)</td>
<td>Xavier Matias-Guiu</td>
<td>Oncological pathology</td>
<td>International</td>
</tr>
<tr>
<td>Article</td>
<td>ESGO/ESTRO/ESP guidelines for the management of patients with endometrial carcinoma (co-chairman)</td>
<td>Xavier Matias-Guiu</td>
<td>Oncological pathology</td>
<td>International</td>
</tr>
<tr>
<td>Article</td>
<td>ESMO recommendations on predictive biomarker testing for homologous recombination deficiency and PARP inhibitor benefit in ovarian cancer</td>
<td>Xavier Matias-Guiu</td>
<td>Oncological pathology</td>
<td>International</td>
</tr>
<tr>
<td>Article</td>
<td>Mutational screening of BRCA1/2 genes as a predictive factor for therapeutic response in epithelial ovarian cancer: A consensus guide from the Spanish Society of Pathology (SEAP-IAP) and the Spanish Society of Human Genetics (AEGH)</td>
<td>Xavier Matias-Guiu</td>
<td>Oncological pathology</td>
<td>International</td>
</tr>
<tr>
<td>Article</td>
<td>Guías de práctica clínica basadas en la evidencia para el manejo de la sedoanalgesia y delirium en el paciente adulto críticamente enfermo</td>
<td>Jesús Caballero</td>
<td>Intensive Medicine</td>
<td>National</td>
</tr>
<tr>
<td>Article</td>
<td>Recomendaciones para el tratamiento nutrometabólico especializado del paciente crítico: farmacointeractantes, nutrientes específicos, fibra, simbióticos cancer: results from a survey of Spanish medical oncologists</td>
<td>Lluís Servià</td>
<td>Intensive Medicine</td>
<td>National</td>
</tr>
<tr>
<td>Article</td>
<td>Diagnòstic i tractament de l’esclerosi múltiple</td>
<td>Luís Brieva</td>
<td>Neuroimmunology</td>
<td>National</td>
</tr>
</tbody>
</table>

Table 2. Clinical Practice Guidelines published in 2020.
During 2020, IRBLleida researchers have defended 15 doctoral theses.

<table>
<thead>
<tr>
<th>PhD Student</th>
<th>Thesis</th>
<th>Director/s</th>
<th>Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sonia Gatius</td>
<td>Alteracions metabolòmiques en el càncer d'endometri</td>
<td>Xavier Matias-Guiu</td>
<td>Oncological pathology</td>
</tr>
<tr>
<td>Francisco de Borja</td>
<td>Evaluación prospectiva de un protocolo actuación para la metatarsalgia por insuficiencia de primer radio: Resultados de tratamiento conservador y quirúrgico</td>
<td>Juan Viñas/Laura Prats</td>
<td>Clinical and experimental research in digestive and hematological pathology</td>
</tr>
<tr>
<td>Cerdà Dalmau</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Carles Forné Izquierdo</td>
<td>Modelos matemàtics i estadístics aplicats a la presa de decisions en salut</td>
<td>Montserrat Rué</td>
<td>Systems biology and statistical methods for biomedical research</td>
</tr>
<tr>
<td>Maria Alba Gairi Burgués</td>
<td>Valoración de la madurez para la toma de decisiones sanitarias en menores afectos de enfermedad aguda y crónica en un contexto hospitalario</td>
<td>Montserrat Esqueda/Eduardo Sole</td>
<td>Biological foundations of mental disorders</td>
</tr>
<tr>
<td>Minerva Granado Casas</td>
<td>Adherencia a la Dieta Mediterránea y resultados percibidos por el paciente en la diabetes autoinmune</td>
<td>Didac Mauricio/Joan Torres</td>
<td>Vascular and renal translational research group</td>
</tr>
<tr>
<td>Cristian Didier</td>
<td>Ginseng, ¿Una ayuda ergogénica para corredores? Conexión entre el metabolismo lipídico, inflamación y estrés oxidativo con el rendimiento deportivo</td>
<td>Alba Naudi/Jose Serrano</td>
<td>Metabolic physiopathology</td>
</tr>
<tr>
<td>Antonio Mesalles</td>
<td>Cirugía de implantes dentales guiada por ordenador mínimamente invasiva</td>
<td>Juan Viñas</td>
<td>Clinical and experimental research in digestive and hematological pathology</td>
</tr>
<tr>
<td>Silvia Rodriguez</td>
<td>Barreras y facilitadores en el cumplimiento de la care bundle en dispositivos de acceso vascular</td>
<td>Maria Luisa Guitard/ Mercedes Palomar</td>
<td>Intensive Medicine</td>
</tr>
<tr>
<td>Maria Magdalena Torres</td>
<td>Predictores de retirada e infecciones asociados al catéter pleural tunelizado: estudio retrospectivo de 336 procedimientos</td>
<td>Juan Manuel Porcel/Silvia Bielsa</td>
<td>Research group in Cancer Biomarkers</td>
</tr>
<tr>
<td>Rafael Villalobos</td>
<td>Estudio biomecánico del cierre de la pared abdominal</td>
<td>Jorge Juan Olsina</td>
<td>Experimental surgery</td>
</tr>
<tr>
<td>Lara Nogueras</td>
<td>Estado redox periférico y biomarcadores pronóstico en la esclerosis múltiple</td>
<td>Hugo Gonzalez/ Reinald Pamplona</td>
<td>Metabolic physiopathology</td>
</tr>
<tr>
<td>Carolina López</td>
<td>Sympathetic activation and breathing during sleep in type 2 diabetes mellitus</td>
<td>Albert Lecube</td>
<td>Research Group in Immunology and Metabolism</td>
</tr>
<tr>
<td>Celia Vived</td>
<td>Identificación de nuevas vías de señalización de la ciclina D3 implicadas en la viabilidad y funcionalidad de la célula beta pancreática en la diabetes autoinmune</td>
<td>Concepción Mora</td>
<td>Research Group in Immunology and Metabolism</td>
</tr>
<tr>
<td>Rebeca Berdún Hernández</td>
<td>Fisiofotología molecular de la obesidad prepuberal induida por dieta hipercalórica i la seva modulació per compostos probiótics en un model preclínic porcí</td>
<td>Mariona Jové/Manel Portero</td>
<td>Metabolic Physiopathology</td>
</tr>
<tr>
<td>Sandra de la Fuente</td>
<td>Development of new therapeutic strategies for spinal muscular atrophy</td>
<td>Rosa Soler</td>
<td>Neuronal Signaling</td>
</tr>
</tbody>
</table>

Table 3. List of doctoral theses defended during 2020 at the University of Lleida and directed by IRBLleida researchers.
Other research indicators

### Research networks and platforms

<table>
<thead>
<tr>
<th>Reference</th>
<th>Acronym</th>
<th>Funder/Entity</th>
<th>Principal investigator</th>
<th>Research group</th>
</tr>
</thead>
<tbody>
<tr>
<td>RD16/0009/0011</td>
<td>REDINREN</td>
<td>ISCIII (RETICS)</td>
<td>J.M. Valdivielso</td>
<td>Vascular and renal translational research group</td>
</tr>
<tr>
<td>COST Action B26</td>
<td>ESADA</td>
<td>European Cooperation in Science &amp; Technology [COST]</td>
<td>F. Barbé</td>
<td>Translational research in respiratory medicine group</td>
</tr>
<tr>
<td>CB07/06/2008</td>
<td>CIBERES</td>
<td>ISCIII (CIBER)</td>
<td>F. Barbé</td>
<td>Translational research in respiratory medicine group</td>
</tr>
<tr>
<td>RD16/0019/0017</td>
<td>INVICTUS PLUS</td>
<td>ISCIII (RETICS)</td>
<td>F. Purroy</td>
<td>Clinical neurosciences</td>
</tr>
<tr>
<td>812699</td>
<td>IMPROVE-PD</td>
<td>European Commission - MSCA - ITN - 2018</td>
<td>J.M. Valdivielso</td>
<td>Vascular and renal translational research group</td>
</tr>
<tr>
<td>RD16/0015/0008</td>
<td>REMM</td>
<td>ISCIII (RETICS)</td>
<td>L. Brieva</td>
<td>Neuroimmunology</td>
</tr>
<tr>
<td>PT17/0015/0027</td>
<td>Plataforma nacional de Biobancos</td>
<td>ISCIII (Plataformas)</td>
<td>X. Matas-Guiu</td>
<td>Biobank IRBLleida</td>
</tr>
<tr>
<td>CB16/12/00231</td>
<td>CIBERONC</td>
<td>ISCIII (CIBER)</td>
<td>X. Matas-Guiu</td>
<td>Oncological pathology</td>
</tr>
<tr>
<td>PT20/00021</td>
<td>Plataforma de Biobancos y Biomodelos</td>
<td>ISCIII (Plataformas)</td>
<td>X. Matas-Guiu, D. Arango</td>
<td>Oncological pathology, molecular oncology</td>
</tr>
<tr>
<td>RED2018-102372-T</td>
<td>INESGEN</td>
<td>MICIUN [Research Networks]</td>
<td>J. Torres</td>
<td>Cell cycle</td>
</tr>
<tr>
<td>CB07/08/0024</td>
<td>CIBERDEM</td>
<td>ISCIII (CIBER)</td>
<td>A. Lecube</td>
<td>Research group in immunology and metabolism (GRIM)</td>
</tr>
<tr>
<td>INFECDOM</td>
<td>Grupo de acción Iberus</td>
<td>G. Belli</td>
<td>Molecular biology of yeast</td>
<td></td>
</tr>
<tr>
<td>CB07/06/2008</td>
<td>CIBERES</td>
<td>ISCIII (CIBER)</td>
<td>M. Sánchez</td>
<td>Precision medicine in chronic diseases group</td>
</tr>
<tr>
<td>INCOSACT</td>
<td>GRUPO DE ACCIÓN IBERUS</td>
<td>M. Sánchez</td>
<td>Precision medicine in chronic diseases group</td>
<td></td>
</tr>
<tr>
<td>APORED</td>
<td>Various Organizations</td>
<td>J. Boix, J. Ribas</td>
<td>Pharmacology unit</td>
<td></td>
</tr>
<tr>
<td>CA19137</td>
<td>COST</td>
<td>European Cooperation in Science &amp; Technology [COST]</td>
<td>O. Yuguero</td>
<td>Urgency and emergency multi-disciplinary research group</td>
</tr>
</tbody>
</table>

Table 4. Research Networks and Research Platforms with IRBLleida researchers.
## Other research indicators

### Research groups certified by Generalitat de Catalunya 2017-2020

<table>
<thead>
<tr>
<th>Reference</th>
<th>Kind of group</th>
<th>Research group</th>
<th>Principal investigator</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017 SGR 01558</td>
<td>GRE1</td>
<td>Nutrition, metabolism and microbiota in patients with heart failure (NUTRIMIC)</td>
<td>J.L. Morales</td>
</tr>
<tr>
<td>2017 SGR 01620</td>
<td>GRE1</td>
<td>Research in cancer biomarkers group (GReBiC)</td>
<td>A. Novell</td>
</tr>
<tr>
<td>2017 SGR 01268</td>
<td>GRPRE1</td>
<td>Clinical neurosciences</td>
<td>F. Purroy</td>
</tr>
<tr>
<td>2017 SGR 00848</td>
<td>GRC2</td>
<td>Vascular and renal translational research group</td>
<td>E. Fernández</td>
</tr>
<tr>
<td>2017 SGR 01316</td>
<td>GRE2</td>
<td>Cross-sectional urgency and emergency research group</td>
<td>O. Yuguero</td>
</tr>
<tr>
<td>2017 SGR 01368</td>
<td>GRC2</td>
<td>Gynecological and other related cancers group</td>
<td>X. Matias-Guiu</td>
</tr>
<tr>
<td>2017 SGR 01368</td>
<td>GRE2</td>
<td>Neuroimmunology</td>
<td>H. Gonzalo</td>
</tr>
<tr>
<td>2017 SGR 00458</td>
<td>GRE2</td>
<td>Quality indicators and specifications in the clinical laboratory</td>
<td>M. Ibarz</td>
</tr>
<tr>
<td>2017 SGR 00569</td>
<td>GRC2</td>
<td>Eukaryotic cell cycle</td>
<td>E. Garí</td>
</tr>
<tr>
<td>2017 SGR 00008</td>
<td>GRC2</td>
<td>Neurocognition, psychobiology of personality and genetics of behavior</td>
<td>A. Aluja</td>
</tr>
<tr>
<td>2017 SGR 00133</td>
<td>GRC2</td>
<td>Systems biology and statistical methods for biomedical research</td>
<td>R. Alves</td>
</tr>
<tr>
<td>2017 SGR 00168</td>
<td>GRC2</td>
<td>Cell neurobiology</td>
<td>J. Calderó</td>
</tr>
<tr>
<td>2017 SGR 00291</td>
<td>GRC2</td>
<td>Group on statistical and economic analysis in health (GRAEES)</td>
<td>M. Rué</td>
</tr>
<tr>
<td>2017 SGR 00306</td>
<td>GRC2</td>
<td>Cellular stress and survival in eukaryotic models</td>
<td>E. Herrero</td>
</tr>
<tr>
<td>2017 SGR 00696</td>
<td>GRC2</td>
<td>Metabolic pathophysiology</td>
<td>R. Pamplona</td>
</tr>
<tr>
<td>2017 SGR 00759</td>
<td>GRC2</td>
<td>Evolutionari and developmental neurobiology</td>
<td>L. Medina</td>
</tr>
<tr>
<td>2017 SGR 00802</td>
<td>GRC2</td>
<td>Translational research in respiratory medicine</td>
<td>F. Barbé</td>
</tr>
<tr>
<td>2017 SGR 00822</td>
<td>GRC2</td>
<td>Immunology and metabolism group</td>
<td>J. Verdaguer</td>
</tr>
<tr>
<td>2017 SGR 01457</td>
<td>GRE1</td>
<td>Promotion of healthy aging and chronic care (PESAC)</td>
<td>C. Nuin</td>
</tr>
</tbody>
</table>

Table 5: IRBLleida research groups recognized by the Generalitat 2017-2020. GRE: Emerging group; GRPRE: Pre-consolidated group; GRC: Consolidated group.

1 Recognized and funded group.

2 Recognized Group.
## Innovation and knowledge transfer

### Research results protected by patent application through 2020

<table>
<thead>
<tr>
<th>Year</th>
<th>IRBLleida researchers</th>
<th>Reference</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>J. Serrano</td>
<td>ES2402643B1</td>
<td>Anticholesterolemic fibre combination</td>
</tr>
<tr>
<td></td>
<td>M. Portero</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>R. Pamplona</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>M. Sánchez</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>A. Sánchez</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2016</td>
<td>M. Portero</td>
<td>PCT/EP2016/066825</td>
<td>FINGOLIMOD: Procedimientos y composiciones para el diagnóstico y tratamiento de la adrenoleucodistrofia</td>
</tr>
<tr>
<td></td>
<td>R. Pamplona</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>M. Jové</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2016</td>
<td>R. Villalobos</td>
<td>PCT/ES2017/070096</td>
<td>Instrumento para medir parámetros asociados a una incisión en un tejido y procedimiento para medir parámetros en una incisión en un tejido mediante dicho instrumento</td>
</tr>
<tr>
<td></td>
<td>Mª. C. Mias</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>L. Egia</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>E. Rosell</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>C. Mora</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>M. Corral</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>A. Gascó</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>S. de la Fuente</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 6. Patent applications in progress in 2020 participated by IRBLleida researchers.
To compile the following tables, the details of publications by IRBLleida areas and groups have taken into account the original publications, letters and review articles. In the number of articles of first quartile (Q1) are also considered articles of first decile (D1).

<table>
<thead>
<tr>
<th>Research Areas</th>
<th>Number of publications</th>
<th>Total IF</th>
<th>Average IF</th>
<th>Q1 Publications</th>
<th>D1 Publications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stress in biological systems</td>
<td>35</td>
<td>207.94</td>
<td>5.94</td>
<td>29 (82%)</td>
<td>10 (28%)</td>
</tr>
<tr>
<td>Clinical medicine</td>
<td>123</td>
<td>601.51</td>
<td>4.89</td>
<td>70 (57%)</td>
<td>26 (21%)</td>
</tr>
<tr>
<td>Therapeutic and experimental medicine</td>
<td>109</td>
<td>552.63</td>
<td>5.07</td>
<td>69 (63%)</td>
<td>23 (21%)</td>
</tr>
<tr>
<td>Cellular and molecular models of human pathologies</td>
<td>13</td>
<td>69.38</td>
<td>5.33</td>
<td>8 (61%)</td>
<td>4 (30%)</td>
</tr>
<tr>
<td>Neurosciences</td>
<td>39</td>
<td>155.92</td>
<td>3.99</td>
<td>19 (49%)</td>
<td>5 (13%)</td>
</tr>
<tr>
<td>Other research lines</td>
<td>16</td>
<td>48.15</td>
<td>3</td>
<td>10 (62%)</td>
<td>4 (25%)</td>
</tr>
</tbody>
</table>

Table 7. Distribution of scientific production 2020 by research areas. Total number of publications by area and accumulated IF based on JCR 2019.

Total IF  Publications

Clinical medicine

- Total IF: 601.51
- Publications: 123

Therapeutic and experimental medicine

- Total IF: 552.63
- Publications: 109

Stress in biological systems

- Total IF: 207.94
- Publications: 35

Neurosciences

- Total IF: 155.92
- Publications: 39

Other research lines

- Total IF: 48.15
- Publications: 16

Cellular and molecular models of human pathologies

- Total IF: 69.38
- Publications: 13

Figure 11. 2020 Scientific production by research areas. Total number of articles per area and cumulative IF per area.
## Scientific production by group

<table>
<thead>
<tr>
<th>Group</th>
<th>Total Publications</th>
<th>Q1</th>
<th>Q1 %</th>
<th>D1</th>
<th>Q1 %</th>
<th>Total IF</th>
<th>Average IF</th>
<th>Not indexed publications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oncological pathology</td>
<td>33</td>
<td>25</td>
<td>75.8%</td>
<td>12</td>
<td>36.4%</td>
<td>190</td>
<td>5.74</td>
<td>0</td>
</tr>
<tr>
<td>Vascular and renal translational research group</td>
<td>31</td>
<td>21</td>
<td>67.7%</td>
<td>6</td>
<td>19.4%</td>
<td>164</td>
<td>5.28</td>
<td>1</td>
</tr>
<tr>
<td>Translational research in respiratory medicine group</td>
<td>28</td>
<td>22</td>
<td>78.6%</td>
<td>10</td>
<td>35.7%</td>
<td>186</td>
<td>6.65</td>
<td>1</td>
</tr>
<tr>
<td>Precision medicine in chronic diseases group</td>
<td>27</td>
<td>23</td>
<td>85.2%</td>
<td>9</td>
<td>33.3%</td>
<td>189</td>
<td>6.99</td>
<td>0</td>
</tr>
<tr>
<td>Metabolic physiopathology</td>
<td>26</td>
<td>22</td>
<td>84.6%</td>
<td>8</td>
<td>30.8%</td>
<td>161</td>
<td>6.19</td>
<td>0</td>
</tr>
<tr>
<td>Clinical neurosciences</td>
<td>22</td>
<td>12</td>
<td>54.5%</td>
<td>4</td>
<td>18.2%</td>
<td>99</td>
<td>4.48</td>
<td>0</td>
</tr>
<tr>
<td>Research group in immunology and metabolism (GRIM)</td>
<td>20</td>
<td>11</td>
<td>55.0%</td>
<td>2</td>
<td>10.0%</td>
<td>93</td>
<td>4.63</td>
<td>0</td>
</tr>
<tr>
<td>Research group of cancer biomarkers (GReBiC)</td>
<td>19</td>
<td>10</td>
<td>52.6%</td>
<td>4</td>
<td>21.1%</td>
<td>97</td>
<td>5.11</td>
<td>3</td>
</tr>
<tr>
<td>Research group of health care (GRECS)</td>
<td>16</td>
<td>10</td>
<td>62.5%</td>
<td>4</td>
<td>25.0%</td>
<td>48</td>
<td>3.01</td>
<td>0</td>
</tr>
<tr>
<td>Pharmacoepidemiology</td>
<td>12</td>
<td>4</td>
<td>33.3%</td>
<td>1</td>
<td>8.3%</td>
<td>25</td>
<td>2.07</td>
<td>2</td>
</tr>
<tr>
<td>Applied epidemiology</td>
<td>11</td>
<td>3</td>
<td>27.3%</td>
<td>0</td>
<td>0.0%</td>
<td>30</td>
<td>2.74</td>
<td>1</td>
</tr>
<tr>
<td>Cell cycle</td>
<td>10</td>
<td>5</td>
<td>50.0%</td>
<td>2</td>
<td>20.0%</td>
<td>47</td>
<td>4.68</td>
<td>3</td>
</tr>
<tr>
<td>Experimental surgery</td>
<td>10</td>
<td>4</td>
<td>40.0%</td>
<td>0</td>
<td>0.0%</td>
<td>25</td>
<td>2.54</td>
<td>1</td>
</tr>
<tr>
<td>Intensive medicine</td>
<td>10</td>
<td>1</td>
<td>10.0%</td>
<td>0</td>
<td>0.0%</td>
<td>13</td>
<td>1.33</td>
<td>3</td>
</tr>
<tr>
<td>Neurocognition, psychobiology of the personality and behavioral genetics</td>
<td>9</td>
<td>4</td>
<td>44.4%</td>
<td>0</td>
<td>0.0%</td>
<td>26</td>
<td>2.83</td>
<td>0</td>
</tr>
<tr>
<td>Clinical and experimental research in digestive and hematological pathology</td>
<td>9</td>
<td>5</td>
<td>55.6%</td>
<td>2</td>
<td>22.2%</td>
<td>54</td>
<td>6.02</td>
<td>0</td>
</tr>
<tr>
<td>Translational research group on infectious diseases</td>
<td>7</td>
<td>4</td>
<td>57.1%</td>
<td>2</td>
<td>28.6%</td>
<td>40</td>
<td>5.76</td>
<td>1</td>
</tr>
<tr>
<td>Systems biology and statistical methods for biomedical research</td>
<td>5</td>
<td>4</td>
<td>80.0%</td>
<td>1</td>
<td>20.0%</td>
<td>23</td>
<td>4.67</td>
<td>0</td>
</tr>
<tr>
<td>Urgency and emergency multi-disciplinary research group</td>
<td>4</td>
<td>1</td>
<td>25.0%</td>
<td>0</td>
<td>0.0%</td>
<td>8.1</td>
<td>2.02</td>
<td>0</td>
</tr>
<tr>
<td>Oxidative stress biochemistry</td>
<td>3</td>
<td>2</td>
<td>66.7%</td>
<td>1</td>
<td>33.3%</td>
<td>19</td>
<td>6.47</td>
<td>0</td>
</tr>
</tbody>
</table>

Table 8: 2020 scientific production by research groups. Total publications per group, and number of publications in first decile and first quartile of JCR. Average and cumulative IF based on JCR 2019. It should be noticed that the publications result of collaboration between different groups, have been valued for all the groups that sign the authorship.
### Scientific production by group

<table>
<thead>
<tr>
<th>Group</th>
<th>Total Publications</th>
<th>Q1</th>
<th>Q1 %</th>
<th>D1</th>
<th>D1 %</th>
<th>Total IF</th>
<th>Average IF</th>
<th>Not indexed publications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Genetics of complex diseases</td>
<td>3 1 33.3% 0 0.0%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>7.8 2.59 1</td>
</tr>
<tr>
<td>Indicators and specifications of the quality in the clinical laboratory</td>
<td>3 1 33.3% 0 0.0%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>8.8 2.92 0</td>
</tr>
<tr>
<td>Neuroimmunology</td>
<td>3 0 0.0% 0 0.0%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3.8 1.27 0</td>
</tr>
<tr>
<td>Experimental neuromuscular pathology</td>
<td>3 2 66.7% 1 33.3%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>18 5.90 0</td>
</tr>
<tr>
<td>Biological foundations of mental disorders</td>
<td>2 1 50.0% 0 0.0%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3.9 1.95 1</td>
</tr>
<tr>
<td>Molecular oncology</td>
<td>2 1 50.0% 1 50.0%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>15 7.47 0</td>
</tr>
<tr>
<td>Cell signalling and apoptosis group</td>
<td>2 2 100.0% 1 50.0%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>15 7.60 0</td>
</tr>
<tr>
<td>Neuronal signalling unit</td>
<td>2 1 50.0% 0 0.0%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>10 5.11 0</td>
</tr>
<tr>
<td>Calcium cellular signalling</td>
<td>1 1 100.0% 1 100.0%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4 4.01 0</td>
</tr>
<tr>
<td>Cell signalling in yeast</td>
<td>1 1 100.0% 0 0.0%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4 4.22 0</td>
</tr>
<tr>
<td>Pharmacology unit</td>
<td>1 1 100.0% 0 0.0%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4 4.22 0</td>
</tr>
<tr>
<td>Molecular biology of yeast</td>
<td>0 0 0.0% 0 0.0%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0 0.00 0</td>
</tr>
<tr>
<td>Drosophila working line</td>
<td>0 0 0.0% 0 0.0%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0 0.00 0</td>
</tr>
<tr>
<td>Evolutionary developmental neurobiology</td>
<td>0 0 0.0% 0 0.0%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0 0.00 0</td>
</tr>
<tr>
<td>Molecular and developmental neurobiology</td>
<td>0 0 0.0% 0 0.0%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0 0.00 0</td>
</tr>
<tr>
<td>Nutrition, metabolism and microbiota in patients with heart failure (NUTRIMMIC)</td>
<td>0 0 0.0% 0 0.0%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0 0.00 0</td>
</tr>
<tr>
<td>Oncogenic signalling and development</td>
<td>0 0 0.0% 0 0.0%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0 0.00 0</td>
</tr>
</tbody>
</table>

*Table 8 continue. 2020 scientific production by research groups. Total publications per group, and number of publications in first decile and first quartile of JCR. Average and cumulative IF based on JCR 2019. It should be noticed that the publications result of collaboration between different groups, have been scored for all the groups that co-author the publication.*
Scientific production by group

**Total publications and total IF**

- Oncological pathology
- Vascular and renal translational research group
- Translational research in respiratory medicine group
- Precision medicine in chronic diseases group
- Metabolic physiopathology
- Clinical neurosciences
- Research group in immunology and metabolism (GRIM)
- Research group of cancer biomarkers (GReBiC)
- Research group of health care (GRECS)
- Pharmacoepidemiology
- Applied epidemiology
- Intensive medicine
- Experimental surgery
- Cell cycle
- Clinical and experimental research in digestive and hematological pathology
- Neurocognition, psychobiology of the personality and behavioral genetics
- Translational research group on infectious diseases
- Urgency and emergency multi-disciplinary research group
- Experimental neuromuscular pathology
- Neuronal signalling unit
- Cell signalling and apoptosis group
- Molecular oncology
- Biological foundations of mental disorders
- Pharmacology unit
- Cell signalling in yeast
- Calcium cellular signalling
- Oncogenic signalling and development
- Nutrition, metabolism and microbiota in patients with heart failure (NUTRIMMIC)
- Molecular and developmental neurobiology
- Evolutionary developmental neurobiology
- Drosophyla working line
- Molecular biology of yeast

Figure 12. Number of publications and Total IF of research groups in 2020.
Scientific production by group

Average IF and percentage of Q1 publications per group

Figure 13. Research groups ordered according to average impact factor. Percentage of first quartile publications is also showed.
Global data on financing

Research grants awarded in 2020

The grants awarded to IRBLleida in 2020 were 54, for a total amount of 4,529,093 €. Table 9 shows competitive grants awarded from national, regional or international agencies and non-competitive funds.

Table 9. Total funds obtained during 2020 from grants awarded to IRBLleida researchers.

<table>
<thead>
<tr>
<th>Agency</th>
<th>Number of Projects</th>
<th>Funds (€)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Competitive regional</td>
<td>8</td>
<td>697,252.00</td>
</tr>
<tr>
<td>Competitive national</td>
<td>27</td>
<td>2,923,175.00</td>
</tr>
<tr>
<td>Competitive international</td>
<td>1</td>
<td>174,966.00</td>
</tr>
<tr>
<td>Non-competitive</td>
<td>9</td>
<td>733,844.70</td>
</tr>
<tr>
<td>Total</td>
<td>45</td>
<td>4,529,093.00</td>
</tr>
</tbody>
</table>

Table 10 shows the total amount and number of grants awarded per funding agency.

<table>
<thead>
<tr>
<th>Scope</th>
<th>Funder</th>
<th>Number of Grants</th>
<th>Funds (€)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regional</td>
<td>Agència de gestió d’ajuts universitaris i de recerca (AGAUR)</td>
<td>1</td>
<td>71,100.00</td>
</tr>
<tr>
<td></td>
<td>Universitat de Lleida</td>
<td>7</td>
<td>427,777.00</td>
</tr>
<tr>
<td></td>
<td>Diputació de Lleida</td>
<td>8</td>
<td>394,195.00</td>
</tr>
<tr>
<td></td>
<td>Fundació La Marató de TV3</td>
<td>1</td>
<td>198,375.00</td>
</tr>
<tr>
<td></td>
<td>Institut de Salud Carlos III (ISCIII)</td>
<td>19</td>
<td>2,160,566.49</td>
</tr>
<tr>
<td>Nacional</td>
<td>Ministerio de Ciencia, Innovación y Universidades (MICIUN)</td>
<td>7</td>
<td>756,609.00</td>
</tr>
<tr>
<td></td>
<td>Fundación Sociedad Española de Endocrinología y Nutrición</td>
<td>1</td>
<td>6,000.00</td>
</tr>
<tr>
<td>Internacional</td>
<td>European Joint Programme Rare Diseases</td>
<td>1</td>
<td>174,966.00</td>
</tr>
</tbody>
</table>

Table 10. Number of grants and amounts in € raised by IRBLleida in 2020 according to the funding agency.

Intramural calls for the incorporation of researchers

This year, 10 one-year positions have been offered to researchers thanks to funding received from the Diputació de Lleida. Of these, 1 was intended to encourage research in the clinical setting (post-MIRs), at the Lleida Health Region (modality A); 1 was intended to encourage research in the clinical setting (post-MIRs), at the High Pyrenees and Aran Health Region (modality B); 1 aimed at promoting research in experimental models of the Center for Advanced Biomedical Research (CREBA), modality C; and 7 intended to favor the completion of doctoral theses in progress within the IRBLleida research groups, modality D. Finally, the place in modality B was deserted and 2 places have offered in the mode A, as it was the only who had a substitute. Two positions on modality D were not conceded due to lack of candidates. A total of 8 positions were awarded.
Global data on financing

Clinical trials and observational studies

The total number of clinical trials and observational studies started during 2020 been was 52 (35 clinical trials and 17 observational studies). The total income from clinical trials during 2020 was 1,365,707 €, and from observational studies was 111,856 €.

New clinical trials and observational studies

<table>
<thead>
<tr>
<th>Year</th>
<th>Clinical trials</th>
<th>Observational studies</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
<td>23</td>
<td>72</td>
</tr>
<tr>
<td>2017</td>
<td>13</td>
<td>107</td>
</tr>
<tr>
<td>2018</td>
<td>18</td>
<td>125</td>
</tr>
<tr>
<td>2019</td>
<td>19</td>
<td>144</td>
</tr>
<tr>
<td>2020</td>
<td>17</td>
<td>136</td>
</tr>
</tbody>
</table>

Active clinical trials and observational studies

<table>
<thead>
<tr>
<th>Year</th>
<th>Active clinical trials</th>
<th>Active observational studies</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
<td>72</td>
<td>107</td>
</tr>
<tr>
<td>2017</td>
<td>70</td>
<td>107</td>
</tr>
<tr>
<td>2018</td>
<td>65</td>
<td>125</td>
</tr>
<tr>
<td>2019</td>
<td>84</td>
<td>144</td>
</tr>
<tr>
<td>2020</td>
<td>64</td>
<td>136</td>
</tr>
</tbody>
</table>

Clinical trials and observational studies funds

<table>
<thead>
<tr>
<th>Year</th>
<th>Clinical trials funds</th>
<th>Observational studies funds</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
<td>1,488,827 €</td>
<td>1,182,337 €</td>
</tr>
<tr>
<td>2017</td>
<td>1,182,337 €</td>
<td>1,609,747 €</td>
</tr>
<tr>
<td>2018</td>
<td>1,627,799 €</td>
<td>1,477,564 €</td>
</tr>
<tr>
<td>2019</td>
<td>1,477,564 €</td>
<td>1,609,747 €</td>
</tr>
<tr>
<td>2020</td>
<td>1,609,747 €</td>
<td>1,182,337 €</td>
</tr>
</tbody>
</table>
Research activity by areas and groups

Area 1. Stress in biological systems
Area 2. Experimental medicine and therapeutics
Area 3. Cellular and molecular models of human pathologies
Area 4. Neurosciences
Area 5. Clinical medicine
Area 6. Other research areas
The groups in this area of research have the common denominator of studying the effects of stress on biological systems. All cells, both individually and as a tissue, have the capacity to respond to changes in environmental conditions. We refer to stress, in a broad sense, as those conditions that jeopardise cell viability or, at least, prevent the cell from expressing its potential in an optimal way. This adaptation requires complex mechanisms, as parameters such as growth, cell proliferation, metabolic activity and repair mechanisms have to be adjusted.

The mechanisms that combat stress situations - the proteins involved, transcription activating factors sensitive to the cell’s redox status - are common to many types of organism, so it is not surprising that the study models used by the different groups cover a wide range of cellular systems: from yeasts to mice, established cell lines or primary cultures of post-mitotic tissues. This diversity is enriching, because it helps to establish similarities and differences between different types of organisms. In silico models are also proposed to explain metabolic adaptations to different situations.

As can be seen in the summary of the main lines of research of each group, the aspects analysed are different. In some cases, the relationship between stress and cell proliferation is analysed. These two facts are highly interrelated, since, for example, cell-stressful treatments cause a transitory arrest of the cell cycle, either in the G1 phase or in the G2-M transition. Another aspect is the study of oxidative damage in macromolecules in situations of stress, aging or neurodegeneration. The idea is to study which functions are most affected and how this observed damage can explain metabolic and structural changes that affect cellular functions which, at the same time, explain the loss of viability.

Groups
1.1. Cell signalling in yeast
1.2. Metabolic physiopathology
1.3. Molecular biology of yeast
1.4. Oxidative stress biochemistry
1.5. Systems biology and statistical methods for biomedical research

Area 1: Stress in biological systems
1.1. 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:**
1. Design of strategies to increase endogenous iron levels for use as a nutritional supplement.
2. Design strategies for directed evolution to obtain improved strains for use in food production.

---

**Research team**

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mª Angeles de la Torre Ruiz</td>
<td>Group leader</td>
</tr>
<tr>
<td>Nuria Pujol Carrion</td>
<td>PhD student</td>
</tr>
<tr>
<td>Sandra Montellá Manuel</td>
<td>Research technician</td>
</tr>
<tr>
<td>M. Inmaculada Montoliu Sanchis</td>
<td>Researcher</td>
</tr>
</tbody>
</table>

**Publications**

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, neurodegeneratives diseases). If the aging process could be slowed or even reverted the incidence of age-related diseases would diminish significantly.

1.2. 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, neurodegeneratives diseases). If the aging process could be slowed or even reverted the incidence of age-related diseases would diminish significantly.

Research team

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reinald Pamplona Gras</td>
<td>Group leader</td>
</tr>
<tr>
<td>Anna Fernandez Bernal</td>
<td>PhD student</td>
</tr>
<tr>
<td>Chiara Rossi</td>
<td>PhD student</td>
</tr>
<tr>
<td>Joaquim Sol Cullere</td>
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</tr>
<tr>
<td>Jose Daniel Galo Licona</td>
<td>PhD student</td>
</tr>
<tr>
<td>Laia Fontdevila Olivé</td>
<td>PhD student</td>
</tr>
<tr>
<td>Lara Nogueras Penabad</td>
<td>PhD student</td>
</tr>
<tr>
<td>Pascual Torres Cabestany</td>
<td>PhD student</td>
</tr>
<tr>
<td>Rebeca Berdun Hernandez</td>
<td>PhD student</td>
</tr>
<tr>
<td>Jose Serrano Casasola</td>
<td>Principal investigator</td>
</tr>
<tr>
<td>Manuel Portero Otin</td>
<td>Principal investigator</td>
</tr>
<tr>
<td>Mariona Jove Font</td>
<td>Principal investigator</td>
</tr>
<tr>
<td>David Argiles Baulo</td>
<td>Research technician</td>
</tr>
<tr>
<td>Joan Prat Corominas</td>
<td>Researcher</td>
</tr>
<tr>
<td>Jordi Boada Pallas</td>
<td>Researcher</td>
</tr>
<tr>
<td>Reyna Rodriguez Mortera</td>
<td>Researcher</td>
</tr>
<tr>
<td>Victoria Ayala Jove</td>
<td>Researcher</td>
</tr>
</tbody>
</table>
1.2. Metabolic physiopathology

Projects

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Manuel Portero</td>
<td>Instituto de Salud Carlos III</td>
<td>Metabolismo lipídico intracelular, procesamiento de ARNm y estrés celular en la encrucijada de la fisiopatología de la esclerosis lateral amiotrófica</td>
<td>214,170</td>
</tr>
<tr>
<td>Manuel Portero</td>
<td>Instituto de Salud Carlos III</td>
<td>Reposicionamiento terapéutico dirigido a inhibición de expresión de ACE2 y de proteólisis de trámero S viral</td>
<td>133,500</td>
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</table>

Publications


Molecules. 2020 Sep 22;25(18):4343. PMID: 32971886 Q2 IF3,267


Mota-Martorell N, Jove M, Pradas I, Berdún R, Sanchez I, Naudi A, Gari PI Funding agency Project Budget (€)

Manuel Portero Instituto de Salud Carlos III 214,170

Manuel Portero Instituto de Salud Carlos III 133,500
1.2. Metabolic physiopathology


1.3. Molecular biology of yeast

The group studies the effect of environmental stress conditions on cell proliferation in yeast Saccharomyces cerevisiae, as a model for a genetically manipulable unicellular eukaryotic organism, as well as the transduction pathways and enzymatic systems involved in the defense and repair of stress damage. Particular emphasis is placed on oxidative stress (given its biomedical implications), and on the protective role of glutaredoxin systems, which are involved in various cellular processes, since, among other functions, they participate in the formation of proteins with Fe centers. Defects in these co-factors cause various cellular disorders such as mitochondrial dysfunction, alterations in iron homeostasis and genomic instability, alterations associated with numerous human diseases.

Other projects in collaboration:
- Titol: Improvement of the technological and nutritional properties of food using gels and emulsions formed from carbohydrates unpurified obtained from alternative sources (CARBOTECH). Ministry of Science, Innovation and universities. Call 2018.

Research team

Gemma Belli Martinez  Group leader
M. Inmaculada Montoliu Sanchis  Research technician

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Location
Biomedicine | Lab 4a Floor 4
1.4. Oxidative stress biochemistry

The Biochemistry of Oxidative Stress group analyses altered mitochondrial functions in a disease called Friedreich Ataxia caused by deficient levels of frataxin, a mitochondrial protein. In this pathology, there is an alteration in the mitochondrial calcium and iron homeostasis, which leads to alterations in the redox state of proteins, in the membrane potential and, in general, loss of mitochondrial functions. To study this pathology, we use primary cultures of neurons and cardiomyocytes, which are the most affected tissues in this disease; we also use a new mouse model called FXN1151F and lymphoblasts obtained from patients. Based on these results, we design therapeutic strategies trying to improve the quality of life of patients, since to date, there is no effective cure; in this regard, we are analysing the effects of calcitriol, the active form of vitamin D and also molecules focused on restoring mitochondrial membrane potential. These trials are carried out in collaboration with biopharma companies and also with hospitals, where pilot clinical trials are being initiated.
1.4. Oxidative stress biochemistry

Publications

Britti E, Ros J, Esteras N, Abramov AY. Tau inhibits mitochondrial calcium efflux and makes neurons vulnerable to calcium-induced cell death. Cell Calcium. 2020 Mar;86:102150. PMID: 31918031. Q1 IF 4.8


1.5. Systems biology and statistical methods for biomedical research

The group focuses on two parallel research lines: Systems Biology and Statistical Methods for Biomedical Research.

The first line develops mathematical tools and methods for research in Bioinformatics, Computational Biology, and Systems and Synthetic Biology. The methods are applied to analyze and integrate large molecular, omics, and clinical databases in order to understand how the molecular circuits of cells and organisms evolved and work from a Systems perspective.

The Statistical Methods line for Biomedical Research develops and applies statistical models to evaluate health interventions and collaborates closely with clinical and translational research groups. The group works on the design and analysis of clinical studies, on the economic evaluation of health interventions, on the development of advanced methods for survival analysis, and on joint models of longitudinal data.

Research team

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Albert Sorribas Tello</td>
<td>Group leader</td>
</tr>
<tr>
<td>Montserrat Rué Monné</td>
<td>Group leader</td>
</tr>
<tr>
<td>Rui Carlos Vaqueiro De Castro Alves</td>
<td>Group leader</td>
</tr>
<tr>
<td>Hèctor Perpiñán Fabuel</td>
<td>External collaborator</td>
</tr>
<tr>
<td>Abel Lucido Garbulo</td>
<td>Researcher</td>
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<tr>
<td>Alberto Marin Sanguino</td>
<td>Researcher</td>
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<tr>
<td>Baldiri Salvador Lopez</td>
<td>Researcher</td>
</tr>
<tr>
<td>Ester Vilapriño Terre</td>
<td>Researcher</td>
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</table>
1.5. Systems biology and statistical methods for biomedical research

Projects

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<tr>
<td>Albert Sorribas</td>
<td>Instituto de Salud Carlos III</td>
<td>Development of a simulation environment as a tool to support the design of studies and clinical trials.</td>
<td>43,318</td>
</tr>
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</table>

Publications


The Area of Experimental Medicine and Therapeutics was created with the aim of studying the physiology, pathology and therapy of human diseases, both from samples obtained in patients and in animal and cellular models. Therefore, it proposes a translational research between clinical and basic research that allows the study of pathologies that are very prevalent in daily clinical practice. The area consists of eight research groups with a proven track record and has prestigious national and international collaborations.

**Groups**

2.1. Clinical and experimental research in digestive and hematological pathology  
2.2. Experimental surgery  
2.3. Genetics of complex diseases  
2.4. Molecular oncology  
2.5. Oncological pathology  
2.6. Pharmacology unit  
2.7. Research group in immunology and metabolism (GRIM)  
2.8. Vascular and renal translational research group

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**Publications**

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<tr>
<th>Researchers</th>
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<th>Number of competitive projects funded/requested</th>
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<td>128</td>
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<td>552.63</td>
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</table>

**Average IF**

61.6%  
20.5%  
4.93  
775,036€
2.1. Clinical and experimental research in digestive and hematological pathology

Our group’s research deals with colorectal carcinogenesis and with hematologic diseases. It has a clinical and experimental. We are also interested in teaching investigation in our fields. The group was formed and registered in 1995 and is a consolidated research group at the University of Lleida.

Research interests:
• Prognostic factors in patients with colorectal cancer.
• Factors related to diagnosis and treatment of colorectal cancer.
• Study of chemically induced colonic carcinogenesis in murine experimental models.
• Telomerase activity in cell neoplastic cells.
• Laboratory techniques and procedures in hematology (hematologic analyzers and flow cytometry).
• Clinical and basic research in blood diseases.

Research team

Josep Maria Reñé Espinet  
Group leader

Javier Gómez Arbonés  
Principal investigator

M. Carmen Piñol Felis  
Principal investigator

Antonio García Guinó  
Researcher

Armando Luaña Galan  
Researcher

Carlos Aracil Blanch  
Researcher

Elisabeth Talaverà Ramos  
Researcher

Eva Sese Abizanda  
Researcher

Jordi Garreta Mesegue  
Researcher

Josep Maria Miñana Calafat  
Researcher

Juan Armando Rodríguez Oballe  
Researcher

Juan Buenestado Garcia  
Researcher

María Cristina Marzo Alonso  
Researcher

Maria Tehas Crespo  
Researcher

Montserrat Planella De Rubinat  
Researcher

Montserrat Teixido Amoros  
Researcher

Natividad Zaragoza Velasco  
Researcher

Tamara Revuelto Artigas  
Researcher

Tomas García Cerecedo  
Researcher

Dr. Josep Maria Reñé Espinet

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HUAV
2.1. Clinical and experimental research in digestive and hematological pathology

Publications


2.1. Clinical and experimental research in digestive and hematological pathology


2.2. Experimental surgery

The group intends to develop interdisciplinary projects with special interest in those technologies and methodologies related to abdominal wall surgery and with applicability to other surgeries such as bariatric, hepatic, etc. In particular, the group studies the biomechanical response of the closure of the abdominal wall versus physical and anthropometric factors with the use of measuring instruments designed for this purpose that measure the traction forces of the abdominal wall after the intervention. The objective is to achieve optimum closure of the abdominal wall after an intervention, avoiding tensions and future hernias in the patient.

The Experimental Surgery Group is subdivided into 4 nodes:

- Digestive Surgery.
- Abdominal wall.
- Endocrine surgery.
- Thoracic surgery.

The Experimental Surgery research group is integrated by surgeons, anesthetists, veterinarians and research and management technicians who work to develop interdisciplinary projects with special interest in those technologies and methodologies related to experimental surgery and the training of health professionals, as well as the development of instruments with applicability to different surgical specialties, such as the abdominal and hepatic walls, among others.

Defined lines of research can currently be identified in the Experimental Surgery group, such as the abdominal wall, led by Dr. Villalobos, who began with the study of the biomechanics of the abdominal wall to find out the physical and anthropometric factors that intervene during the closure and obtain the patent of an instrument that allows measurements to be made to determine the closing forces. Likewise, the group has carried out experimental studies using non-biological glues to fix the meshes to the abdominal wall to surgically repair the eventrations in a porcine experimental model of abdominal wall defect.

Postgraduate training represents a new line of research for the group by conducting studies on the impact of physical or biological clinical simulation on improving the training of professionals in the health sciences. Research in the pig model as an experimental model to study different surgical, diagnostic and therapeutic techniques marks many of the projects that are currently being carried out: anatomy, pain control, lung transplantation, safety in intestinal sutures, etc., with the aim of to be able to obtain experimental models that allow, in the long run, to extrapolate the findings in the human clinic and make a quality translational medicine. The research activities of this group are carried out at the CREBA Center of the IRBLleida.
2.2. Experimental surgery

Research team

Jorge J. Olsina Kissler
Group leader

Marta Farre Fola
Management technician

Fulthon Frank Vela Polanco
PhD student

Alfredo Escartin Arias
Principal investigator

Juan A. Baena Fustegueras
Principal investigator

Alba Boldo Dolz
Research technician

Ana Pinillos Somalo
Researcher

Antonio Montero Matamala
Researcher

Carlos A Rombolá
Researcher

Carlos Alfredo Fraile Olivero
Researcher

Cristina Gas Ruiz
Researcher

Dolores Garcia Olmo
Researcher

Fernando Herrerias Gonzalez
Researcher

Ferney David Gomez Baez
Researcher

Gien Pier Protti Ruiz
Researcher

Jaume Ortega Alcàide
Researcher

Jordi Escoll Rufine
Researcher

Jose E Sierra Grañon
Researcher

Ljubica Monica Sarmiento Marasovic
Researcher

Lourdes Susana Díaz Dorronsoro
Researcher

Lucia Millà Collado
Researcher

Mari Cruz De La Fuente Juarez
Researcher

Maria Carmen Mias Carballal
Researcher

Maria Rufas Acín
Researcher

Maria Teresa Santamaria Gomez
Researcher

Marta Gonzalez Duaigues
Researcher

Mireia Merichal Resina
Researcher

Mireia Merichal Resina
Researcher

Nuria Mestres Petit
Researcher

Pablo Muriel Alvarez
Researcher

Rafael Villalobos Mori
Researcher

Sara Puy Lopez
Researcher

Yolanda Maestre Gonzalez
Researcher

Group leader
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Location
HUAV
2.2. Experimental surgery

Publications

Carmona-Maurici, J; Cuello, E; Ricart-Jané, D; Miñarro, A; Baena-Fustegueras, J A; Peinado-Onsurbe, J; Pardina, E. Effect of bariatric surgery on inflammation and endothelial dysfunction as processes underlying subclinical atherosclerosis in morbid obesity. Surgery for Obesity and Related Diseases. 2020 Dec;16(12):1961-1970. PMID: 32933868. Q1 IF3,812

Carmona-Maurici, J; Amigó, N; Cuello, E; Bermúdez, M; Baena-Fustegueras, J A; Peinado-Onsurbe, J; Pardina, E. Bariatric surgery decreases oxidative stress and protein glycosylation in patients with morbid obesity. Eur J Clin Invest. 2020 Nov;50(11):e13320. PMID: 32535887. Q1 IF3,481

García-Olmo, D C; Peiró-Pastor, R; Picazo, M G; Olmedillas-López, S; García-Arranz, M; Aguado, B; García-Olmo, D. Liquid biopsy by NGS: Differential presence of exons (DPE) is related to metastatic potential in a colon-cancer model in the rat. Translational Oncology. 2020 Nov;13(11):100837. PMID: 32736333 Q2 IF3,558

Carmona-Maurici, Júlia; CUELLO GUZMAN, ELENA; ... OLSINA KISSLER, JORGE J.; ... BAENA FUSTEGUERAS, JUAN A.; ... Pardina, Eva. Impact of bariatric surgery on subclinical atherosclerosis in patients with morbid obesity. Surgery for Obesity and Related Diseases Q1 IF3,812

Carmona-Maurici, J; Cuello, E; Ricart-Jané, D; Miñarro, A; Baena-Fustegueras, J A; Peinado-Onsurbe, J; Pardina, E. Effect of bariatric surgery on the evolution of oxidative stress depending on the presence of atheroma in patients with morbid obesity. Surgery for Obesity and Related Diseases. 2020 Dec;16(12):1961-1970. PMID: 32933868. Q1 IF3,812

Merichal Resina, M; Cerdan, S; Grañón, E; Tarragona Foradada, J A; Olsina, K; KISSLER, J J. Leiomyosarcoma of the colon. A very uncommon condition with poor prognosis. Gastroenterol Hepatol. 2020 Apr; 43(4):200-201. PMID: 3186448. Q4 IF1,581

Villalobos, M R; Maestre, G; González, Y; Carballal, M; Ruiz, G; Potti, G; Escartín, A; Olsina, K. Novel method for delayed primary closure and incisional hernia prevention in open abdomen: COMbined and MODified Definitive Abdominal wall closure (COMODA). Hernia. 2020 Apr;24(2):395-401. PMID: 30968285. Q2 IF2,768


Merichal Resina, M; Cerdan, S; Grañón, E; Tarragona Foradada, J A; Olsina, K. Funduplicatura nissen asistida por robot en hernia de hiato tipo 4. 14/12/20 en el VIDEO ATLAS DE LA AEC. ISSN 26607375

Jara, J; Escartín; P Muriel; F Vela; H Salvador; M González; Olsina JJ. Segmentectomía II hepática robótica. 14/12/20 en el VIDEO ATLAS DE LA AEC. ISSN 26607375

Merichal Resina, M; Cerdan, S; Grañón, E; Tarragona Foradada, J A; Olsina, K. Celiacomesenteric trunk: A rare vascular variant. Cirugía Española. 2020 Jan;98(1):46. PMID: 31208726. Q3 IF1,323

Muriel, P; Escartín, A; González ML; Olsina JJ. Robotic cholecystectomy in situ inversus totals. Cirugía Española. 2020 Nov;98(9):554. PMID: 32386727. Q3 IF1,323


Salvador, H; Escartín, A; González, M; Muriel, P; Jara, J; Vela, F; Olsina JJ. Funduplicatura nissen asistida por robot en hernia de hiato tipo 4. 14/10/20 en el VIDEO ATLAS DE LA AEC. ISSN 26607375

Osorio, J; Jericó, C; Miranda, C; Santamaría, M; Artigau, E; Galofré, G; Garstot, E; Luna, A; Puértolas, N; Aldeano, A; Olsina, J J; Molina, J; Feliu, J; Videla, S; Tebe, C; Pera M. Improved postoperative outcomes and reduced transfusion rates after implementation of a Patient Blood
2.2. Experimental surgery


The group has been conducting research since January 1995 in the study of the genetic variability of the Vitamin D Receptor and its role in the susceptibility to HIV infection and the clinical progression of AIDS. The group currently coordinates an interdisciplinary research comprising by doctors and researchers from the Hospital Clínic de Barcelona, the University of Jaén and the University of Santiago de Compostela to study the role of the vitamin D receptor in HIV infection that causes AIDS. Following a strategy of “genes candidates” we are currently evaluating the role of allelic variants of different genes involved in the metabolism of vitamin D.

### 2.3. Genetics of complex diseases

The group has been conducting research since January 1995 in the study of the genetic variability of the Vitamin D Receptor and its role in the susceptibility to HIV infection and the clinical progression of AIDS. The group currently coordinates an interdisciplinary research comprising by doctors and researchers from the Hospital Clínic de Barcelona, the University of Jaén and the University of Santiago de Compostela to study the role of the vitamin D receptor in HIV infection that causes AIDS. Following a strategy of “genes candidates” we are currently evaluating the role of allelic variants of different genes involved in the metabolism of vitamin D.

**Group leader**
Dr. Joan Fíbla Palazon

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**Location**
Biomedicine I | 2nd floor

**Research team**

- **Joan Fíbla Palazon**
  Group leader

- **Ricard Lopez Ortega**
  Researcher
2.3. Genetics of complex diseases

Publications


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 life-threatening rare intestinal disease.

2.4. Molecular oncology
2.4. Molecular oncology

Projects

<table>
<thead>
<tr>
<th>PI</th>
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<th>Project</th>
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<tbody>
<tr>
<td>Diego Arango</td>
<td>European Joint Programme</td>
<td>Antioxidant treatment as a novel therapeutic option for microvillus inclusion disease. ARMED</td>
<td>174,966</td>
</tr>
</tbody>
</table>

Publications


2.5. 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.

The group’s research activity focuses on the following priority lines of research:

**Endometrial cancer**
1. Implementation of the "OMIC" techniques for the identification of new diagnostic, prognostic or predictive markers of response to specific therapies in endometrial cancer.
2. Understand the immunological characteristics of endometrial carcinoma by evaluating the inflammatory microenvironment of different types of endometrial tumors and their recurrences. To propose clinical trials in endometrial cancer subtypes.
3. Analysis of the anti-tumor responses of antineoplastic drugs, through the use of in vitro cultures in two and three dimensions. Study of the mechanisms involved in resistance to apoptosis and conventional therapies in endometrial cancer.
4. Generation of new animal models (CAG-Cre: ER; PTENfl/fl; ARID1Afl/fl, TP53…), to check drug responses in invasion and metastasis processes.
5. Updating the pathological analysis of endometrial cancer to improve the prediction of the prognosis and the response to therapy; transfer of new molecular information to clinical practice. Incorporation of molecular classification, based on TCGA

**Melanoma cancer**
1. Secretome study and its implication in tumoral progression, cellular behaviour and genetic phenotype.
2. Investigate the modulation of the tumor microenvironment immune system, especially macrophage activation (TAMs), related to mutational phenotype and/or the acquisition of resistance.
3. Study and identification of new target therapies to promote personalized treatment in melanoma patients.
4. Use of mice models to analyse new drugs and evaluate their therapeutic potential in preclinical models.
5. Study of new biomarkers in biopsy of melanoma patients with different clinic-pathological stages to have a prognostic value or predictive response.

**Group leader**
Dr. Xavier Matías-Guiu Guia

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**Phone**
+34 973 702 937

**Location**
Biomedicine I | 2nd floor
2.5. Oncological pathology

Research team

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Xavier Matias-Guiu Guia</td>
<td>Group leader</td>
</tr>
<tr>
<td>Anna Ruiz Mitjana</td>
<td>PhD student</td>
</tr>
<tr>
<td>Cristina Megino Luque</td>
<td>PhD student</td>
</tr>
<tr>
<td>Ines de la Rosa Zurera</td>
<td>PhD student</td>
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<tr>
<td>Pol Siso Camarasa</td>
<td>PhD student</td>
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<tr>
<td>Raul Navaridas Fernandez de Bobadilla</td>
<td>PhD student</td>
</tr>
<tr>
<td>Francisco Javier Dolcet Roca</td>
<td>Principal investigator</td>
</tr>
<tr>
<td>Nuria Eritja Sanchez</td>
<td>Principal investigator</td>
</tr>
<tr>
<td>Rosa Maria Martí Laborda</td>
<td>Principal investigator</td>
</tr>
<tr>
<td>Ana Velasco Sanchez</td>
<td>Research technician</td>
</tr>
<tr>
<td>Clara Molins Escuder</td>
<td>Research technician</td>
</tr>
<tr>
<td>Maria Carrele Sole</td>
<td>Research technician</td>
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<tr>
<td>Marta Hereu Bordes</td>
<td>Research technician</td>
</tr>
<tr>
<td>Anna Macia Armengol</td>
<td>Researcher</td>
</tr>
<tr>
<td>Dolors Cuevas Sanchez</td>
<td>Researcher</td>
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<tr>
<td>Douglas Rene Sanchez Guzman</td>
<td>Researcher</td>
</tr>
<tr>
<td>Elena Estarán Silvan</td>
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</tr>
<tr>
<td>Felipe Vilardell Vilellas</td>
<td>Researcher</td>
</tr>
<tr>
<td>Izaskun Urdanibia Ascanio</td>
<td>Researcher</td>
</tr>
<tr>
<td>Johanna Del Pilar Vargas Ramos</td>
<td>Researcher</td>
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<tr>
<td>Jordi Tarragona Foradada</td>
<td>Researcher</td>
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<tr>
<td>Judit Pallares Quixal</td>
<td>Researcher</td>
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<tr>
<td>Maria Pilar Gallet Vicente</td>
<td>Researcher</td>
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<tr>
<td>Sonia Gatius Caldero</td>
<td>Researcher</td>
</tr>
</tbody>
</table>

Group leader
Dr. Xavier Matias-Guiu Guia

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Location
Biomedicine I | 2nd floor
2.5. Oncological pathology

Projects

<table>
<thead>
<tr>
<th>PI Funding agency</th>
<th>Project</th>
<th>Budget (€)</th>
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<tbody>
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<td>Xavier Matias-Guiu Instituto de Salud Carlos III</td>
<td>Plataforma de biobancos y biomodelos</td>
<td>205,700</td>
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<tr>
<td>Xavier Dolcet Ministerio de Ciencia e Innovación</td>
<td>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-beta/Smad</td>
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<tr>
<td>Nuria Eritja Instituto de Salud Carlos III</td>
<td>Papel de ARID1A en la carcinogénesis endometrial dependiente de contexto. Análisis de los mecanismos moleculares y posibles implicaciones terapéuticas</td>
<td>87,120</td>
</tr>
</tbody>
</table>

Publications


2.5. Oncological pathology


Delgado-García, Mercedes; Neynand, Birgit; ...MATIAS-GUIU GUIA, XAVIER; ... Biscuola, Michele. Clinical performance evaluation of the Idylla™ EGFR Mutation Test on formalin-fixed paraffin-embedded tissue of non-small cell lung cancer. Bmc Cancer Q3 IF3,150

Delgado-García, Mercedes; Neynand, Birgit; ...MATIAS-GUIU GUIA, XAVIER; ... Biscuola, Michele. Clinical performance evaluation of the Idylla™ EGFR Mutation Test on formalin-fixed paraffin-embedded tissue of non-small cell lung cancer. Bmc Cancer Q3 IF3,150

2.5. Oncological pathology


The Unit was originally established by Dr. Boix and currently it brings together the expertise of several Pharmacology fellows at the University of Lleida. The research interest of this Unit revolves around the mechanism of action of several experimental or clinical drugs. The members of the Units have a strong background in the study of Cell death processes and their modulation. In addition, the Unit has always prioritized research aiming a therapeutic benefit in areas like cancer or inflammatory diseases.

The Unit includes two independent groups:
1. "Molecular pharmacology", directed by Prof. Boix
2. "Pharmacology of the cellular stress", directed by Prof. Ribas

Research team
Jacint Boix Torras | Group leader
Judit Ribas Fortuny | Group leader
Javier Chicote González | PhD student
Aida Beà Tarrega | Research technician

Publications
Chicote González, Javier; Yuste, Victor J; Boix Torras, Jacint; Ribas Fortuny, Judit. Cell Death Triggered by the Autophagy Inhibitory Drug 3-Methyladenine in Growing Conditions Proceeds With DNA Damage. Frontiers in Pharmacology 01 IF4,225
2.7. 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 Institute of Biomedical Research 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 is the clinical research node of the Immunology and Metabolism Research Group (GRIM). The main lines of research of the Group are organized around 4 main branches:

- Morbid obesity and its comorbidities, with great interest in the development of personalized medicine, based on:
  - The genetic propensity to develop comorbidities such as non-alcoholic fatty liver, apnea syndrom or type 2 diabetes mellitus.
  - The ability to predict comorbidity resolution and weight loss after bariatric surgery.
- The study of cellular and molecular signaling mechanisms involved in the cellular response to insulin, initially focused on the characterization of PKRN1 phosphokinase.
- Deepen the study of cardiovascular disease in the “other” diabetes: diabetes mellitus type 1, diabetes type LADA, and monogenic diabetes.
- Confirmation that the lung is the target organ of late complications of type 2 diabetes mellitus.
2.7. Research group in Immunology and metabolism (GRIM)

Research team

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Albert Lecube Torelló</td>
<td>Group leader</td>
</tr>
<tr>
<td>Concepción Mora Giral</td>
<td>Group leader</td>
</tr>
<tr>
<td>Juan Verdaguer Autonell</td>
<td>Group leader</td>
</tr>
<tr>
<td>Celia Vived Maza</td>
<td>PhD student</td>
</tr>
<tr>
<td>Estela Rosell Mases</td>
<td>PhD student</td>
</tr>
<tr>
<td>Júlia Luna Salinas</td>
<td>PhD student</td>
</tr>
<tr>
<td>Marta Corral Pujol</td>
<td>PhD student</td>
</tr>
<tr>
<td>Anna Hernandez Ribalta</td>
<td>Research technician</td>
</tr>
<tr>
<td>Carolina Lopez Cano</td>
<td>Researcher</td>
</tr>
<tr>
<td>Enric Sanchez Peña</td>
<td>Researcher</td>
</tr>
<tr>
<td>Ferran Rius Riu</td>
<td>Researcher</td>
</tr>
<tr>
<td>Liliana Patricia Gutierrez Carrasquilla</td>
<td>Researcher</td>
</tr>
<tr>
<td>Maria Dolores Santos Rey</td>
<td>Researcher</td>
</tr>
<tr>
<td>Marta Bueno Diez</td>
<td>Researcher</td>
</tr>
<tr>
<td>Marta Hernandez García</td>
<td>Researcher</td>
</tr>
<tr>
<td>Raquel Martí Cabus</td>
<td>Researcher</td>
</tr>
</tbody>
</table>

Group leader
Dr. Juan Verdaguer Autonell
Dr. Concepción Mora Giral
Dr. Albert Lecube Torelló

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Location
Biomedicine II | 2nd floor
2.7. Research group in immunology and metabolism (GRIM)

**Projects**

<table>
<thead>
<tr>
<th>PI</th>
<th>Funding agency</th>
<th>Project</th>
<th>Budget (£)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Albert Lecube</td>
<td>Sociedad Española Endocrinología</td>
<td>Impacto de la composición corporal en la prevalencia, gravedad, propagación y pérdida de inmunidad en la infección por COVID-19</td>
<td>5,000</td>
</tr>
<tr>
<td>Joan Verdaguer</td>
<td>Ministerio de Ciencia e Innovación</td>
<td>Modelación de la microbiota intestinal en las etapas iniciales del desarrollo de la diabetes autónoma en el ratón NOD, modelo de la diabetes tipo 1 humana</td>
<td>121,000</td>
</tr>
</tbody>
</table>

**Publications**


2.7. Research group in immunology and metabolism (GRIM)


García-de-la-Fuente MR, Santacana M, Verdaguer J, Villardell F, Garí E, Canasova JM. Characterisation of the inflammatory response triggered by topical ingenol mebutate 0.05% gel in basal cell carcinoma. Australasian Journal of Dermatology. 2020 May;61(2):e200-e207. PMID: 31944277. Q3 IF1,789


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 and state-of-the-art vascular imaging techniques, scientists of VRTR group join their efforts in solving challenging scientific problems.

VRTR group has stable collaborations with several renal divisions around Spain, as we are members of the Spanish Network for Renal Diseases (REDinREN ISCIII) funded by the Spanish Government. 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.

The main research lines of the Vascular and Renal Translational Research Group are:
- Identification of molecular mechanisms involved in the progression of chronic kidney disease.
- Factors involved in glomerular diseases.
- Identification of factors involved in the acceleration of atherosclerosis and vascular calcification in chronic kidney disease.
- Factors involved in the disruption of mineral homeostasis in chronic kidney disease.
- Vitamin D receptor in health and disease.

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Location
Biomedicine I | 1st floor
2.8. Vascular and renal translational research group

### Research Team

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jose Manuel Valdivielso Revilla</td>
<td>Group leader</td>
</tr>
<tr>
<td>Auria Eritja Sanjuan</td>
<td>PhD student</td>
</tr>
<tr>
<td>Aurora Pérez Gómez</td>
<td>PhD student</td>
</tr>
<tr>
<td>Maite Caus Enriquez</td>
<td>PhD student</td>
</tr>
<tr>
<td>Alfons Segarra Medrano</td>
<td>Principal investigator</td>
</tr>
<tr>
<td>Milica Bozic</td>
<td>Principal investigator</td>
</tr>
<tr>
<td>Alicia García Carrasco</td>
<td>Research technician</td>
</tr>
<tr>
<td>Ana Maria Martínez Bardaji</td>
<td>Research technician</td>
</tr>
<tr>
<td>M. Elisabet Samsó Piñol</td>
<td>Research technician</td>
</tr>
<tr>
<td>M. Teresa Vidal Balleste</td>
<td>Research technician</td>
</tr>
<tr>
<td>Cristina Martínez Martínez</td>
<td>Researcher</td>
</tr>
<tr>
<td>Elías Jatem Escalante</td>
<td>Researcher</td>
</tr>
<tr>
<td>Eva Castro Boque</td>
<td>Researcher</td>
</tr>
<tr>
<td>Jordi Roig Carcel</td>
<td>Researcher</td>
</tr>
<tr>
<td>Jose Felipe Sarro Sobrin</td>
<td>Researcher</td>
</tr>
<tr>
<td>Juan Miguel Díaz Tocados</td>
<td>Researcher</td>
</tr>
<tr>
<td>Lourdes Craver Hospital</td>
<td>Researcher</td>
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<tr>
<td>Marcelino Bermudez Lopez</td>
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<tr>
<td>Virtudes María de Lamo</td>
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</table>

**Group leader**
Dr. Jose Manuel Valdivielso Revilla

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valdivielso@irbleida.cat

**Phone**
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**Location**
Biomedicine I | 1st floor
2.8. Vascular and renal translational research group

**Projects**

<table>
<thead>
<tr>
<th>PI</th>
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<th>Project</th>
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<tbody>
<tr>
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<td>Movilidad de profesionales sanitarios e investigadores del SNS (M-BAE)</td>
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<td>Jose Manuel Valdivielso</td>
<td>Ministerio de Cienica i Innovación</td>
<td>Acciones de Dinamización &quot;Europa Investigación 2020&quot;</td>
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**Publications**


**Funding agency Project Budget (€)**

<table>
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<th>PI</th>
<th>Funding agency</th>
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</tbody>
</table>
2.8. Vascular and renal translational research group


2.8. Vascular and renal translational research group


Area 3. Cellular and molecular models of human pathologies

This area integrates the research groups interested in the analysis of cellular mechanisms that control cell proliferation and differentiation, as well as signalling pathways involved in cell survival and cell death. Alterations in the processes of cell proliferation, cell survival and cell death can be the origin or aggregating elements in various human pathologies such as cancer, neurodegenerative diseases and cardiac pathologies such as myocardial infarction.

The aim of the research groups in this area is to identify the key factors in the control of these cellular processes and the alterations that occur in pathological situations. The experimental models used are very diverse. Saccharomyces cerevisiae is used as a single-cell eukaryotic model because of the ease with which it can be genetically manipulated and the relatively minor complexity of its genome. On the other hand, neuronal primary cultures, cell lines from neural tissue, cancer cells and primary cultures of rat and mouse cardiomyocytes are used. Likewise, other cell types, such as embryonic fibroblasts and primary brain cancer cultures (gliomas), are also being undertaken. In recent years, projects have been initiated that involve the analysis of these processes in cells derived from genetically modified animals: knockouts and overexpressors (transgenics) for certain genes of interest, as well as mice in which the wild-type gene has been exchanged for the same modified gene (knockin). Gene silencing is widely used as a tool to identify the functions of key components in signalling cascades in different models.

Groups

3.1. Cell cycle
3.2. Cell signalling and apoptosis group
3.3. Oncogenic signalling and development
3.4. Calcium cellular signalling

Publications

Researchers

Total IF

Average IF

% Q1

% D1

Number of competitive projects funded/requested

Total competitive funds obtained
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.

3.1. Cell cycle

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.

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- **Group leader**
Dr. Eloi Garí Marsol
Dr. Jordi Torres Rosell

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jordi.torres@udl.cat

- **Phone**
+34 973 702 411 | 973 702 438

- **Location**
Biomedicine I | 3rd floor

**Research team**

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
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<tbody>
<tr>
<td>Eloi Garí Marsol</td>
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</tr>
<tr>
<td>Jordi Torres Rosell</td>
<td>Group leader</td>
</tr>
<tr>
<td>Clara Matas Nadal</td>
<td>PhD student</td>
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<tr>
<td>Eva Irene Ibars Esiarte</td>
<td>PhD student</td>
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<td>Joan Codina Fabra</td>
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<tr>
<td>Marc Tarres Escalonada</td>
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<tr>
<td>Marta Guasch Vallés</td>
<td>PhD student</td>
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<tr>
<td>Neus Perez Lorite</td>
<td>PhD student</td>
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<tr>
<td>Roger Ferran Solé Soler</td>
<td>PhD student</td>
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<tr>
<td>Sonia Nikolova Apostolova</td>
<td>PhD student</td>
</tr>
<tr>
<td>Francisco Ferrezuelo Muñoz</td>
<td>Principal investigator</td>
</tr>
<tr>
<td>Neus Colomina Gabarrella</td>
<td>Principal investigator</td>
</tr>
<tr>
<td>Sonia Rius Balcells</td>
<td>Research technician</td>
</tr>
<tr>
<td>Celia Casas Herranz</td>
<td>Researcher</td>
</tr>
<tr>
<td>Jose Manuel Casanova Seuma</td>
<td>Researcher</td>
</tr>
<tr>
<td>Neus Pedraza Gonzalez</td>
<td>Researcher</td>
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<tr>
<td>Rafael Aguayo Ortiz</td>
<td>Researcher</td>
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</tbody>
</table>
3.1. Cell cycle

Projects

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<tr>
<th>PI</th>
<th>Funding agency</th>
<th>Project</th>
<th>Budget (€)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eloi Garí</td>
<td>Ministerio de Ciencia e Innovación</td>
<td>Caracterización de funciones no canónicas del complejo ciclina DI-CDK4 implicadas en señalización</td>
<td>145,200</td>
</tr>
</tbody>
</table>

Publications


The lines of research of the Cell Signaling and Apoptosis Group are:
Study of the processes that regulate differentiation, survival and cell death in cardiac tissue. Investigation of the mechanisms involved in these processes is essential to address the treatment of diseases of the cardiovascular system.

3.2. Cell signalling and apoptosis group

The lines of research of the Cell Signaling and Apoptosis Group are:
Study of the processes that regulate differentiation, survival and cell death in cardiac tissue. Investigation of the mechanisms involved in these processes is essential to address the treatment of diseases of the cardiovascular system.

Group leader
Dr. Daniel Sanchis Morales
Dr. Marta Llovera Tomas

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Location
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Research team
Daniel Sanchis Morales  Group leader
Marta Llovera Tomas  Group leader
Aida Beà Tárrega  PhD student
3.2. Cell signalling and apoptosis group

Projects

<table>
<thead>
<tr>
<th>PI</th>
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<th>Budget (€)</th>
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</thead>
<tbody>
<tr>
<td>Daniel Sanchís</td>
<td>Ministerio de Ciencia e Innovación</td>
<td>Mecanismos implicados en el papel de EndoG en el desarrollo y el metabolismo del corazón. Relación de EndoG y otros genes apoptóticos con la patofisiopatología cardíaca.</td>
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</tr>
</tbody>
</table>

Publications


3.3. Oncogenic signalling and development

The group considers a genetic approach to the mechanisms that regulate the activated cell signaling pathways by proto-oncogen Ret, and its regulation by the putative tumor suppressor Sprouty. As a fundamental tool, the group uses lines of mutant mice generated by homologous recombination. The studies cover different fields such as renal development and the peripheral nervous system, or the biology of tumors of neuroendocrine origin.

Research team

Mario Encinas Martin  Group leader
Gisela Altes Bargallo  PhD student
Marta Hereu Bordes  Research technician
Joan Ribera Calvet  Researcher

Group leader
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Location
Biomedicine I | 2nd floor
Understanding the adaptive responses developed by cancer cells during tumour progression and relapse should allow the development of novel therapeutic strategies against cancer. Cancer cells adapt to changing microenvironments (involving nutrient and/or oxygen deprivation) through the activation of the unfolded protein response (UPR) and autophagy. These processes are also highly relevant in terms of chemoresistance and recurrence. The group works on Glioblastoma, an aggressive brain tumour characterized by fast growth, high invasivity and resistance to treatment. Currently they are addressing how interfering with the UPR and deregulating macroautophagy affects cell proliferation and survival, in vitro and in vivo, to devise possible new anti-tumoural strategies. The group uses primary cultures established from tumour biopsies and biochemical, cell and molecular biology techniques, together with gene silencing and calcium imaging.

3.4. Calcium cellular signalling

Understanding the adaptive responses developed by cancer cells during tumour progression and relapse should allow the development of novel therapeutic strategies against cancer. Cancer cells adapt to changing microenvironments (involving nutrient and/or oxygen deprivation) through the activation of the unfolded protein response (UPR) and autophagy. These processes are also highly relevant in terms of chemoresistance and recurrence. The group works on Glioblastoma, an aggressive brain tumour characterized by fast growth, high invasivity and resistance to treatment. Currently they are addressing how interfering with the UPR and deregulating macroautophagy affects cell proliferation and survival, in vitro and in vivo, to devise possible new anti-tumoural strategies. The group uses primary cultures established from tumour biopsies and biochemical, cell and molecular biology techniques, together with gene silencing and calcium imaging.
3.4. Calcium cellular signalling

Publications


Neuroscientific research is one of the priority objectives of attention in almost all the strategic approaches to scientific policy of almost all the agents promoting biomedical research. The personal and social problems derived from incurable neurodegenerative diseases, many of which are linked to ageing, make it necessary to pay particular attention to the development of scientific knowledge in this field, as it is absolutely essential to make progress in the fight against these diseases. There is full agreement among the scientific community to consider the brain as the most complex object in existence, at least within the small portion of the universe that we can cover. For this reason, getting to know the nervous system is, therefore, one of the great challenges facing science today.

Recent developments in the field of molecular genetics, proteomics, new cell visualisation techniques and other technological advances are very powerful tools that characterise the current state of neuroscientific research. Many of these techniques are available at the Institute and are the basis of the work of the research groups in this area, as they address specific aspects of neurodegeneration and neuromuscular pathology from a cellular and molecular point of view.
The Clinical Neurosciences group was created with the aim of bringing together all the neurological research carried out in the Lleida hospital setting in 2008. During 2020 the group has been coordinated by Dr. Piñol and Dr. Purroy. Currently, it is a translational research group made up of different professional profiles (neurologists, radiologists, psychologists, nurses, vascular surgeons, geriatricians, psychologists, clinical biochemists, biologists, biotechnologists, and biomedicians). The group is subdivided into two nodes representing research in cerebrovascular diseases and research in cognitive impairment:

- **Cerebrovascular diseases**
  The group aims to improve the diagnosis, prognosis and treatment of patients, through the identification of biomarkers (neuroimaging, biologics) and the understanding of the molecular mechanisms involved in strokes. It is developing a clinical trial of remote ischemic tolerance in patients with stroke code criteria (study REMOTECAT-trialgov NCT03375762). It is part of the “Spanish Network of Cerebral Vascular Diseases” of the Carlos III Institute (INVICTUS-plus).

- **Cognitive impairment**
  It aims to improve the diagnosis of people with cognitive impairment through biological biomarkers and its association with sleep pathology.

### 4.1. Clinical neurosciences

The Clinical Neurosciences group was created with the aim of bringing together all the neurological research carried out in the Lleida hospital setting in 2008. During 2020 the group has been coordinated by Dr. Piñol and Dr. Purroy. Currently, it is a translational research group made up of different professional profiles (neurologists, radiologists, psychologists, nurses, vascular surgeons, geriatricians, psychologists, clinical biochemists, biologists, biotechnologists, and biomedicians). The group is subdivided into two nodes representing research in cerebrovascular diseases and research in cognitive impairment:

- **Cerebrovascular diseases**
  The group aims to improve the diagnosis, prognosis and treatment of patients, through the identification of biomarkers (neuroimaging, biologics) and the understanding of the molecular mechanisms involved in strokes. It is developing a clinical trial of remote ischemic tolerance in patients with stroke code criteria (study REMOTECAT-trialgov NCT03375762). It is part of the “Spanish Network of Cerebral Vascular Diseases” of the Carlos III Institute (INVICTUS-plus).

- **Cognitive impairment**
  It aims to improve the diagnosis of people with cognitive impairment through biological biomarkers and its association with sleep pathology.
4.1. Clinical neurosciences

Research team

Francisco Purroy Garcia  
Group leader

Raquel Mitjana Penella  
PhD student

Coral Torres Querol  
PhD student

Cristina Pereira Priego  
PhD student

Farida Dakterzada Sedaghat  
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Leila Romero El Khayat  
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Gerard Piñol Ripoll  
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Cristina Garcia Vazquez  
Researcher

Alejandro Quílez Martínez  
Researcher

Ana Belen Vena Martínez  
Researcher

Anna Carnes Vendrell  
Researcher

Daniel Vazquez Justes  
Researcher

Francisco Torres Bondia  
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Gerard Josep Mauri Capdevila  
Researcher

Gloria Arque Fuste  
Researcher

Jaume Mas Atance  
Researcher

Jordi Sanahuja Montesinos  
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Juan Farre Pons  
Researcher

Maria Isabel Gil Garcia  
Researcher

Mikel Vicente Pascual  
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Nuria Montala Palau  
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Nuria Torreguitart Mirada  
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Location
Biomedicine II | 2nd floor
4.1. Clinical neurosciences

Projects

<table>
<thead>
<tr>
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<tr>
<td>Francisco Purroy</td>
<td>Instituto de Salud Carlos IIII</td>
<td>Determinación del tiempo de inicio del ictus isquémico y el tejido recuperable mediante la firma ómica: OMIC IS BRAIN</td>
<td>185,130</td>
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<tr>
<td>Coral Torres</td>
<td>Instituto de Salud Carlos IIII</td>
<td>Movilidad de personal investigador contratado en el marco de la AES (M-AES)</td>
<td>10,005</td>
</tr>
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</table>

Publications


Mauri-Capdevila G, Ois A, Jove M, PORTERO M, Sol J, Campello AR; Roquer J; Vicente-Pascual M; Justes D; Purroy F. Lipidomics signature of stroke recurrence after transient ischemic attack. International Journal of Stroke 15 600-600


4.1 Clinical neurosciences

Journal of Neurology. 2020 Sep,27(9):1744-1747. PMID: 32449791. Q1 IF4,516


Amarenco P, Denison H; THALES Steering Committee and Investigators (Purroy Francisco). Ticagrelor Added to Aspirin in Acute Nonsevere Ischemic Stroke or Transient Ischemic Attack of Atherosclerotic Origin. Stroke. Q1 IF7,19

Johnston SC, Amarenco P...THALES Investigators (Purroy Francisco). Ticagrelor and Aspirin or Aspirin Alone in Acute Ischemic Stroke or TIA. New England Journal of Medicine. Q1 IF74,69

Amarenco P, Denison H; THALES Steering Committee and Investigators (Purroy Francisco). Ticagrelor Added to Aspirin in Acute Nonsevere Ischemic Stroke or Transient Ischemic Attack of Atherosclerotic Origin. Stroke. Q1 IF7,19

Flores A, Ustell R, Seró L, Pellisé A, Rodríguez P, Viñas J, Ribó M, Krupinski J, Más N, García S, Palomeras Soler E, Cocho D, Canovas...
4.1. Clinical neurosciences


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 developmental 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.

4.2. 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 developmental biology approach.

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4.2. Evolutionary developmental neurobiology

Projects

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<tr>
<td>Loreta Medina</td>
<td>Ministerio de Ciencia e Innovación</td>
<td>Molecular architecture of brain centers and networks regulating emotion and cognition: implications for psychiatry</td>
<td>131,769</td>
</tr>
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</table>
The group studies the cellular and molecular bases of neuromuscular disorders, particularly, motoneuron diseases such as amyotrophic lateral sclerosis (ALS) and spinal muscular atrophy (SMA). For this, we use in vitro and in vivo models, mainly chick embryo and transgenic mice. Several lines of work are currently underway to examine the role of excitotoxicity, autoimmunity and neuroinflammation in the ALS and SMA pathogenesis, and to identify new targets for future therapies. Another important aspect of our research is the analysis of plastic changes in central and peripheral synapses in the context of normal development, aging and motoneuron diseases.

4.3. Experimental neuromuscular pathology

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

Research team

<table>
<thead>
<tr>
<th>Name</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jordi Calderó Pardo</td>
<td>Group leader</td>
</tr>
<tr>
<td>Alaó Gatius Puchercós</td>
<td>PhD student</td>
</tr>
<tr>
<td>Alba Blasco Carmona</td>
<td>PhD student</td>
</tr>
<tr>
<td>Sara Salvany Montserrat</td>
<td>PhD student</td>
</tr>
<tr>
<td>Josep Enric Esquerda Colell</td>
<td>Principal investigator</td>
</tr>
<tr>
<td>Lidia Piedrafita Llorens</td>
<td>Research technician</td>
</tr>
<tr>
<td>Silvia Gras Artells</td>
<td>Research technician</td>
</tr>
<tr>
<td>Anna Maria Casanovas Llorens</td>
<td>Researcher</td>
</tr>
<tr>
<td>Olga Tarabal Mostazo</td>
<td>Researcher</td>
</tr>
<tr>
<td>Sara Hernández Estañol</td>
<td>Researcher</td>
</tr>
</tbody>
</table>

Group leader
Dr. Jordi Calderó Pardo

E-mail
jordi.caldero@udl.cat

Phone
+34 973 702 440

Location
Biomedicine I | 1st floor
4.3. Experimental neuromuscular pathology

Publications


Our goal is the characterization of new molecular mechanisms involved in the formation (development) and remodelling (adult neurogenesis) of the neuronal circuits in the vertebrate nervous system. Our models are genetically modified mice and we expect that our studies will help to shed some light on or understanding of the aetiology of neurological and psychiatric disorders such as schizophrenia and the autism as well as neurodegenerative diseases such as Alzheimer’s disease, in humans. In our studies we use a wide spectrum of technical approaches, from in vivo (behaviour, mouse genetics, in utero electroporation and tissue processing and analysis), in vitro (primary tissue culture of explants or of dissociated neurons) to biochemistry and molecular biology.

4.4. Molecular and developmental neurobiology

Our goal is the characterization of new molecular mechanisms involved in the formation (development) and remodelling (adult neurogenesis) of the neuronal circuits in the vertebrate nervous system. Our models are genetically modified mice and we expect that our studies will help to shed some light on or understanding of the aetiology of neurological and psychiatric disorders such as schizophrenia and the autism as well as neurodegenerative diseases such as Alzheimer’s disease, in humans. In our studies we use a wide spectrum of technical approaches, from in vivo (behaviour, mouse genetics, in utero electroporation and tissue processing and analysis), in vitro (primary tissue culture of explants or of dissociated neurons) to biochemistry and molecular biology.

Research team

Joaquim Egea Navarro  Group leader
Bahira Zammou  PhD student
Carmen Espinet Mestre  Principal investigator
Sonia Rius Balcells  Research technician

Group leader
Dr. Joaquim Egea Navarro

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joaquim.egea@udl.cat

Phone
+34 973 702 961

Location
Biomedicine I 1st floor
The researchers converge in the interest in the search for the biological bases of personality and their disorders. Based on biological-factoring 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). It also interests the study of human behavior through observation techniques of direct and digitalized behavior.
4.5. Neurocognition, psychobiology of the personality and behavioral genetics

Projects

<table>
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<tr>
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<tr>
<td>Antón Aluja</td>
<td>Ministerio de Ciencia e Innovación</td>
<td>Efecto de la personalidad en la toma de decisiones y actividad del lóbulo prefrontal del córtex mediante espectroscopia funcional por infrarrojo cercano (fNIR)</td>
<td>95,590</td>
</tr>
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</table>

Publications


Camerino L, Camerino O, Prat Q, Jonsson OK, Castañer M. Has the use of body image in advertising changed in the first two decades of the new century? Physiol Behav. 2020 Jun 1;220:112869. PMID: 32173341. Q2 IF2,826


4.6. 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.

Our primary focus is the study of environmental factors triggering the disease with a special interest in oxidative processes and mitochondrial function. We investigate the free radical generation and regulation by mitochondria, the detection and quantification of specific biomarkers of oxidative injury to carbohydrates, lipids, proteins and nucleic acids; targeting proteins of oxidation, the level of unsaturation of the cellular membranes, their sensitivity to lipooxidation injury, metabolic changes and cellular adaptations to oxidative stress.
4.6. Neuroimmunology

Projects

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Luis Brieva</td>
<td>Instituto de Salud Carlos III</td>
<td>EMCOVID-19: Esclerosis Múltiple y COVID-19</td>
<td>40,640</td>
</tr>
</tbody>
</table>

Publications


4.7. Neuronal signalling unit

The Neuronal Signaling Unit is a research group focused on the study of the mechanisms of degeneration of neurons in the framework of Spinal Muscular Atrophy (SMA). SMA is a childhood neurodegenerative disease characterized by the loss of spinal motoneurons due to the mutation of the SMN1 gene (Survival Motor Neuron). The decrease of the SMN protein causes the degeneration of axons and the death of these neurons by mechanisms still under study.
4.7. Neuronal signalling unit

Projects

<table>
<thead>
<tr>
<th>PI</th>
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<th>Budget (€)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rosa Soler</td>
<td>Instituto de Salud Carlos III</td>
<td>Analysis of the beneficial effects of calpain inhibitors treatment and combined therapies on spinal muscular atrophy</td>
<td>82,280</td>
</tr>
</tbody>
</table>

Publications


This area includes groups that basically carry out research in the clinical area, although some projects overlap with translational research. It also includes most of the groups that carry out clinical trials. The composition of this area is changing, as it includes most of the prestigious physicians who have recently joined the Arnau de Vilanova University Hospital (HUAV). It is foreseeable that in the coming years this area will be expanded with new groups generated from the incorporation of new doctors in response to the generational renewal of the HUAV.

**Area 5. Clinical Medicine**

**Groups**

5.1. Applied epidemiology
5.2. Biological foundations of mental disorders
5.3. Indicators and specifications of the quality in the clinical laboratory
5.4. Intensive medicine
5.5. Nutrition, metabolism and microbiota in patients with heart failure (NUTRIMMIC)
5.6. Pharmacoepidemiology
5.7. Precision medicine in chronic diseases group
5.8. Research group of cancer biomarkers (GREBiC)
5.9. Translational research group on infectious diseases of Lleida
5.10. Translational research in respiratory medicine group
5.11. Urgency and emergency multi-disciplinary research group

**Publications**

- 183 Researchers
- 135 Publications
- 601.52 Total IF
- 4.45 Average IF
- 51.9% %Q1
- 19.2% %Q3
- 738,700€ Total competitive funds obtained
- 5/13 Number of competitive projects funded/requested
5.1. 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.

Research team

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pere Godoy Garcia</td>
<td>Group leader</td>
</tr>
<tr>
<td>Josep Ramon Marsal Mora</td>
<td>External collaborator</td>
</tr>
<tr>
<td>Leonardo Galvan Santiago</td>
<td>External collaborator</td>
</tr>
<tr>
<td>Cristina Garcia Serrano</td>
<td>PhD student</td>
</tr>
<tr>
<td>Cristina Garcia Serrano</td>
<td>PhD student</td>
</tr>
<tr>
<td>Jesus Pujol Salud</td>
<td>Researcher</td>
</tr>
<tr>
<td>Josep Montserrat Capdevila</td>
<td>Researcher</td>
</tr>
<tr>
<td>Maria Catalina Serna Arnaiz</td>
<td>Researcher</td>
</tr>
<tr>
<td>Marta Ortega Bravo</td>
<td>Researcher</td>
</tr>
<tr>
<td>Miquel Alsedra Graells</td>
<td>Researcher</td>
</tr>
<tr>
<td>Placido Santafe Soler</td>
<td>Researcher</td>
</tr>
</tbody>
</table>
5.1. Applied epidemiology

Publications


5.2. 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.

<table>
<thead>
<tr>
<th>Research team</th>
<th>Group leader</th>
</tr>
</thead>
<tbody>
<tr>
<td>Josep Pifarré Paredo</td>
<td>Group leader</td>
</tr>
<tr>
<td>Maria Mur Lain</td>
<td>Group leader</td>
</tr>
<tr>
<td>Ester Mora Claramunt</td>
<td>External collaborator</td>
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<tr>
<td>Vanessa Pera Guardiola</td>
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<tr>
<td>Aurora Torrent Seto</td>
<td>Researcher</td>
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<tr>
<td>Esther Castan Campanera</td>
<td>Researcher</td>
</tr>
<tr>
<td>Francesc Abella Pons</td>
<td>Researcher</td>
</tr>
<tr>
<td>Iolanda Batalla Llordes</td>
<td>Researcher</td>
</tr>
<tr>
<td>Irene Forcada Pach</td>
<td>Researcher</td>
</tr>
<tr>
<td>Laura Bosa Lopez</td>
<td>Researcher</td>
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<tr>
<td>Lluis Rossello Aubach</td>
<td>Researcher</td>
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<tr>
<td>Maria Irigoyen Otiñano</td>
<td>Researcher</td>
</tr>
<tr>
<td>Montse Esquera Aresta</td>
<td>Researcher</td>
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<tr>
<td>Salvador Miret Fallada</td>
<td>Researcher</td>
</tr>
<tr>
<td>Teresa Guiller Llados</td>
<td>Researcher</td>
</tr>
</tbody>
</table>
5.2. Biological foundations of mental disorders

Publications

Juan Gil, Francesc Abella, Gerard Pedra. Valor Social de los medicamentos para dejar de fumar. Opiniones respecto a su financiación. Revista Española de Drogodependencias. 45 (2) 2020


5.3. 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.

Research team

<table>
<thead>
<tr>
<th>Name</th>
<th>Role</th>
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</thead>
<tbody>
<tr>
<td>Maria Mercedes Ibarz Escuer</td>
<td>Group leader</td>
</tr>
<tr>
<td>Aurora Blanco Font</td>
<td>External collaborator</td>
</tr>
<tr>
<td>Gloria Busquets Soria</td>
<td>External collaborator</td>
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<tr>
<td>Ma Isabel Llovet Lombarte</td>
<td>External collaborator</td>
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<tr>
<td>Margarita Simon Palmada</td>
<td>External collaborator</td>
</tr>
<tr>
<td>Maria Antonia Llopis Diaz</td>
<td>External collaborator</td>
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<tr>
<td>Merce Montesinos Costa</td>
<td>External collaborator</td>
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<tr>
<td>Nuria Serrat Orus</td>
<td>External collaborator</td>
</tr>
<tr>
<td>Ana Cristina Sopena Murillo</td>
<td>Researcher</td>
</tr>
<tr>
<td>Maria Bernal Morillo</td>
<td>Researcher</td>
</tr>
<tr>
<td>Silvia Pico Fornies</td>
<td>Researcher</td>
</tr>
<tr>
<td>Sonia Carrasco Ignes</td>
<td>Researcher</td>
</tr>
</tbody>
</table>
5.3. Indicators and specifications of the quality in the clinical laboratory

Publications


"Influence of study model, baseline catalytic concentrations and analytical system on the stability of serum alanine aminotransferase". Josep Miquel Bauça, Andrea Caballero, Carolina Gómez, Débora Martínez-Espartosa, Isabel García del Pino, Juan José Puente, Maria Antonia Llopis, Itziar Marzana, Marta Segovia, Mercedes Ibarz, Monserrat Ventura, Rubén Gómez-Rioja. Adv Lab Med 2020; 20200021.
5.4. 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.

Research team

- Jesus Caballero Lopez (Group leader)
- Jose Javier Trujillano Cabello (Group leader)
- Lluis Servia Goixart (Principal investigator)
- Andres Pujol Freire (Researcher)
- Dulce Angelica Morales Hernandez (Researcher)
- Estela Val Jordan (Researcher)
- Gabriel Jimenez Jimenez (Researcher)
- Jordi Codina Calero (Researcher)
- Jorge Rubio Ruiz (Researcher)
- Jose Javier Prados Chica (Researcher)
- Josman Monclou Palomino (Researcher)
- Judit Vilanova Corsellas (Researcher)
- M Begoña Balsera Garrido (Researcher)
- Mar Miralbes Torner (Researcher)
- Mariona Badia Castello (Researcher)
- Mercedes Palomar Martinez (Researcher)
- Miguel Leon Valles (Researcher)
- Montserrat Marta Vallverdu Vidal (Researcher)
- Neus Montserrat Ortiz (Researcher)
- Silvia Iglesias Moles (Researcher)
- Silvia Rodriguez Ruiz (Researcher)
- Sulamita Carvalho Brugger (Researcher)

Group leader
Dr. Jose Javier Trujillano Cabello
Dr. Jesus Caballero Lopez

E-mail
jjtrujillano lleida.ics@gencat.cat
jcaballero lleida.ics@gencat.cat

Phone
+34 973 702 406 | 973 705 245

Location
HUAV
5.4. Intensive medicine

Publications


Carvalho Brugger Sulamita, Caballero Jesús, Curià Davinia, García Eva, Sabaté Ivan, Sancho Marisa and Ariza Gemma. Dynamic physiotherapy for all patients admitted to the ICU according to their clinical status-describing a quality improvement program. Journal of Novel Physiotherapy and Physical Rehabilitation. 31 January 2020


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.

Research team

<table>
<thead>
<tr>
<th>Name</th>
<th>Role</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amalia Zapata Rojas</td>
<td>Group leader</td>
</tr>
<tr>
<td>Jose Luis Morales Rull</td>
<td>Group leader</td>
</tr>
<tr>
<td>Sara Cuesta Sancho</td>
<td>External collaborator</td>
</tr>
<tr>
<td>Ivan Aparicio Jaume</td>
<td>Research technician</td>
</tr>
<tr>
<td>Cristina Sole Felip</td>
<td>Researcher</td>
</tr>
<tr>
<td>Joan Gimeno Guasch</td>
<td>Researcher</td>
</tr>
<tr>
<td>Jordi Cortada Echauz</td>
<td>Researcher</td>
</tr>
<tr>
<td>Natalia Mateu Cantarell</td>
<td>Researcher</td>
</tr>
<tr>
<td>Pilar Vaqué Castilla</td>
<td>Researcher</td>
</tr>
</tbody>
</table>

Location

Biomedicine I | Lab 0.3
Biomedicine II | Office 3.6
5.6. Pharmacoepidemiology

This is a multidisciplinary group consisting of doctors of different specialties, pharmacists of different specialties and nursing graduates. The group aims to evaluate the efficacy, safety and efficiency of medical technology linked to the use of medicines, either for the prevention or treatment of diseases. It also focuses on the analysis of the patterns of drug use as a starting point to achieve their rational application.

Its objectives focus on the following basic areas:
• Medical oncology.
• Infectious diseases.
• Artificial nutrition.
• Neuropharmacology.
• The safety and effectiveness of medications.
• Pharmacoeconomics.

The fundamental instrument of pharmacoepidemiology is the clinical trial. For this reason, the group’s primary objective is to participate in multicentre clinical trials, at home or abroad, for the development of new drugs in the different areas of interest.

Research team

Juan Antonio Schoenenberger Arnaiz
Group leader

Fernando Worner Diz
Principal investigator

Irene Mangues Bafalluy
Principal investigator

Laura Barta Sancho
Research technician

Ana M Aragones Eroles
Researcher

Beatriz Martinez Castro
Researcher

Eduardo Pereyra Acha
Researcher

Esther Querol Zamora
Researcher

Jaume Canal Sotelo
Researcher

Jordi Bosch Muñoz
Researcher

Manel Pique Gilart
Researcher

Maria Dolors Castellana Perello
Researcher

Maria Nabal Vicuña
Researcher

Mireia Martinez Sogues
Researcher

Pilar Taberner Bonastre
Researcher

Santiago Manuel Cano Marron
Researcher

Valentin Huerva Escanilla
Researcher
5.6. Pharmacoepidemiology

Publications


Aluja A, Malas O, Urieta P, Worner F, Balada F. Biological correlates of the Toronto Alexithymia Scale (TAS-20) in cardiovascular disease and healthy community subjects. Physiol Behav. 2020 Dec 1;227:113151. PMID: 32147800. Q4 IF1,277


5.7. 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.

Research team

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manuel Sánchez De La Torre</td>
<td>Group leader</td>
</tr>
<tr>
<td>Anabel Lourdes Castro Grattoni</td>
<td>PhD student</td>
</tr>
<tr>
<td>Andrea Zapater Matute</td>
<td>PhD student</td>
</tr>
<tr>
<td>Lucia Pinilla Latorre</td>
<td>PhD student</td>
</tr>
<tr>
<td>Gerard Torres Cortada</td>
<td>Principal investigator</td>
</tr>
<tr>
<td>Mireia Dalmases Cleries</td>
<td>Principal investigator</td>
</tr>
<tr>
<td>Alicia Sánchez de la Torre</td>
<td>Researcher</td>
</tr>
<tr>
<td>Ivan Benitez Iglesias</td>
<td>Researcher</td>
</tr>
</tbody>
</table>

Group leader
Dr. Manuel Sánchez De La Torre

E-mail
sanchezdelatorre@irb lleida.cat

Phone
+34 973 702 216

Location
Biomedicine II | 3rd floor
5.7. Precision medicine in chronic diseases group

Publications


5.7. Precision medicine in chronic diseases group


Navarro-Seriano C, Martínez-Garcia MA, Torres G, Barbé F,
5.7. Precision medicine in chronic diseases group


Prasad B, Sánchez-de-la-Torre M. The association of sleep disturbances measures with blood pressure: is the time to explore novel measurements? Thorax. 2020 Jan;75(1):4-5. PMID: 31678971. Q1 IF8,834
5.8. Research group of cancer biomarkers (GReBiC)

Our group work focuses on three main lines of research lines related to cancer:
- Digestive tumors: colorectal cancer and gastric cancer
- Breast cancer
- Malignant pleural effusion

The three lines tackle diseases of high prevalence in our society which are associated with a high mortality rate. Through translational and basic research approaches, we aim to find biomarkers of therapy response, of diagnosis for therapeutic intervention and of prognosis for risk stratification.

Research team

Anna Novell Alvarez  
Group leader

Antonia Salud Salvia  
Group leader

Jose Manuel Porcel Pérez  
Group leader

Maria Alba Sorolla Bardaji  
Group leader

Silvia Bielsa Martin  
Principal investigator

David Martínez Ortín  
Research technician

Joel Salla Fortuny  
Research technician

Marta García Cortes  
Research technician

Rubén Tejero Narbona  
Research technician

Anabel Sorolla Bardaji  
Researcher

Aureli Esquerda Serrano  
Researcher

Eleonor Paola Murata Yonamine  
Researcher

Eva Parisí Capdevila  
Researcher

Joel Veas Rodríguez  
Researcher

Magdalena Torres Pifarre  
Researcher

Maria Alba Sorolla Bardaji  
Researcher

Maria Del Carmen Civit Oro  
Researcher

Marina Asuncion Pardina Solano  
Researcher

Moisés Jose Mira Flores  
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Robert Montal Roura  
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Phone
+34 973 702 431 | 973 003 747

Location
Biomedicine I | ground floor
5.8. Research group of cancer biomarkers (GReBiC)

### Projects

<table>
<thead>
<tr>
<th>PI</th>
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<td>Jose Manuel Porcel</td>
<td>Instituto de Salud Carlos III</td>
<td>Biopsia líquida utilizando el sobrenadante del líquido pleural y el plasma para el estudio del perfil</td>
<td>96,800</td>
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### Publications


PI Funding agency Project Budget (€)

Anabel Sorolla Instituto de Salud Carlos III Contratos Miguel Servet 242,500

Jose Manuel Porcel Instituto de Salud Carlos III Biopsia líquida utilizando el sobrenadante del líquido pleural y el plasma para el estudio del perfil 96,800
5.8. Research group of cancer biomarkers (GReBiC)


5.9. Translational research group on infectious diseases of Lleida

The group consists of basic, clinical and epidemiological researchers, who work at the Lleida Biomedical Research Institute (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 Newtwork 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.

<table>
<thead>
<tr>
<th>Research team</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Eva González De La Fuente</td>
<td>Group leader</td>
</tr>
<tr>
<td>Alfredo Jover Saenz</td>
<td>Principal investigator</td>
</tr>
<tr>
<td>Fernando Barcenilla Gaite</td>
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</tr>
<tr>
<td>Alba Belles Belles</td>
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<tr>
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</tr>
<tr>
<td>Thais Comella Fiestras</td>
<td>Researcher</td>
</tr>
</tbody>
</table>

Group leader
Dr. Eva González De La Fuente

E-mail
egonzalezf@gss.cat

Location
HUAV | HUSM
5.9. Translational research group on infectious diseases of Lleida

Projects

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<td>Alfredo Jover</td>
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<td>Multi-center, randomized, clinical trial of convalescent plasma therapy versus standard of care for the treatment of Covid-19 in hospitalized patients</td>
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Publications


5.10. Translational research in respiratory medicine group

The group consists of basic, clinical and epidemiological researchers, who work at the Lleida Biomedical Research Institute (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 Newtwork 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.

**Group leader**

Dr. Ferran Barbé Illa

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**Phone**

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**Location**

Biomedicine II | 3rd floor

Research team
5.10. Translational research in respiratory medicine group

<table>
<thead>
<tr>
<th>Research team</th>
<th>Position</th>
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<tr>
<td>Ferran Barbé Illa</td>
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<tr>
<td>M. Jesús Muniesa Royo</td>
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<tr>
<td>Maricel Arbonés Tomás</td>
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<td>Jordi De Batlle Garcia</td>
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<tr>
<td>Anna Moncusi Moix</td>
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<td>Adriano Targa Dias Santos</td>
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<td>David De Gonzalo Calvo</td>
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<td>Paola Carmona Arias</td>
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<td>Silvia Barril Farre</td>
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<td>Silvia Gómez Falguera</td>
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</tr>
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</table>

Group leader
Dr. Ferran Barbé Illa

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Phone
+34 973 702 489

Location
Biomedicine II | 3rd floor
5.10. Translational research in respiratory medicine group

### Projects

<table>
<thead>
<tr>
<th>PI</th>
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<th>Project</th>
<th>Budget (€)</th>
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<tr>
<td>David de Gonzalo</td>
<td>Instituto de Salud Carlos III</td>
<td>Transcriptómica y machine learning para asistir en la toma de decisiones clínicas en pacientes con sospecha de apnea obstructiva del sueño</td>
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<td>David de Gonzalo</td>
<td>Instituto de Salud Carlos III</td>
<td>Contratos Miguel Servet</td>
<td>242,500</td>
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### Publications


5.10. Translational research in respiratory medicine group

The ilervas project.. Respir Med. 2020 Oct;172:106124. PMID: 32919375. Q2 IF3,095


5.10. Translational research in respiratory medicine group


5.11. Urgency and emergency multi-disciplinary research group

The main challenge of our group is to improve the urgent assistance we provide to the citizens of our healthcare region in the field of urgency. We want to transfer the results obtained through our investigations and projects in the clinical field in our guides of action and welfare procedures that we use to the Emergency services. We will promote the research and study of the impact of health education on practicing healthcare professionals. We intend to conduct research in a fundamental social area from urgency, domestic violence, patient safety and mortality.

We believe that by carrying out this approach from the three aforementioned aspects we intend to increase the quest for excellence in the field of urgency. Providing a new vision, mainly in the objectives of education and the more legal blindness.

Research team

Oriol Yuguero Torres  
Group leader

Rita Maria Maciel Soares Pereira  
External collaborator

Elena Jusribo Sanchez  
PhD student

Iris Nathalie San Roman Arispe  
PhD student

Noemí Espies Diaz  
PhD student

Maria Viladrosa Montoy  
Principal investigator

Rosa Maria Perez Perez  
Principal investigator

Anna Moreno Pena  
Researcher

Carmel Vidal Sans  
Researcher

Cecilia Llobet Pina  
Researcher

Jesus Perez Mur  
Researcher

Jose Daniel Lacasta Garcia  
Researcher

Laia Molina Castellà  
Researcher

Mireia Saura Codina  
Researcher

Nuria Garcia Garcia  
Researcher

Raquel Lain Gari  
Researcher

Sara Muñoz Buderus  
Researcher

Xavier Ichart Tomas  
Researcher
5.11. Urgency and emergency multi-disciplinary research group

Publications


This section includes publications by researchers who are not part of a research group of the five main research areas. It is a heterogeneous group of publications in different areas such as Internal Medicine, Otorhinolaryngology, Ophthalmology, Cardiology, Nursing and Physiotherapy. Recently, the IRBLleida has incorporated an active research group in the area of Nursing called the Health Care Research Group.

**Area 6. Other research areas**

This section includes publications by researchers who are not part of a research group of the five main research areas. It is a heterogeneous group of publications in different areas such as Internal Medicine, Otorhinolaryngology, Ophthalmology, Cardiology, Nursing and Physiotherapy. Recently, the IRBLleida has incorporated an active research group in the area of Nursing called the Health Care Research Group.

**Groups**

6.1. Research group of health care (GRECS)

6.2. Other research lines
6.1. Research group of health care (GRECS)

The group comprises nurses and physiotherapists from both clinical practice (Santa Maria University Hospital-GSS Hospital, Arnau de Vilanova University Hospital and Primary Care) and faculty members (University of Lleida). The main research areas are Healthy and Active Aging and Healthcare Services. The Nursing and Healthcare Research Group is involved in several projects in Spain, Europe and world-wide. At the European level researchers are partners of TOY (Together Old and Young project): Inter-generational Learning Involving Young Children and Older People (Grundtvig- Lifelonglearning Programme). In this country and worldwide, the Group has established collaboration with the Nursing and Healthcare Research Unit (Investén-isciii), which is focused on the Best Practice Guidelines Programme funded by the Ontario government’s Ministry of Health and Long-Term Care and the Carlos III Institute of Health, as part of the Spanish Ministry of Economy and Finance. Some of the guidelines developed and implemented include Evidence based Practice in reducing falls in older persons, the treatment of pressure ulcers, incontinence management, palliative care and pain management. As part of the Spanish Collaboration Centre of the Joanna Briggs Institute, the group is involved in implementing Nursing Evidence Best Practice in a range of clinical settings, through a signed agreement between the Carlos III Institute of Health (Nursing and Healthcare Research Unit: Investén-isciii) and the Spanish Regional Health Systems.

Group leader
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Location
Biomedicine II | 2nd floor

Research team

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Montserrat Gea Sanchez</td>
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<tr>
<td>Carolina Climent Sanz</td>
<td>PhD student</td>
</tr>
<tr>
<td>Filip Bellon</td>
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<tr>
<td>Oriol Martinez Navarro</td>
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<tr>
<td>Carmen Nuin Orrio</td>
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<tr>
<td>Erica Tula Briones Vozmediano</td>
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</tr>
<tr>
<td>Helena Fernandez Lago</td>
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</tr>
<tr>
<td>Joan Blanco Blanco</td>
<td>Principal investigator</td>
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<tr>
<td>Roland Pastells Peiro</td>
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<td>Alexandra Pascual Garcia</td>
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<td>Ana Lavedan Santamaria</td>
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<tr>
<td>Anna Espart Herrero</td>
<td>Researcher</td>
</tr>
<tr>
<td>Carlos Casanova Gonzalvo</td>
<td>Researcher</td>
</tr>
<tr>
<td>Cristina Bravo Navarro</td>
<td>Researcher</td>
</tr>
</tbody>
</table>
6.1. Research group of health care (GRECS)

Edith Garcia Solanes
Elena Paraiso Pueyo
Esther Rubinat Arnaldo
Eva Barallat Gimeno
Francesc Josep Rubí Carnacea
Francesc Valenzuela Pascual
Jessica Miranda Iglesias
Joan Enric Torra Bou
Jordi Balleste Torralba
Jordi Martinez Soldevila
Jose Maria Martinez Barrilse
Jose Tomas Mateos Garcia
Josep M Gutierrez Vilaplana
Judith Roca Llobet
Laura Martinez Rodriguez
Luis Hernandez Santamaria
Luis Mambrona Giron
M Jose Sanmartin Bardaji
M* Angels Costa Menen
M* Jesus Torrelles I Pijuan
M* Luisa Guillard Sein-Echaluce
Maravillas Torrecilla Hernandez
Maria Angeles Elez Martinez
Maria Dolores Gomez Garcia
Maria Ferrer Gil
Mariana Loezar Hernandez
Mariona Rocaspana Garcia
Merce Serra Miralles
Miguel Angel Escobar Bravo
Miquel Angel Caldero Solé
Olga Masot Arifo
Sandra Hervas Marco
Silvia Solé Casas
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Location
Biomedicine II | 2nd floor
6.1. Research group of health care (GRECS)

Projects

<table>
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<td>Helena Fernández</td>
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<td>Efectos de a combinación del tapiz rodante en un entorno virtual gami cado con la estimulación cerebral no invasiva en la enfermedad de Parkinson: ensayo clínico aleatorizado</td>
<td>62,920</td>
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<tr>
<td>Erica Briones</td>
<td>Instituto de Salud Carlos III</td>
<td>Trabajo agrícola y migración en España: Precariedad Sociolaboral y Salud (PSLyS)</td>
<td>51,425</td>
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</table>

Publications


Bravo C PhD, PT, Skjaerven LH MSc, PT, Guitard Sein-Echaluce L PhD, NR, Catalan-Matamoros D PT, MPH, MBA, PhD. Experiences from group basic body awareness therapy by patients suffering from fibromyalgia: A qualitative study. Physiother Theory Pract. 2020 Aug;36(8):933-945. PMID: 30247934. Q3 IF1,624


Legido-Quigley H, Mateos-García JT, Campos VR, Gea-Sánchez
6.1. Research group of health care (GRECS)


6.2. Other research lines

**Research team**

<table>
<thead>
<tr>
<th>Name</th>
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<tbody>
<tr>
<td>Francesc Xavier Abardia Oliva</td>
<td>Researcher</td>
</tr>
<tr>
<td>Antonio Alcántara Tadeo</td>
<td>Researcher</td>
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<tr>
<td>Ramon Aldábo Gimeno</td>
<td>Researcher</td>
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<tr>
<td>Gemma Ariza Carrió</td>
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<td>Alicia Traveset Maeso</td>
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6.2. Other research lines

Publications


Acknowledgements to the main funders