ANNUAL

SCIENTIFIC REPORT 24

IDIBAPS


IDIAP

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ANNUAL SCIENTIFIC REPORT 2024

FOREWARD BY THE DIRECTOR

Annual scientific report 2024

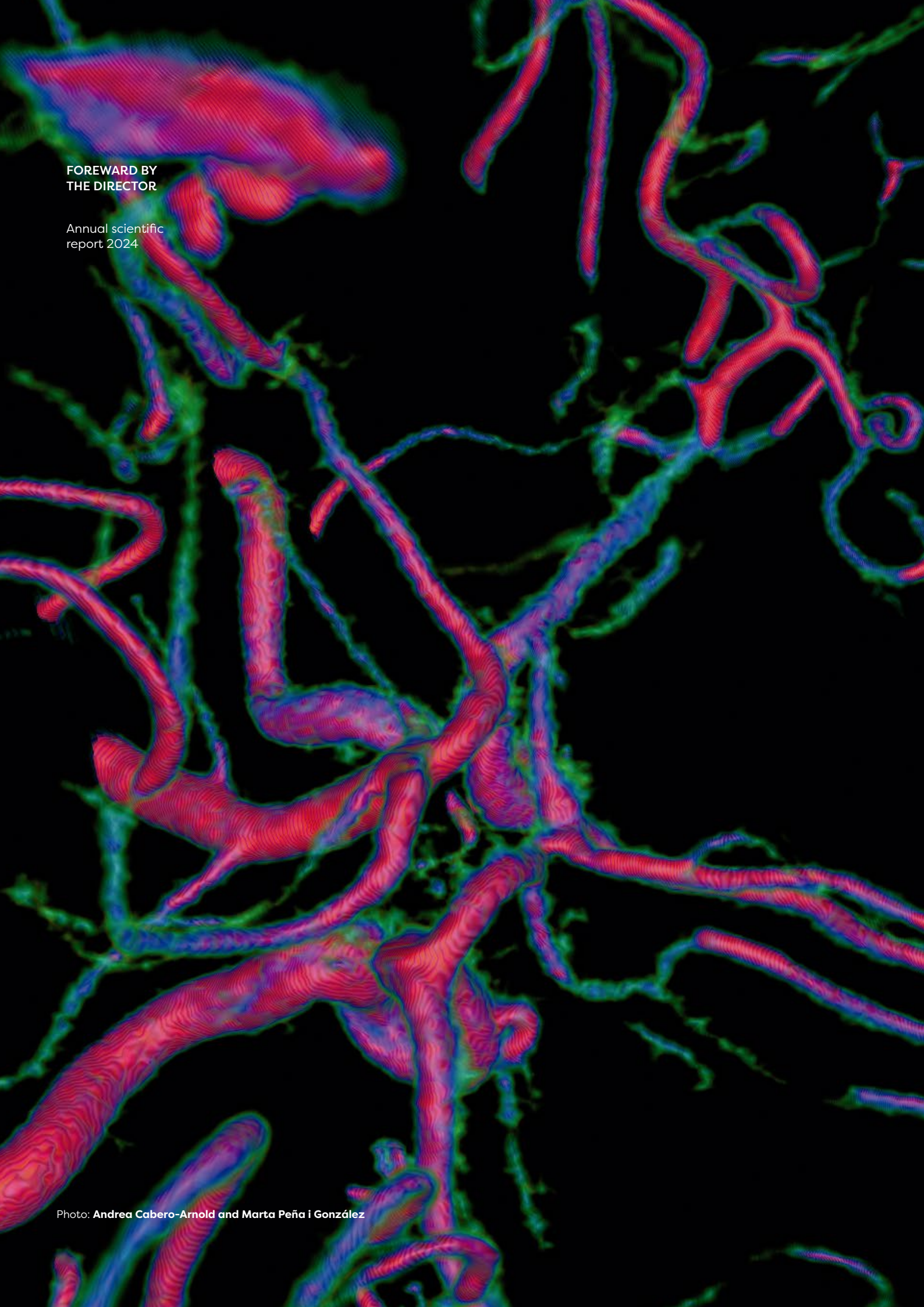

Photo: **Andrea Cabero-Arnold and Marta Peña i González**

Foreward by the Director

Elías Campo
Director

2024 has been a year of growth and strategic consolidation for IDIBAPS, strengthening our biomedical research, driven by a vibrant and committed scientific and professional community.

New research groups and leadership transitions have marked this year, including the launch of the group on Tumor microenvironment plasticity and heterogeneity led by Silvia Affó, and the appointments of Eduard Parellada and David Fuster as new leaders of the Schizophrenia and Multimodal Imaging Biomarkers groups, respectively.

Multidisciplinary collaboration was further reinforced with the launch of two new internal research programmes: Metabolism and Disease (MetaDis), coordinated by Mercedes Fernández and Josep Vidal, and Translational Research for Brain Disorders, coordinated by Eduard Vieta and Analía Bortolozzi. These initiatives bridge basic and clinical research groups, engaging junior and senior researchers, reflecting our commitment to tackling complex biomedical challenges through integrated approaches.

As part of the new ambitious initiative led by the Hospital Clínic of Barcelona together with the University of Barcelona and IDIBAPS to obtain the accreditation as Comprehensive Cancer Centre, we reorganized our five research areas to consolidate all oncology groups into a single area, now called Cancer, incorporating eight groups previously members of other areas.

To further enhance our research capacities, the Core Facilities programme expanded with the appointment of Maria Aragon to lead the new Research Computing platform, addressing growing needs in research data management, computing and analysis.

Demonstrating the excellence of our researchers, supported by professional grant management, IDIBAPS secured highly competitive international, European and national funding, including a new ERC Starting Grant led by Marianna Spatola, and six new European collaborative projects, coordinated by IDIBAPS researchers.

Throughout the year, we strengthened training and mentoring initiatives to nurture the next generation of researchers. Thanks to la Caixa Foundation, a new fellow joined the institutional BITRECS programme for postdoctoral clinician-scientists. We also launched the first edition of the PhD Welcome Days to welcome first year PhD students and fostering new connections.

IDIBAPS maintained a robust scientific output, publishing 1.511 original research articles and 60 clinical guidelines (>70% international), many of which with a direct impact on clinical practice. This report highlights some of the main discoveries, selected by our scientific community for their significance, and demonstrates a wide range of innovative strategies addressing conditions such as multiple myeloma, breast cancer, diabetes, cirrhosis, cardiovascular and neurological diseases, among others.

Innovation continued to play a central role, ensuring that novel research can lead to tangible solutions for patients and society. This year, we secured new licensing agreements and obtained prestigious innovation grants, such as an ERC Proof-of-Concept and a Caixa Impulse grant to nurture innovative projects. Some of our spin-off companies achieved significant milestones, notably HealthCircuit, whose digital platform was recognised by the OECD as a good practice in pre-surgical care.

Advancing in our commitment to gender equality, we welcomed Fleur Chapus, our first roving researcher to support and collaborate with our research staff during long-term leaves at critical stages of their academic careers. On the International Day of Women and Girls in Science, we presented our Gender Equality Plan, while the PROGENERES decalogue of Clínic-IDIBAPS – a practical tool to promote the integration of the sex/gender perspective throughout the entire scientific process – won the ISCIII Responsible Research and Innovation Prize.

Institutionally, IDIBAPS received the prestigious FORTALECE-KAIROS programme (€2.5 million), promoted by the Spanish Ministry of Science, to boost biomedical research at international level for the next four years. The institute was successfully reaccredited as a health research institute by the Carlos III Health Institute and received the highest rating in the CERCA evaluation, reaffirming our impact in biomedical research. We also surpassed the milestone of capturing over €1 billion in biomedical research and innovation funding since our foundation in 1989.

Our social and strategic dimensions flourished thanks to joint initiatives within the Campus Clínic, such as the launch of Campus Clínic Solidari and the first edition of Clínic Obert, reinforcing our commitment to healthcare cooperation and an open dialogue with society.

Looking ahead, we expanded our facilities with over 500 m^2 at the Barcelona Science Park, creating new opportunities for collaborations with other research institute and strengthening our ability to attract new talent.

One more year, we warmly thank all IDIBAPS professionals for their dedication, talent, and commitment. Together, we continue to build an open, excellent, and transformative institute.

Annual scientific report 2024

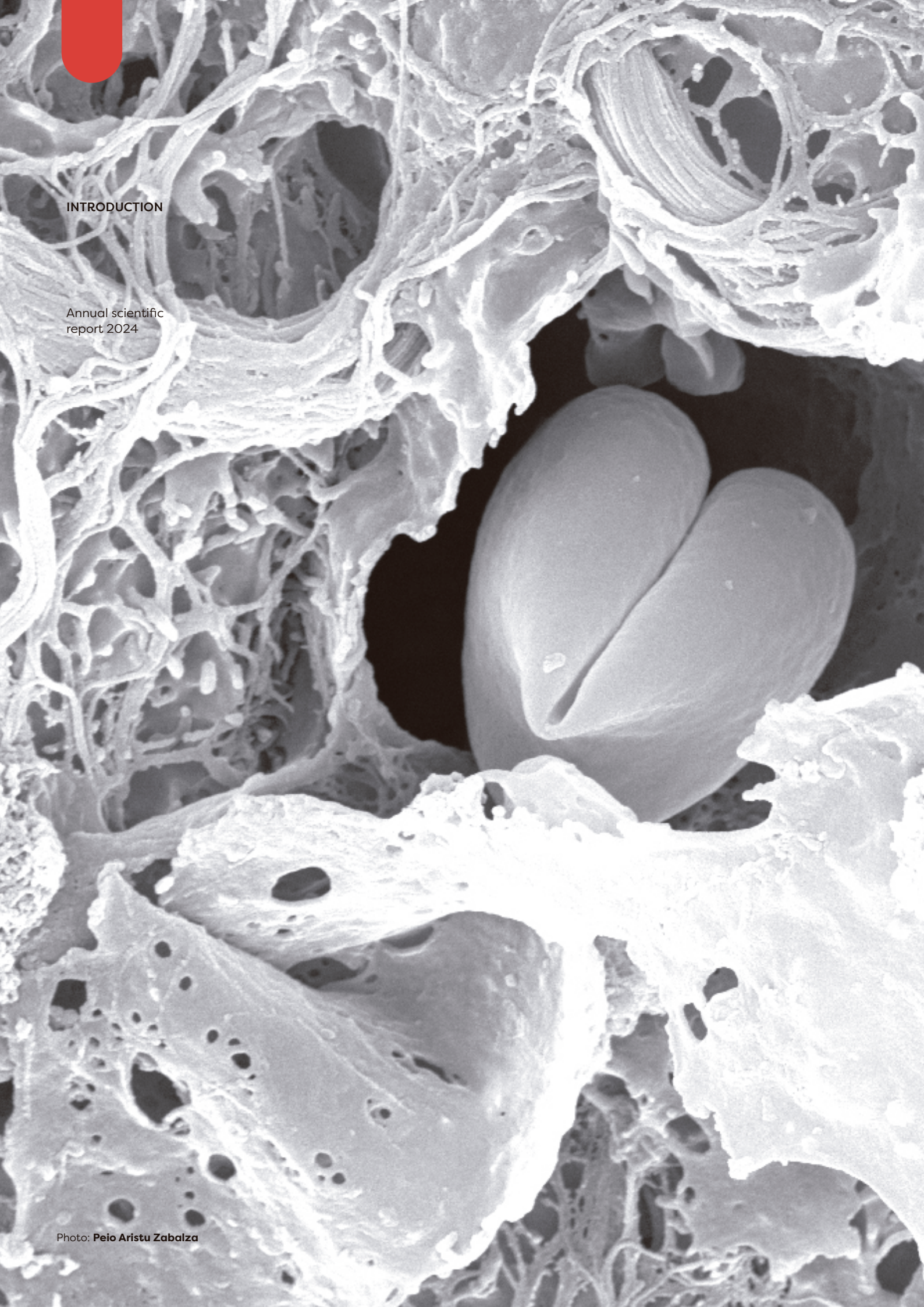

Photo: **Peio Aristu Zabalza**

About us

The Fundació de Recerca Clínic Barcelona-Institut d'Investigacions Biomèdiques August Pi i Sunyer (IDIBAPS) is a biomedical research institute of excellence. It combines clinical and basic research to accelerate the translation of knowledge for the benefit of the patients.

IDIBAPS is the result of the integration in 2023 of the Hospital Clínic Foundation for Biomedical Research (FCRB), created in 1989, and the consortium August Pi i Sunyer Biomedical Research Institute (IDIBAPS), created in 1996.

IDIBAPS is a nonprofit foundation with a board of trustees representing the Catalan Government departments of Health and of Research and Universities, the Hospital Clínic Barcelona (HCB) and the University of Barcelona (UB).

The institute is a CERCA (Research Centers of Catalonia) center and holds the accreditation as a healthcare research institute by the Carlos III Institute of Health since 2009. It is also part of the Science Foundation of the Spanish Cancer Association (AECC).

The IDIBAPS research community is composed of more than 2,000 professionals, including 98 research groups organized across 5 different areas of knowledge and 7 Core Facilities to offer state-of-the-art technologies.

AREA 1
Biological aggression and response mechanisms

AREA 2
Respiratory, cardiovascular and renal pathobiology and bioengineering

AREA 3
Liver, digestive system and metabolism

AREA 4
Clinical and experimental neuroscience

AREA 5
Cancer

Additionally, 4 interdisciplinary groups perform research in Primary Healthcare, Nursing, Clinical Pharmacology, and Multimodal Imaging Biomarkers.

In 2023, IDIBAPS created three multidisciplinary research programmes to encourage collaboration among its groups.

- Translational cancer research.
- Synaptic autoimmunity in neurology, psychiatry and cognitive neuroscience.
- Lymphoid neoplasms.

In 2024, IDIBAPS created two more programmes:

- Translational research programme for brain disorders
- Metabolism and disease programme (MetaDis)

Scientific breakthroughs are never the result of chance. They are the fruit of long-term commitments involving not only researchers, technicians, managers, but also society as a whole.

IDIBAPS has made such a commitment to encourage translational research, innovation and technological progress in biomedicine, through various programmes addressing diseases with a high prevalence, morbidity and mortality in our society.

The data presented in this Annual Scientific Report detail the ever-growing scientific achievements of IDIBAPS investigators and the institute as a whole, and their capacity to attract and efficiently manage public and private funding.

This enormous potential for capturing resources and translating knowledge into applied results for clinical practice constitutes the best guarantee for securing the impact of the institute in our society.

HR EXCELLENCE IN RESEARCH

CERCA Centres de Recerca de Catalunya

Organisation chart

IDIBAPS leadership ensures the institute's day to day management, as well as efficiency and quality of operations, in collaboration with various professional departments on research management and administration.

Elías Campo
Director

Gemma Pedrola
Secretary

Michela Bertero
Director of Strategy

Arantxa Fernández
Secretary

David Badia
Managing Director

Laura Lopera
Secretary

Juan Abolafia
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Head of Economic Planning and Management Control

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Head of Public Hiring

Ernest Costa
Head of TIC

Marta Fernández
Head of Human Resources

Gemma Llaverias
Head of Scientific Coordination

Teresa Lloret
Head of Knowledge and Technology Transfer (KTT)

Arnau Llobet
Head of Post-award Projects Management Office

Guillem Masdeu
Head of Legal Affairs

Sònia Meléndez
Head of Accounting and Finance

Cristina Navas
Head of General Services

Gemma Pascual
Head of the Institutional Actions

Sandra Pérez
Head of National Projects

Sandra Piquer
Head of Laboratories

Aina Rodríguez
Head of Core Facilities

Governance and structure

The following boards and committees provide strategic oversight, ensure financial stability, and support IDIBAPS in advancing scientific research and innovation.

BOARD OF TRUSTEES

The board of trustees consists of key representatives of diverse institutions and supervises IDIBAPS activities, budget and results. Its mission is to take strategic decisions in consultation with the Scientific Advisory Board, and to evaluate the implementation of the strategic plan.

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CEO, Hospital Clínic Barcelona (HCB)

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Medical Director, HCB

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General Director of Research. General

VICE-CHAIR
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Deputy General Director for Research and Innovation in Health, Generalitat de Catalunya

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CEO, HCB

Raquel Sánchez-Valle
Medical Director, HCB

Jordi García i Fernández
Vice-rector for Research, UB

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Director of Research, HCB

Elías Campo i Güerri
IDIBAPS Director

David Badia Prat
IDIBAPS General Manager

NON-TRUSTEE SECRETARY
Maria Jesús Jiménez i Hernández
Head of the Legal and Administrative Department, Health Ministry, Generalitat de Catalunya

SCIENTIFIC ADVISORY BOARD (SAB)

Independent leading scientists, selected by the board of trustees, compose the SAB to advise the institute on its scientific direction and organization. These leading scientists have in-depth knowledge of the Spanish, European and international research and innovation ecosystems as they hold relevant positions in prestigious national and international research institutions.

CHAIRMAN
José María Mato
CIC bioGUNE, Bilbao

BOARD MEMBERS
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Centro de Biología Molecular Severo Ochoa (CBM), Madrid

Fernando Arenzana-Seisdedos
Institut Pasteur, París

Amparo Cano
Instituto de Investigaciones Biomédicas "Alberto Sols", CSIC-UAM, Madrid

Francisco Fernández-Avilés
Hospital Gregorio Marañón, Madrid

Ramon Gomis
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Hospital Clínico San Carlos, Madrid

Óscar Marín
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Federico Mayor
Centro de Biología Molecular Severo Ochoa, Madrid

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Teresa Palomero
Columbia University, New York. USA

Angel Pellicer
NYU School of Medicine, New York, US

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Hospital La Princesa, Madrid

Eugenio Santos
Centro de Investigación del Cáncer (CIC), Salamanca

Antonio Vidal-Puig
Cambridge Phenomics Center, UK

STEERING COMMITTEE

The Steering Committee is responsible of supervising the IDIBAPS scientific progress, the recruitment of new leading scientists, and the evaluation of IDIBAPS training activities.

CHAIRMAN
Elías Campo
IDIBAPS Director

MEMBERS
Neus Agell
Vice-Dean of School of Medicine and Health Sciences. UB Signal transduction and cell cycle group leader

Antoni Castells
Gastrointestinal and pancreatic oncology group leader

Cristina Fillat
Gene therapy and cancer group leader

Juan Carlos García-Pagán
Hepatic hemodynamics and portal hypertension group leader
Research Deputy Director of Hospital Clínic de Barcelona

Josep Maria Llovet
Translational research in hepatic oncology group leader

Gisela Sugranyes
Multimodal neuroimaging in high risk and early psychosis group leader

David Badia
Managing Director

Michela Bertero
Director of Strategy

SECRETARY
Gemma Llaverias
Head of Scientific Coordination

INTERNAL ADVISORY COMMITTEE

The Internal Advisory Committee consists of IDIBAPS researchers representing the research areas and programmes, and it provides constructive advice to the IDIBAPS director on new strategic and scientific initiatives.

CHAIRMAN
Elías Campo
Director

STEERING COMMITTEE REPRESENTATIVES
Antoni Castells
Gastrointestinal and pancreatic oncology group leader

Josep Maria Llovet
Translational research in hepatic oncology group leader

Juan Carlos García-Pagán
Hepatic hemodynamics and portal hypertension group leader
Research Deputy Director of Hospital Clínic de Barcelona

Cristina Fillat
Gene therapy and cancer group leader

Gisela Sugranyes
Multimodal neuroimaging in high risk and early psychosis group leader

Michela Bertero
Director of Strategy

David Badia
Managing Director

SECRETARY
Gemma Llaverias
Head of Scientific Coordination

INSTITUTIONAL REPRESENTATIVES
Elisenda Eixarch
Physicians' Representatives of Hospital Clínic de Barcelona

Neus Agell
Vice-Dean of School of Medicine and Health Sciences. UB

Roser Cortés
Director of Institut d'Investigacions Biomèdiques de Barcelona (IIBB-CSIC)

AREA REPRESENTATIVES
AREA 1
Josep Maria Miró, Coordinator
Maria Cinta Cid, Representative

AREA 2
Joan Albert Barberà, Coordinator
Eduard Guasch, Representative

AREA 3
Mercedes Fernández, Coordinator
Xavier Forns, Coordinator

AREA 4
Albert Compte, Coordinator
Gisela Sugranyes, Coordinator

AREA 5
Josep M Llovet, Coordinator
Iñaki Martín-Subero, Coordinator
Aleix Prat, Coordinator

GUEST MEMBERS
Montserrat Batlle
Works Committee President

Antoni Trilla
Dean of the School of Medicine and Health Sciences Universitat de Barcelona

Fàtima Crispi
Researcher of the Fetal and perinatal medicine group

Anna Novials
Pathogenesis and prevention of diabetes group leader

Carmen Peralta
Liver transplantation and graft viability group leader

Azucena Salas
Researcher of the Inflammatory bowel disease group

Antoni Sisó
CAPSBE Primary Care Research Coordinator

Javier Domínguez
PhD Community Representative

OTHER COMMITTEES

Medicine Clinical Research Ethics Committee of the HCB
ceic@clinic.cat

Animal Experimentation Ethics Committee of the UB
ceea@ccit.ub.edu

Biosafety Committee
bioseguretat@recerca.clinic.cat

PhD Committee
stepping.stone@recerca.clinic.cat

Ombuds Committee
ombudscommittee@recerca.clinic.cat

Sustainability Committee
sustainability@recerca.clinic.cat

Scientific Infrastructure Committee
neusagell@ub.edu

Gender Balance Committee
rrhh_fundació@clinic.cat

Works Council
ceidibaps@recerca.clinic.cat

Research areas and groups

AREA 1.

BIOLOGICAL AGRESSION AND RESPONSE MECHANISMS

1.1. Ocular inflammation clinical and experimental studies
1.2. Systemic autoimmune diseases
1.3. Systemic vasculitis
1.4. Molecular and cellular bases of inflammation. Structural and biological mass spectro
1.5. Hemotherapy – hemostasis
1.6. Immunogenetics and immunotherapy in autoinflammatory and immune responses
1.7. Immune receptors of the innate and adaptive system
1.8. AIDS and HIV infection
1.9. Emergencies: processes and pathologies
1.10. Endocarditis. Cardiovascular infections. Experimental model
1.11. Inflammatory joint diseases (IJDs)
1.12. Nosocomial infection

AREA 2.

RESPIRATORY, CARDIOVASCULAR AND RENAL PATHOBIOLOGY AND BIOENGINEERING

2.1. Inflammation and repair in respiratory diseases
2.2. Physiopathological mechanisms of respiratory diseases
2.3. Translational research in pulmonary vascular diseases: cell proliferation and apoptotic mechanisms in pulmonary arterial hypertension
2.4. Familial cardiomyopathies and sudden death syndrome
2.5. Nephrology and transplantation (LENIT)
2.6. Vascular cell biology
2.7. Cardiovascular risk nutrition and aging
2.8. Respiratory biophysics and bioengineering
2.9. Arrhythmias and physical activity
2.10. Biopathology and treatment of cardiac arrhythmias
2.11. Clinical and experimental respiratory immunoallergy
2.12. Atherosclerosis, coronary disease and heart failure
2.13. Cardiac imaging
2.14. Applied research in infectious respiratory diseases and critically ill patients

AREA 3.

LIVER, DIGESTIVE SYSTEM AND METABOLISM

3.1. Steatohepatitis and liver transplantation
3.02 Neuronal control of metabolism (NeuCoMe)
3.03 Inflammation and liver disease
3.04 Mitochondrial regulation of cell death and steatohepatitis
3.05 Translational control of liver disease and cancer
3.06 Viral, genetic and immune-mediated liver diseases
3.07 Regulation of liver microcirculation in cirrosis and hepatic vascular diseases
3.08 Chronic liver diseases: molecular mechanisms and clinical consequences
3.09 Liver vascular biology
3.10 Fetal and perinatal medicine
3.11 Metabolic bone disease
3.12 Endocrine disorders: crosstalk between molecular, metabolic and therapeutic determinants
3.13 Gynecology, human reproduction and women´s health
3.14 Translational research group in new therapeutic and diagnostic strategies in liver diseases
3.15 Pathogenesis and prevention of diabetes
3.16 Molecular biology of reproduction and development
3.17 Protective strategies against hepatic ischemia reperfusion injury
3.18 Lipid trafficking and disease
3.19 Inflammatory bowel disease
3.20 Liver cell plasticity and tissue repair
3.21 Pathogenesis and treatment of autoimmunity
3.22 Translational research in diabetes, lipids and obesity

AREA 4.
CLINICAL AND EXPERIMENTAL NEUROSCIENCE

4.1. Pathophysiology and treatment of neurodegenerative disorders
4.2 Systems neuropharmacology
4.3 Child and adolescent psychiatry and psychology
4.4 Cerebrovascular diseases
4.5 Theoretical neurobiology of cortical circuits
4.6 Pathogenesis of autoimmune neuronal disorders
4.7 Cortical circuit dynamics
4.8 Inherited metabolic diseases and muscular disorders
4.9 Neurophysiology
4.10 Clinical Neurophysiology
4.11 Neuropsychology and neuroimaging
4.12 Advanced imaging in neuroimmunological diseases (ImaginEM)
4.13 Clinical addictions
4.14 Parkinson disease and other neurodegenerative movement disorders: clinical and experimental research
4.15 Schizophrenia
4.16 Imaging of mood- and anxiety-related disorders (IMARD)
4.17 Alzheimer's disease and other cognitive disorders
4.18 Systems neuroscience
4.19 Multimodal neuroimaging in high risk and early psychosis
4.20 Neurobiology
4.21 Bipolar and depressive disorders

AREA 5.
CANCER

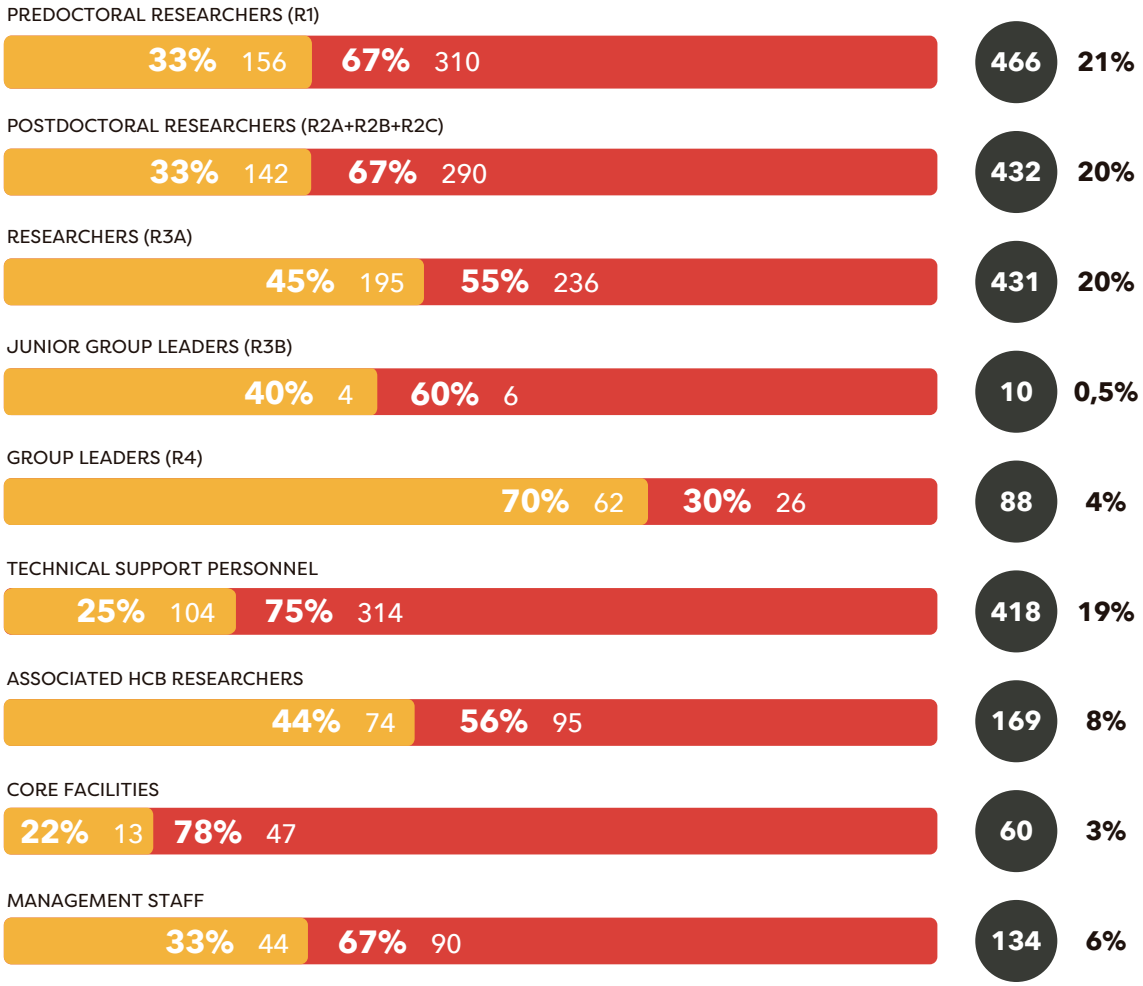
5.1 Tumor microenvironment plasticity and heterogeneity (TMHet)
5.2 Signal transduction, intracellular compartments and cancer
5.3 Genetics and urological tumors
5.4 Functional characterization of oncogenic mechanisms in lymphomagenesis
5.5 Molecular pathology of lymphoid neoplasms
5.6 Translational colorectal cancer genomics
5.7 Gastrointestinal and pancreatic oncology
5.8 Genetic predisposition to gastrointestinal cancer
5.9 Experimental therapies in lymphoid neoplasms
5.10 Molecular pathology of inflammatory conditions and solid tumours
5.11 Myeloid neoplasms
5.12 Myeloma, amyloidosis, macroglobulinemia and other gammapathies
5.13 Gene therapy and cancer
5.14 Cellular immunotherapies for cancer
5.15 Translational research in hepatic oncology
5.16 Lymphoid neoplasms
5.17 Biomedical epigenomics
5.18 Hepatocellular signaling and cancer
5.19 Microenvironment in lymphoma pathogenesis and therapy
5.20 Gene regulation in stem cells, cell plasticity, differentiation, and cancer
5.21 Translational genomics and targeted therapies in solid tumours
5.22 Melanoma: imaging, genetics and immunology
5.23 Hepatic oncology (BCLC)
5.24 Molecular genetics of paediatric lymphomas
5.25 Hematopoietic progenitor cell transplantation

INTERDISCIPLINARY RESEARCH GROUPS

T.1. Clinical pharmacology
T.2. Multimodal imaging biomarkers
T.3. Primary healthcare transversal research group
T.4. Research in nursing

Staff


794
36%
Men
TOTAL
2,208
Women
1,414
64%


PREDOCTORAL RESEARCHERS (R1)
33% 156
67% 310
466
21%
POSTDOCTORAL RESEARCHERS (R2A+R2B+R2C)
33% 142
67% 290
432
20%
RESEARCHERS (R3A)
45% 195
55% 236
431
20%
JUNIOR GROUP LEADERS (R3B)
40% 4
60% 6
10
0,5%
GROUP LEADERS (R4)
70% 62
30% 26
88
4%
TECHNICAL SUPPORT PERSONNEL
25% 104
75% 314
418
19%
ASSOCIATED HCB RESEARCHERS
44% 74
56% 95
169
8%
CORE FACILITIES
22% 13
78% 47
60
3%
MANAGEMENT STAFF
33% 44
67% 90
134
6%

Talent recruitment and retention

Since 2015, IDIBAPS holds the "HR Excellence in Research" accreditation by the European Commission renewing its commitments and actions towards implementing the European Charter for Researchers and the Code of Conduct for their Recruitment, ensuring an open, transparent, and merit-based recruitment process, and fostering a supportive and high-quality research environment.

HR EXCELLENCE IN RESEARCH

More about IDIBAPS HRS4R at:
www.clinicbarcelona.org/en/idibaps/working-idibaps/hrs4r

INSTITUCIÓ CATALANA DE RECERCA I ESTUDIS AVANÇATS (ICREA)

ICREA, the Catalan Institute for Research and Advanced Studies, is a Foundation supported by the Catalan Government that aims to recruit top leading scientists to carry out their activities in the Catalan research and innovation ecosystem. IDIBAPS hosts 5 ICREA Research Professors and 3 ICREA Academy Professors:

Josep M. Llovet
Translational research in hepatic oncology

José Ignacio Martín-Subero
Biomedical epigenomics

Albert Pol
Lipid trafficking and disease

Antonio Postigo
Transcriptional regulation of gene expression

María Victoria Sánchez-Vives Systems neuroscience

Elías Campo (ICREA Academy)
Molecular pathology of lymphoid neoplasms

Antoni Torres (ICREA Academy) Applied research in infectious respiratory diseases and critically ill patients

David Bartrés-Faz (ICREA Academy)
Neuropsychology and neuroimaging

IDIBAPS 80/20 PROGRAMME

The 80/20 programme allows consolidated clinician scientists from Hospital Clinic Barcelona to develop innovative research at IDIBAPS. The beneficiaries of this programme release 30 hours of their weekly healthcare activities (80% of a full-time dedication) to dedicate them to research. It is a 3-year position renewable for 2 additional years prior positive evaluation.

Josep M. Miró
Endocarditis. Cardiovascular infections. Experimental model

IDIBAPS 50/50 PROGRAMME

The 50/50 programme allows junior medical specialists (MD) with strong research experience (PhD), at least in part, in prestigious foreign research centers, to dedicate 50% of their time to developing competitive research at IDIBAPS. It is a 5-year position renewable for 5 years prior positive peer-review evaluation. These junior clinician scientists shall be the future translational research group leaders who will push forward excellent translational research at the institute.

Gisela Sugranyes
Multimodal neuroimaging in high risk and early psychosis

Carlos Fernández de Larrea
Mechanisms of progression in monoclonal gammopathies

Eduard Guasch
Arrhythmias and physical activity

Sara Llufriu
Advanced imaging in neuroimmunological diseases

Georgina Espígol
Systemic vasculitis

Rosa M. Muñoz
Clinical and experimental respiratory immunoallergy

BITRECS PROGRAMME

Bitrecs
Biomedicine international training research programme for excellent clinician-scientists

Fundación "la Caixa"

WEB
www.clinicbarcelona.org/en/idibaps/working-idibaps/bitrecs

The second edition of BITRECS, funded by the La Caixa Foundation, is a research and training programme for postdoctoral fellows aimed at boosting their careers as clinician scientists.

This edition opened a competitive international peer-reviewed call to select one healthcare professional who aimed at developing his/her research career as a postdoctoral clinician scientist, bridging biomedical research discoveries with clinical needs.

In 2024, one fellow was selected to start her contract in 2025:

Lina Youssef

PROJECT
Machine learning-based identification of personalized intervention strategies to prevent preeclampsia and its consequences on cardiometabolic health.

PRINCIPAL INVESTIGATOR
Eduard Gratacós

EMERALD PROGRAMME

Emerald
International PhD Programme for Medical Doctors

WEB
https://emerald-mdphd.eu

EMERALD, co-funded by the European Commission, recruits and trains excellent predoctoral researchers previously trained as medical doctors.

They all carry out a PhD research thesis in one of the 8 participating European research institutes, including IDIBAPS, with the leadership of the Centre for Genomic Regulation (CRG) in Barcelona. IDIBAPS has 2 of the EMERALD researchers who are performing their thesis as international clinician scientists.

Nina Visočnik

PROJECT
Role of GM-CSF in inflammatory activity and fibrosis in ANCA-associated vasculitis.

PRINCIPAL INVESTIGATOR
Maria Cinta Cid

Drilon Miftari

PROJECT
Understanding the Impact of Exercise on Cardiovascular Health: Using a Translational Approach.

PRINCIPAL INVESTIGATOR
Eduard Guasch

ASSISTANT RESEARCHERS PROGRAMME

The Assistant researchers programme is a new institutional initiative that aims at incorporating staff scientists in senior highly competitive research groups to provide a strategic critical contribution, and to support and increase the research activities and leadership of the hosting laboratories. 3 assistant researchers were hired in 2023 and 2 more in 2024 upon a competitive call evaluated by IDIBAPS SAB.

Diana Casas

Systems neuroscience.
Mavi Sanchez-Vives' group

Marliés Cortés

Gene Regulation in Stem Cells, Cell Plasticity, Differentiation, and Cancer.
Antonio Postigo's group

Alicia Garcia

Neuronal control of metabolism (NeuCoMe).
Marc Claret's group

Marta Kulis

Biomedical epigenomics.
José Ignacio Martín-Subero's group

Roser Pinyol

Translational research in hepatic oncology.
Josep M. Llovet's group

Research and innovation results

Scientific publications

Complete list of IDIBAPS scientific publications in 2024

Publication output and indicators

	OUTPUT	MEAN IF	%Q1	%D1	%MA	%OA
Original articles	1,511	8.0	77%	39%	47%	71%
Reviews	320	9.5	46%	38%	59%	62%
Editorials	65	6.8	77%	46%	85%	32%
Clinical guidelines	60	8.1	67%	48%	28%	65%
Others: Letters + Case reports	189	9.3	78%	53%	74%	35%
Consortium publications	43	17.7	88%	72%	0%	74%
TOTAL	2,188	8.5	73%	41%	51%	65%

FIGURE LEGEND

Output
Total number of documents published in scholarly journals indexed in the Web of Science.

Mean IF
Mean impact factor (2023 Journal Citation Reports).

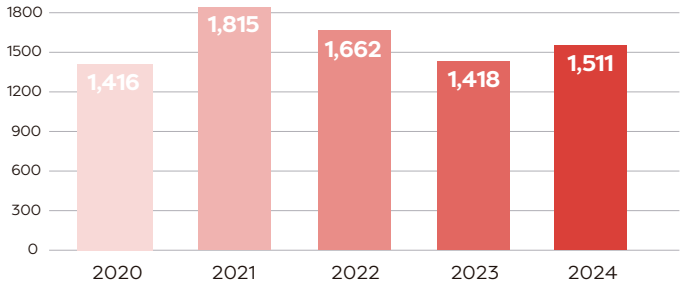
% Q1
% of publications published in journals ranked in the first quartile (top 25%) of their category as ordered by the 2023 Journal Citation Reports.

% D1
% of publications published in journals ranked in the first decile (top 10%) of their category as ordered by the 2023 Journal Citation Reports.

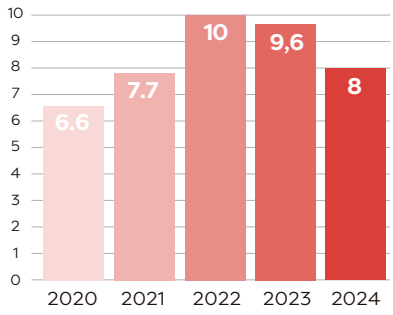
% MA
% of publications with main authorship (first, last or corresponding author is an IDIBAPS researcher).

% OA
% of publications in Open Access considering gold, green, hybrid and bronze route publications. Results have been obtained in June 2025 by means of the Unpaywall – Simple Query Tool.

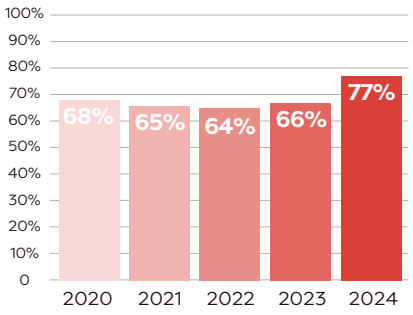
Evolution of the total number of original articles



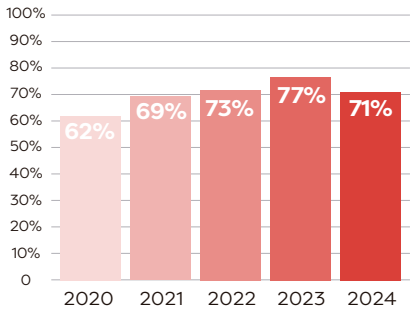
Evolution of the mean impact factor of original articles



Evolution of the %Q1 of original articles



Evolution of the %OA of original articles



Evolution of the total number of original articles per area

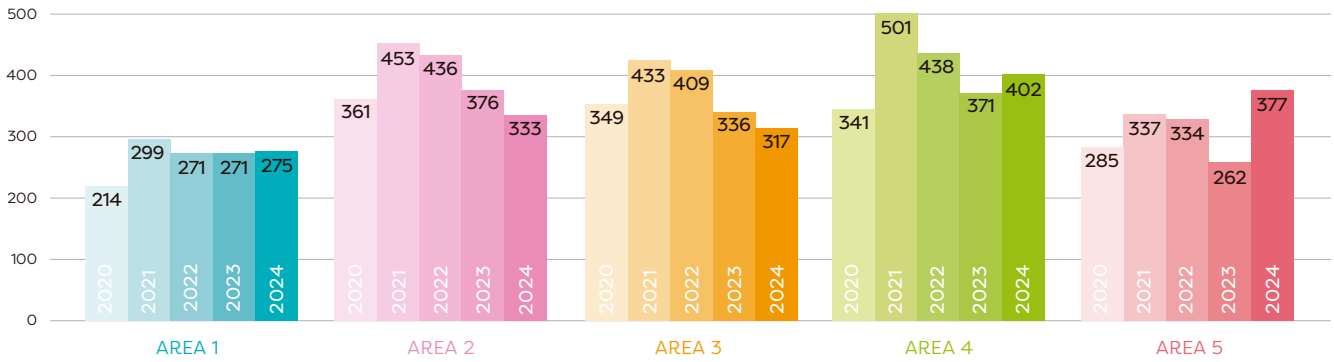


FIGURE LEGEND

Only original articles were taken into consideration. Publications resulting from collaboration between teams from different areas have been counted once for each area, so the sum of the articles per area is higher than the total.

Featured publications

Below is a selection of the most notable publications leaded by IDIBAPS' researchers in 2024.

AREA 1

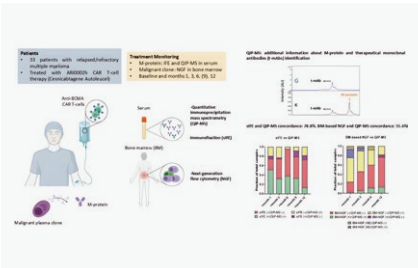
Serum mass spectrometry for treatment monitoring in patients with multiple myeloma receiving ARI0002h CAR T-cells.

Ortiz de Landazuri I, Oliver-Caldés A, Español-Rego M, Agulló C, Contreras MT, Zabaleta A, Puig N, Cabañas V, González-Calle V, Zugasti I, Inogés S, Rodríguez Otero P, Martin-Antonio B, Reguera JL, López-Diaz de Cerio A, Aróstegui JI, Uribe-Herranz M, Benítez-Ribas D, Rodríguez-Lobato LG, González EA, Tovar N, Charry P, Navarro S, Rosiñol L, Tréboles K, Mora G, Yagüe J, Moraleda JM, Urbano-Ispizua Á, Mateos MV, Pascal M, Paiva B, **Juan M**, Fernández de Larrea C* .

British Journal of Haematology, 2024

This study highlights the first use of quantitative immunoprecipitation mass spectrometry (QIP-MS) to monitor response in multiple myeloma patients treated with CAR T-cells, showing superior sensitivity over conventional methods. It detects peripheral residual disease and treatment interferences in serum, addressing a key priority for the International Myeloma Working Group.

These findings support QIP-MS as a promising, non-invasive tool with strong potential to improve patient monitoring, personalize therapy, and guide future research in hematologic malignancies.



AREA 1

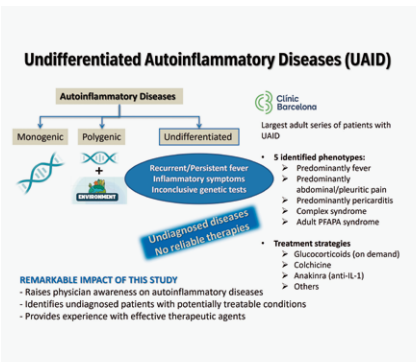
Disease phenotypes in adult patients with suspected undifferentiated autoinflammatory diseases and PFAPA syndrome: Clinical and therapeutic implications.

Gómez-Caverzaschi V, Yagüe J, Espinosa G, Mayordomo-Bofill I, Bedón-Galarza R, Araújo O, Pelegrín L, Arbelo E, Morales X, Balagué O, Figueras-Nart I, Mascaró JM, Fuertes I, Giavedoni P, Muxí A, Alobid I, Vilaseca I, Cervera R, Aróstegui JI, Mensa-Vilaró A, **Hernández-Rodríguez J***.

Autoimmunity Reviews, 2024

Undifferentiated autoinflammatory diseases (UAID) are rare conditions characterized by recurrent fever with other inflammatory manifestations, and negative/inconclusive genetic studies for monogenic disorders. We analyzed the largest series from a single-reference center of adult patients with UAID (at the HCB) that allowed the identification and characterization of several clinical phenotypes and their therapeutic approaches.

This relevant contribution in this field is expected to increase the awareness of physicians for early identifying these undiagnosed diseases and treating them properly.



AREA 2

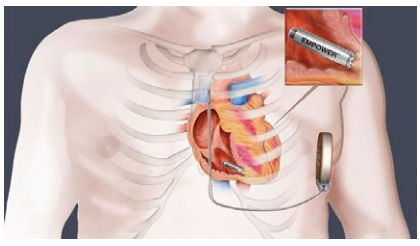
A Modular Communicative Leadless Pacing-Defibrillator System.

Knops RE, Lloyd MS, Roberts PR, Wright DJ, Boersma LVA, Doshi R, Friedman PA, Neuzil P, Blomström-Lundqvist C, Bongiorni MG, Burke MC, Gras D, Kutalek SP, Amin AK, Fu EY, Epstein LM, Tolosana JM, Callahan TD, Aasbo JD, Augostini R, Manyam H, Nair DG, Mondésert B, Su WW, Pepper C, Miller MA, Grammes J, Saleh K, Marquie C, Merchant FM, Cha YM, Cunnington C, Frankel DS, West J, Matznick E, Swackhamer B, Brisben AJ, Weinstock J, Stein KM, Reddy VY, **Mont L**.

New England Journal of Medicine, 2024

The article in The New England Journal of Medicine presents a technological advance that could transform the management of patients with atrial fibrillation and indications for defibrillators, offering a wireless alternative that minimizes complications and enhances monitoring. Its implementation in clinical practice could represent a paradigm shift, making treatments safer, more efficient, and better tailored to patients' needs.

However, further research is needed to validate the long-term results and broaden their applicability.



AREA 2

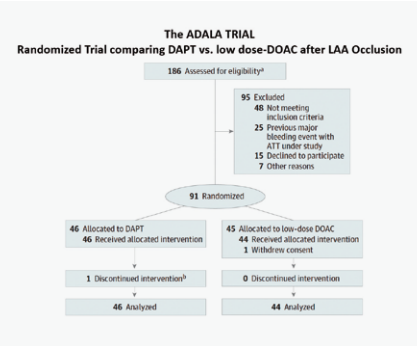
Low-Dose Direct Oral Anticoagulation vs Dual Antiplatelet Therapy After Left Atrial Appendage Occlusion: The ADALA Randomized Clinical Trial.

Freixa X*, Cruz-González I, Cepas-Guillén P, Millán X, Antúnez-Muiños P, Flores-Umanzor E, Asmarats L, Regueiro A, López-Tejero S, Li CP, Sanchis L, Rodés-Cabau J, Arzamendi D.

JAMA Cardiology, 2024

The ADALA is an investigator-initiated, multicenter, randomized clinical trial. Patients who underwent left atrial appendage occlusion (LAAO) were randomly assigned 1:1 to low-dose direct anticoagulant (ld-DOAC) vs DAPT for 3 months. At 3 months, ld-DOAC was associated with a reduction of the primary end point which included a composite of thrombotic and hemorrhagic events. Specifically, patients in the ld-DOAC group exhibited a lower rate of device related thrombosis and trend towards a lower incidence of major bleeding.

In conclusion, the use of ld-DOAC after LAAO was associated with a better balance between efficacy and safety compared with DAPT.



AREA 3

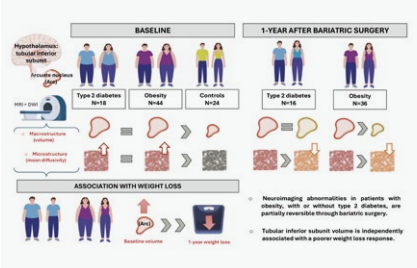
Hypothalamic Inflammation Improves Through Bariatric Surgery, and Hypothalamic Volume Predicts Short-Term Weight Loss Response in Adults With or Without Type 2 Diabetes.

Pane A, Videla L, Calvet A, Viaplana J, Vaque-Alcazar L, Ibarzabal A, Rozalem-Aranha M, Pegueroles J, Moize V, Vidal J, Ortega E, Barroeta I, Camacho V, Chiva-Blanch G, Fortea J, **Jimenez A***.

Diabetes Care, 2024

Preclinical studies link hypothalamic inflammation (HI) to obesity, but its role and reversibility in humans remain unclear. We conducted a longitudinal study to assess the effects of bariatric surgery (BS) on radiologic biomarkers of HI in individuals with obesity.

We also investigated whether these biomarkers influence post-surgery weight loss trajectories. We observed a significant improvement in HI, indicating potential reversibility. Also, a larger hypothalamic volume correlated with reduced weight loss. These results reinforce the potential role of HI in obesity pathophysiology.



AREA 3

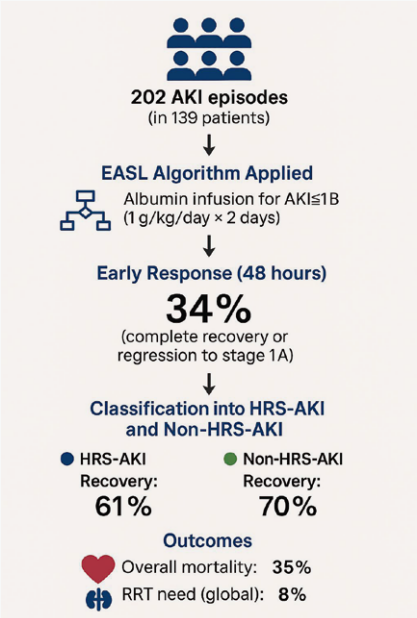
Prospective validation of the EASL management algorithm for acute kidney injury in cirrhosis.

Ma AT, Solé C, Juanola A, Escudé L, Napoleone L, Avitabile E, Pérez-Guasch M, Carol M, Pompili E, Gratacós-Ginés J, Soria A, Rubio AB, Cervera M, Moreta MJ, Morales-Ruiz M, Solà E, Poch E, Fabrellas N, Graupera I, Pose E, **Ginès P***.

Journal of Hepatology, 2024

This prospective study is the first to validate the EASL algorithm for managing acute kidney injury (AKI) in cirrhosis. The algorithm achieved high renal recovery response rates across AKI phenotypes and enabled rapid diagnosis and treatment of hepatorenal syndrome. Its implementation reduced the need for renal replacement therapy and supported phenotype-specific management.

These results support the EASL algorithm as an effective tool in real-world clinical practice.



AREA 3

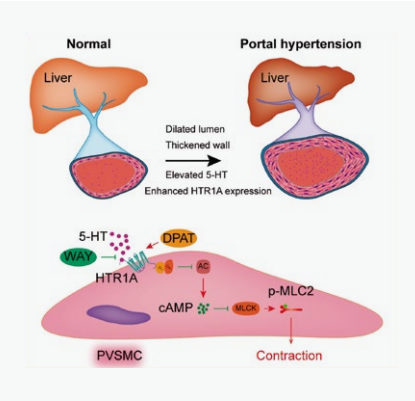
Targeting 5-Hydroxytryptamine Receptor 1A in the Portal Vein to Decrease Portal Hypertension.

Zhu CP, Liu SQ, Wang KQ, Xiong HL, Aristu-Zabalza P, Boyer-Díaz Z, Feng JF, Song SH, Luo C, Chen WS, Zhang X, Dong WH, **Gracia-Sancho J***, Xie WF*.

Gastroenterology, 2024

The study provides a significant breakthrough in the understanding and potential treatment of portal hypertension (PH), a major complication of chronic liver disease.

The research identifies a previously underappreciated mechanistic pathway involving the 5-hydroxytryptamine receptor 1A (HTR1A) in the portal vein and demonstrates its critical role in the pathogenesis of PH.



AREA 4

Post-mortem neuropathology of idiopathic rapid eye movement sleep behaviour disorder: a case series.

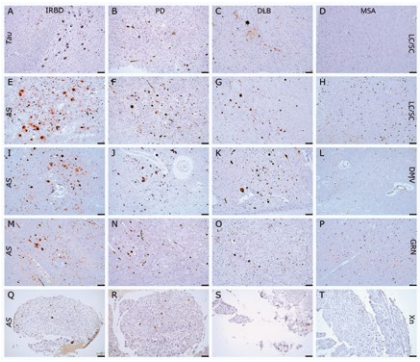
Mayà G, **Iranzo A***, Gaig C, Sánchez-Valle R, Serradell M, Molina-Porcel L, Santamaria J, Gelpi E, Aldecoa I.

The Lancet Neurology, 2024

Idiopathic rapid eye movement (REM) sleep behaviour disorder (IRBD) is thought to be an early stage of a neurodegenerative disorder.

We examined the post-mortem brain of 20 individuals and assessed the presence and distribution of neuronal loss, gliosis, and protein aggregates using antibodies against α-synuclein, amyloid β, phosphorylated tau, three-repeat and four-repeat tau isoforms, and TDP-43. In summary, we found a strong neuropathological evidence that IRBD is an early stage of α-synuclein-related neurodegenerative disease.

Concomitant pathologies are frequent, and their role remains to be clarified.



AREA 4

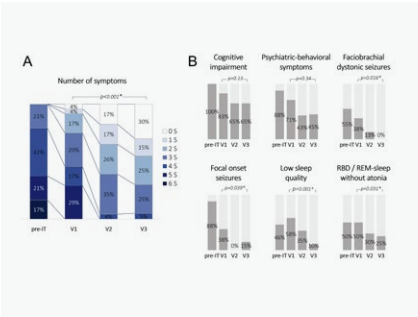
Neurological, psychiatric, and sleep investigations after treatment of anti-leucine-rich glioma-inactivated protein 1 (LGI1) encephalitis in Spain: a prospective cohort study.

Muñoz-Lopetegi A, Guasp M, Prades L, Martínez-Hernández E, Rosa-Justícia M, Patricio V, Armangué T, Rami L, Borràs R, Castro-Fornieles J, Compte A, Gaig C, Santamaria J, **Dalmau J***.

The Lancet Neurology, 2024

This study examines the post-acute stage of anti-LGI1 encephalitis, the most frequent autoimmune encephalitis in adults. LGI1 antibodies impair synaptic function, leading to severe memory deficit, behavioral change, and seizures.

While steroids and immunosuppressants are thought to improve symptoms rapidly, our study shows that clinical and video-polysomnography abnormalities, such as nocturnal seizures and REM-sleep behavior disorder, often persist for a year or more. Recognizing these treatable features is crucial, as they may impact cognition and serve as outcome measures in clinical trials.



AREA 4

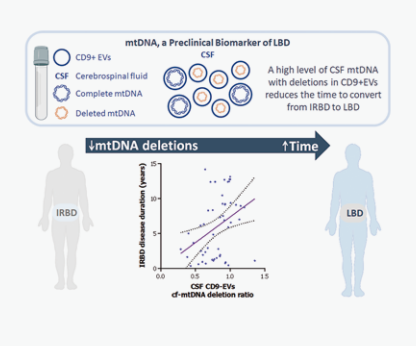
Mitochondrial DNA deletions in the cerebrospinal fluid of patients with idiopathic REM sleep behaviour disorder.

Puigròs M, Calderon A, Martín-Ruiz D, Serradell M, Fernández M, Muñoz-Lopetegi A, Mayà G, Santamaria J, Gaig C, Colell A, Tolosa E, Iranzo A*, **Trullas R***.

EBioMedicine, 2024

We analyzed the integrity of mitochondrial DNA (mtDNA) in patients with REM sleep behavior disorder (iRBD) who execute violent movements during sleep. Patients with iRBD develop a Lewy Body disorder (LBD), such as Parkinson's disease, years later. We found that the presence of mtDNA with deletions in cerebrospinal fluid predicts the future development of LBD, on average, 5 to 10 years before its clinical onset.

These results demonstrate that mtDNA with deletions is an early biomarker of LBD and a primary molecular mechanism underlying the disease. Michael J Fox USA Foundation funded the study.



AREA 5

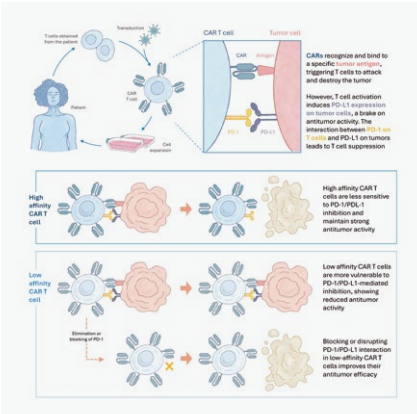
CAR affinity modulates the sensitivity of CAR-T cells to PD-1/PD-L1-mediated inhibition.

Andreu-Saumell I, **Rodriguez-Garcia A***, Mühlgrabner V, Gimenez-Alejandre M, Marzal B, Castellsagué J, Brasó-Maristany F, Calderon H, Angelats L, Colell S, Nuding M, Soria-Castellano M, Barbao P, Prat A, Urbano-Ispizua A, Huppa JB, **Guedan S***.

Nature Communications, 2024

Despite their effectiveness in hematological cancers, CAR-T cells show limited success in solid tumors, partly due to immunosuppression driven by the PD-1/PD-L1 axis. In this study, we explored how the affinity of the CAR molecule for its target antigen influences sensitivity to inhibition mediated by the PD-1/PD-L1 axis. We found that low affinity CAR-T cells were more sensitive to PD-L1-mediated inhibition compared to their high affinity counterparts, but their functionality could be restored by blocking the PD-1/PD-L1 interaction.

These findings may guide the design of CAR-T therapies tailored to overcoming PD-1/PD-L1-mediated suppression, particularly in the treatment of solid tumors.



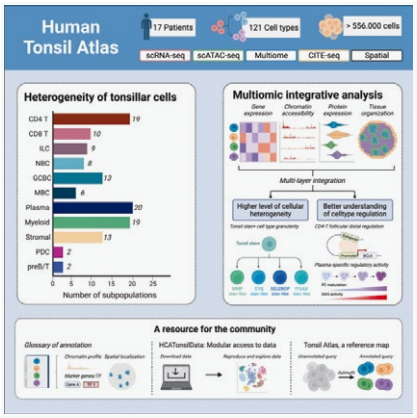
AREA 5

An atlas of cells in the human tonsil.

Massoni-Badosa R, Aguilar-Fernández S, Nieto JC, Soler-Vila P, Elosua-Bayes M, Marchese D, Kulis M, Vilas-Zornoza A, Bühler MM, Rashmi S, Alsinet C, Caratù G, Moutinho C, Ruiz S, Lorden P, Lunazzi G, Colomer D, Frigola G, Blevins W, Romero-Rivero L, Jiménez-Martínez V, Vidal A, Mateos-Jaimez J, Maiques-Diaz A, Ovejero S, Moreaux J, Palomino S, Gomez-Cabrero D, Agirre X, Weniger MA, King HW, Garner LC, Marini F, Cervera-Paz FJ, Baptista PM, Vilaseca I, Rosales C, Ruiz-Gaspà S, Talks B, Sidhpura K, Pascual-Reguant A, Hauser AE, Haniffa M, Prosper F, Küppers R, Gut IG, Campo E, **Martin-Subero JI***, Heyn H*.

Immunity, 2024

This article presents the most comprehensive single cell map of the human tonsil, which represents the contribution of our institution to the international Human Cell Atlas. We identified a total of 121 cell types and states through multimodal single-cell profiling and state-of-the-art computational approaches. This atlas elucidates cell differentiation pathways and regulatory circuits, defines cell states, and provides a reference for annotating immune cell types and characterizing phenotypic plasticity in pathological settings such as lymphoid neoplasms.



AREA 5

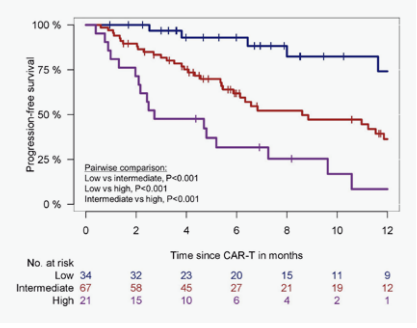
Development and Validation of a Prediction Model of Outcome After B-Cell Maturation Antigen-Directed Chimeric Antigen Receptor T-Cell Therapy in Relapsed/Refractory Multiple Myeloma.

Gagelmann N*, Dima D, Merz M, Hashmi H, Ahmed N, Tovar N, Oliver-Caldés A, Stölzel F, Rathje K, Fischer L, Born P, Schäfer L, Albici AM, Schub N, Kfir-Erenfeld S, Assayag M, Asherie N, Wulf GG, Kharboutli S, Müller F, Shune L, Davis JA, Anwer F, Vucinic V, Platzbecker U, Ayuk F, Kröger N, Khouri J, Gurnari C, McGuirk J, Stepensky P, Abdallah AO, **Fernández de Larrea C***.

Journal of Clinical Oncology, 2024

This international collaboration, co-led by the Hospital Clínic-IDIBAPS, describes the first model to identify patients with multiple myeloma (MM) who will benefit most from CAR T-cell therapy.

This simple model, based on four independent indicators and generated through a retrospective study of over 260 patients from Europe and the United States, divides patients into 3 risk groups. Validation of this model with the European and US cohorts shows that only 7% of low-risk patients have MM progression after CAR T-cell therapy, while it rises up to 53% for patients in the high-risk group.



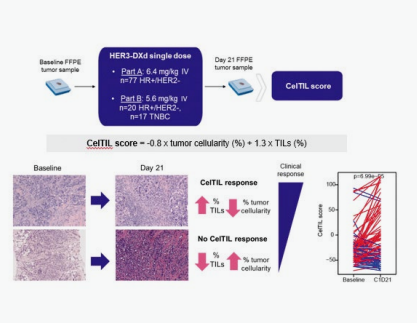
AREA 5

Patritumab deruxtecan in HER2-negative breast cancer: part B results of the window-of-opportunity SOLTI-1805 TOT-HER3 trial and biological determinants of early response.

Brasó-Maristany F, Ferrero-Cafiero JM, Falato C, Martínez-Sáez O, Cejalvo JM, Margelí M, Tolosa P, Salvador-Bofill FJ, Cruz J, González-Farré B, Sanfeliu E, Òdena A, Serra V, Pardo F, Luna Barrera AM, Arumi M, Guerra JA, Villacampa G, Sánchez-Bayona R, Ciruelos E, Espinosa-Bravo M, Izarzugaza Y, Galván P, Matito J, Pernas S, Vidal M, Santhanagopal A, Sellami D, Esker S, Fan PD, Suto F, Vivancos A, Pascual T, **Prat A***, Oliveira M.

Nature Communications, 2024

HER3-DXd is an antibody-drug conjugate with promising efficacy in breast cancer (BC). We investigated molecular factors affecting HER3 DXd response in 98 women with early HER2 negative (HER2–) BC in the TOT HER3 trial. CelTIL score, measuring tumor cellularity and infiltrating lymphocytes from baseline to day 21, assessed drug activity. Translational analyses revealed chemosensitivity determinants, TP53 mutations, DNADX classification, and low ERBB2 expression as potential markers of HER3 DXd activity, thus defining criteria to select patients likely to benefit from HER3 DXd.



TRANSVERSAL GROUPS

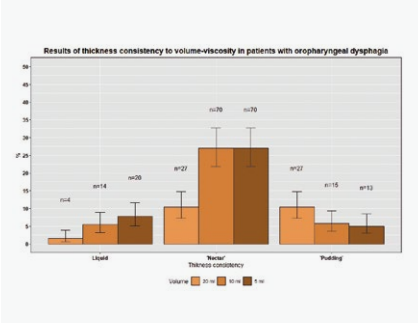
A Systematic Evaluation for Oropharyngeal Dysphagia in Non-institutionalized Elderly Patients with Home Care-based in the Community.

Montero L, Fauró À, Gómis G, Rodríguez-Romero R, Santos-Ruiz S, Aguilar M, Alcaraz A, Devant-Altimir M, García NI, Gómez E, García N, Guerrero L, Lascorz A, Martínez E, Muntalà MT, Pujol J, Serna A, Sibelo L, Vázquez M, Roura-Rovira S, **González-de Paz L***.

Dysphagia, 2024

The prevalence of Oropharyngeal Dysphagia (OD) in elderly enrolled in a home-based primary care program was 25.95%. OD was associated with past pneumonia episodes (OR: 5.09, 95% CI: 2.2–11.79), increased frequency of cough and common cold (OR: 1.11, 95% CI: 1.05–1.18), and more family physician consultations (OR: 1.07, 95% CI: 1.03–1.10).

These findings highlight that OD remains an underdiagnosed geriatric syndrome in the community setting. Implementing systematic OD diagnoses assessments, especially among home care-based patients could reduce the incidence of secondary pneumonia, decrease cough episodes, and lower the frequency of clinician consultations.



Knowledge translation and innovation

One of the IDIBAPS strategic goals is to transfer knowledge for the benefit of patients and society, as illustrated by multiple outputs, including: Clinical Guidelines, Clinical Trials and Technology Transfer activities, including license agreements and creation of spin-offs companies.

CLINICAL GUIDELINES

Every year IDIBAPS researchers participate in and sometimes lead the elaboration of international clinical guidelines with a remarkable impact in patients' care and medical practice.

Clinical guidelines published in 2024:

TOTAL NUMBER
60

72%
% International

28%
% Led*

*Led: the 1rst, last or corresponding author is an IDIBAPS researcher.

CLINICAL TRIALS

IDIBAPS researchers participate in multiple clinical trials for the development of drugs, treatments or medical devices.

In 2024, IDIBAPS participated in 1,360 clinical trials, including 14 academic independent trials, and the others industry-led trials. They initiated 220 new trials, overall.

The HCB-IDIBAPS Clinical Trial Unit provides support regarding ethical, methodological, regulatory and logistical aspects of clinical trials with drugs or with advanced therapies promoted by the institute's researchers.

1,360

122 AREA 1
Biological aggression and response mechanisms

276 AREA 2
Respiratory, cardiovascular and renal pathobiology and bioengineering

93 AREA 3
Liver, digestive system and metabolism

139 AREA 4
Clinical and experimenta neuroscience

614 AREA 5
Cancer

116 Others

TECHNOLOGY TRANSFER AND INNOVATION

IDIBAPS manages 90 patent families and 18 proprietary software, including 70 active license agreements with several industry partners. During 2024, 27 new patent applications were filed: 6 priority patents, 13 PCTs, and 8 patents entered into National Phases in several countries.

Besides, 7 new license agreements were signed with national and international companies.

Moreover, IDIBAPS has founded 18 spin-offs since 2008, 10 of which are active, based on discoveries and developments by HCB and IDIBAPS researchers.

27
New patents in 2024

6 Priority
13 PCTs
8 Entry in national phases

Funding

From a financial and managerial perspective, IDIBAPS and FCRB are managed in a global and consolidated manner.

Funding sources

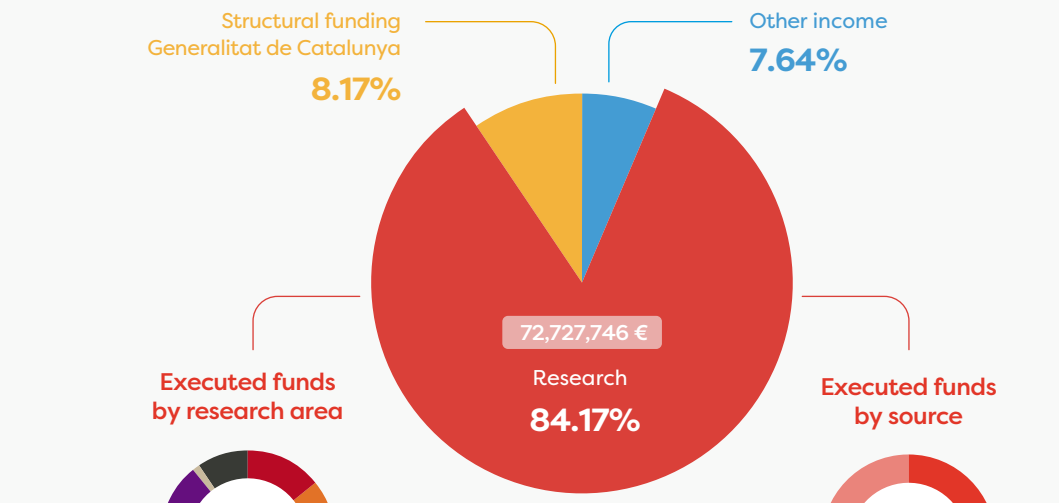
STRUCTURAL FUNDING	**7,061,713 €**	**8.17%**
Generalitat de Catalunya - Recerca i Universitats	5.744,722 €	81.3%
Generalitat de Catalunya - Salut	1,316,991 €	18.7%
ACTIVITIES R+D+I	**72,727,746 €**	**84.17%**
Competitive funding	34,255,086 €	47.1%
Contracts	27,637,988 €	38%
Services	5,005,304 €	6.8%
Donations	5,439,308 €	7.4%
Knowledge dissemination	390,059 €	0.5%
OTHER INCOME	**6,607,646 €**	**7.64%**
Rental income	1,134,510 €	17.1%
Other income	162,764 €	2.4%
Financial income	3,173,940 €	48%
Capital grant	2,136,432 €	32.3%

TOTAL
Funding sources

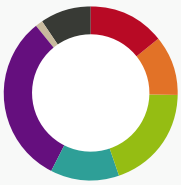
86,397,105 €

Total funding sources

86,397,105 €



Executed funds by research area



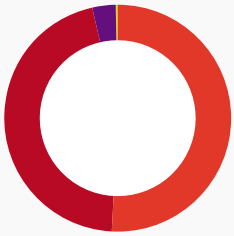
- Area 1 — 11.5% — 8,406,937 €
- Area 2 — 9.2% — 6,759,476 €
- Area 3 — 13.7% — 9,973,729 €
- Area 4 — 13% — 9,472,696 €
- Area 5 — 39.5% — 28,764,434 €
- Transversal — 0.3% — 236,872 €
- Other research — 12.5% — 9,113,601 €

Executed funds by source

- National — 69.4% — 50,466,896 €
- International — 30.6% — 22,260,849 €

Expenses

83,284,118 €



- Assets — 3.5% — 2,924,966 €
- Financial — 0.5% — 463,954 €
- Personnel — 51% — 42,488,075 €
- Current Expenses — 44.9% — 37,407,121 €

Institutional projects

New competitive projects

Total 235

174 Projects

61 Human resources grants

International 45

- **40** Projects
  - **20** European Commission. *Coordinated=1*
  - **8** National Institutes of Health. *New=3, Renewed=5*
  - **12** Other
- **5** Human resources grants
  - **4** European Commission
  - **1** Other

Spanish 175

- **123** Projects
- **52** Human resources grants

Catalan 15

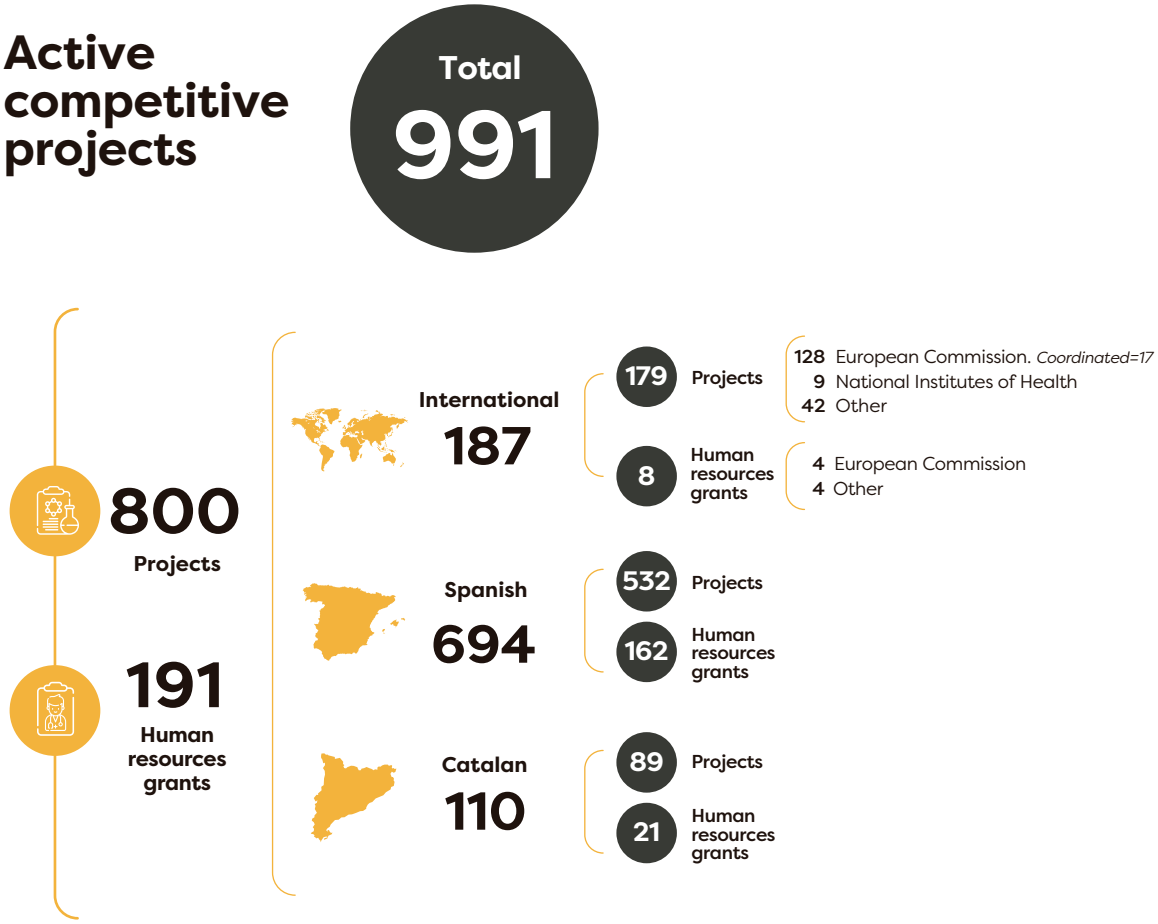
- **11** Projects
- **4** Human resources grants

Staff of IDIBAPS research groups and other members of the Clínic Campus have actively participated in multiple International, Spanish and Catalan competitive calls.
As a result, 235 competitive projects were granted to IDIBAPS in 2024.

Of the 190 grants received in Catalonia and Spain, we highlight 95 grants funded by the ISCIII (of which 48 are Health R&D projects), 24 funded by the AEI (of which 8 are R&D projects), 9 funded by La Marató de TV3 (corresponding to the Sexual and reproductive health call) and 3 funded by Fundació "La Caixa" (of which one is a research project).

45 new international competitive projects were obtained in 2024, some of them belonging to highly competitive and prestigious funding programmes such as: 1 project funded by the European Research Council, 4 projects belonging to the Marie Skłodowska-Curie Actions, 2 projects from the Cluster Health programme and 1 project from the Innovative Health Initiative.

Active competitive projects



In 2024, there have been 991 IDIBAPS active competitive projects (being alive initiatives or in closure during the year). The raised funds have allowed to support research projects and human resources grants.

Some of these initiatives have also provided the Institute with new scientific equipment or facilities. Many of these competitive projects have been co-funded by the European Regional Development Fund (ERDF).

804 current grants are being funded by Catalan and Spanish entities. We highlight: 376 grants funded by the ISCIII (of which 226 are Health R&D projects), 88 funded by the AEI (of which 36 are R&D projects), 110 funded by the government of Catalonia (of which 80 correspond to AGAUR and 11 to the Catalan Ministry of Health), 40 funded by La Marató de TV3, 19 funded by the AECC (of which 14 correspond to projects) and 10 funded by Fundació "La Caixa" (of which 4 are CaixaResearch Health projects).

102 projects are being funded by the European Commission including: 8 funded by the European Research Council (1 led by our institution), 7 projects belonging to the Marie Skłodowska-Curie Actions, 25 projects from the Cluster Health programme (1 led by our institution), 4 projects from the Mission Cancer (3 led by our institution), 10 projects funded by the Innovative Medicines Initiative (1 led by our institution), and 17 projects funded by the European Innovation Council (13 EIT Health and 4 Pathfinder Open).

In total, 2 EIC projects are led by our institution. Other relevant projects include 6 funded by the National Institutes of Health.

Networks

IDIBAPS actively participates in a wide range of national and international networks and alliances, focusing on science, technology, innovation, and research management.

International

BIOSAMPLE HUB

Biosample HUB to connect biotech companies with biobanks and facilitate access to reliable biospecimens for developing new drugs, diagnostics and vaccines.

COARA

Coalition for Advancing Research Assessment (COARA) to reflect and reform the research assessment system to maximize the quality and impact of research.

EARA

European Animal Research Association (EARA) to foster transparency and communication in animal experimentation.

EATRIS

European Infrastructure for Translational Medicine (EATRIS)) brings together resources and services for research communities to translate scientific discoveries into benefits for patients.

EBRAINS

EBRAINS to gather data, tools and computing facilities for brain-related research, built with interoperability at the core.

ECRIN

European Clinical Research Infrastructure Network (ECRIN), to provide support, advice and services for the development of multinational clinical trials in Europe.

EIT HEALTH

European Institute of Innovation and Technology, EIT Health - network connects world-class organisations across Europe from the three worlds of business, research and education to improve healthcare across Europe.

ESBB

European, Middle Eastern and African Society for Biopreservation and Biobanking (ESBB) to advance biobanking science and practice by fostering collaboration, education, and innovation among its members.

INNODIA

INNODIA accelerates the development of therapies to prevent and cure type 1 diabetes.

Spanish

ISCIII NETWORKS

CIBER

Networked Biomedical Research Centre (CIBER) to foster excellent research in biomedical research and health sciences, focused on specific health problems, through joining efforts and resources from diverse disciplines and institutions.

IDIBAPS participated at 11 out of 13 existing CIBERs.

27 IDIBAPS researchers lead CIBER groups.

Jordi Gracia Sancho as Scientific director at CIBEREHD.

ciber
Centro de Investigación Biomédica en Red

ITEMAS NETWORK

ITEMAS Network to exchange good practice and to boost innovation of the National Health System and the real transfer of research results to society.

itemas isciii
Plataforma de dinamización e innovación de las capacidades industriales del Sistema Nacional de Salud

RICORS

Cooperative Research Networks Oriented to Health Outcomes (RICORS) to promote health-oriented research by coordinating efforts towards specific, achievable research objectives that benefit the public.

IDIBAPS participates in 6 of the 7 existing RICORS.

RICORS-ICTUS | Instituto de Salud Carlos III

SCREN

Spanish Clinical Research Network (SCREN) to achieve high quality standards in all clinical research studies, from the design to the final dissemination of the results.

SCReN Spanish Clinical Research Network

SPANISH NETWORK OF BIOBANKS PLATFORMS

Spanish Network of Biobanks platforms to optimize management and supply biological samples and associated clinical data, including the development of new resources, such as biomodels.

Red Biobancos
Spanish Biobank Network

OTHER NETWORKS

COSCE

Confederation of Scientific Societies of Spain (COSCE) to promote scientific Research and provide a unified voice for scientists in public policy discussions, including transparency in animal experimentation.

COSCE

REGIC

Network of Clinical Research Management Entities (REGIC) to share experiences and foster interaction and training in health research, development and innovation management.

REGIC
Red de Entidades Gestoras de Investigación Clínica

SPANISH ASSOCIATION OF FUNDRAISING

Spanish Association of Fundraising to promote philanthropy and enhance the professional development of fundraisers in Spain.

AEFR
Asociación Española de Fundraising

Catalan

STRATEGIC HEALTH INNOVATION NETWORKS

XARTEC

XARTEC Partnership focused on entrepreneurship and innovation in health technologies.

XTS XARTEC SALUT

TECSAM

TECSAM Alliance focused on innovation in mental health.

XARXA TECSAM

I4KIDS

I4KIDS Cluster focused on innovation in pediatrics and maternity.

i4KIDS

OTHER NETWORKS

ACER

Catalan Association of Research Entities (ACER) to contribute to establishing the region as an international reference in scientific and technological research.

ACER Associació Catalana d'Entitats de Recerca

AQUAS

Agency for Health Quality and Assessment of Catalonia (AQUAS)) to generate scientific knowledge to improve the quality, safety, and sustainability of the healthcare system.

Salut/ Agència de Qualitat i Avaluació Sanitàries de Catalunya

BIB

Bioinformatics Barcelona (BIB) to promote education, training, research and innovation in bioinformatics.

BIOINFORMATICS BARCELONA

CATALAN FOUNDATIONS COORDINATOR

Catalan Foundations Coordinator to represent and defend the interests of associated foundations, contribute to their growth, promote philanthropy and sponsorship.

Coordinadora Catalana de Fundacions

WEMIND

Mental Health Cluster of Catalonia, WEMIND to promote research, transfer of knowledge, and creation of synergies related to mental illness.

WE MIND Cluster

XBTC

Network of tumor banks of Catalonia (XBTC) to provide researchers with a large collection of biospecimens from different pathologies. This network is coordinated by the Tumor and Tissue Bank of the HCB-IDIBAPS Biobank.

XBTC Xarxa de Bancs de Tumors de Catalunya

Core facilities

IDIBAPS hosts seven specialized Core Facilities that provide cutting-edge technologies, expert consulting, and tailored training to support biomedical research across disciplines. Their mission is to position IDIBAPS as a leading center in translational biomedical research by fostering innovation, collaboration, and methodological excellence.

These centralized platforms are essential in driving scientific discovery and enhancing the impact of research outcomes.

1 **Biobank**
2 **Flow cytometry and cell sorting**
3 **Functional Genomics**
4 **Magnetic Resonance Imaging**
5 **Medical Statistics**
6 **Clinical Trials Unit**
7 **Research Computing**

In 2024, the Clinical Trials Unit (CTU) was officially integrated as one of the IDIBAPS platforms, marking an important step forward for clinical research.
Another key milestone in 2024 was the launch of the **Research Computing Core Facility** at IDIBAPS, which strengthens support for data-intensive biomedical research through advanced computing infrastructure and expert guidance.
It is worth mentioning that since 2024, a dedicated **quality manager** has been incorporated into platform coordination, reinforcing efforts to enhance and harmonize quality processes across all platforms.
Throughout 2024, various members of the core facilities actively participated in CTLS activities. Notably, two members—from the flow cytometry and biobank platforms—were awarded grants to take part in the CTLS shadowing and personnel exchange program.

NEW EQUIPMENT AND DEVELOPMENTS AT IDIBAPS CORE FACILITIES

• The **Biobank HCB-IDIBAPS** acquired a new automated system for the isolation of nucleic acids, which now allows the isolation of cell free DNA.
The Biobank established collaborations with the company 300K to perform a technical validation of their lyophilization system, providing an alternative for long-term storage, avoiding the -80 freezing.
The Biobank has collaborated in the set-up of the 3D-Biomodel Technology Cluster (3D-BTC), which includes all IDIBAPS research groups developing organoids or other biomodels.
The Biobank has passed successfully the internal audit for ISO20387.

• The **Flow Cytometry and the Functional Genomics Core Facilities** are committed to emerging new omics technologies. Both platforms presented the BD Rhapsody™ HT single-cell analysis System: a powerful, high-throughput, microwell-based single-cell partitioning system, combined with visual workflow QC.

• The **Functional Genomics Core Facility** has expanded its single-cell services with the addition of the Tapestri (Mission Bio), which allows for the study of DNA at the single-cell level, thanks to resources obtained from the Spanish Ministry of Science, Innovation, and Universities.
Recently, it has also incorporated a Cellometer Ascend (Revvity) to enhance its single-cell analysis capabilities.
Additionally, more than 20 new protocols have been implemented, including the new GemX chemistry for the Chromium X platform, which allows for the detection of more genes and transcripts per cell.

• The **Magnetic Resonance Imaging (MRI) Core Facility** participated in an international consortium for automatic quality control of small animal in MRI neuroimaging (Imaging Neuroscience: DOI:https://doi.org/10.1162/IMAG_A_00317). This facility also implemented a new imaging acquisition and processing techniques to evaluate blood-brain barrier.
The MRI team received training in data stewardship and research data management and advanced image acquisition, configuration and optimization.

• The **Medical Statistics (MS) Core Facility coordinated** data management, methodology and statistical analysis of > 70 academic and private clinical trials (including 13 SCReN trials). They adhere to current regulations and legal standards, and they include the gender dimension from the study design to data analysis and publications. To highlight: important trials with advanced therapies ATDC-PICI study, GEMPLASMACAR, CART-BG-01, CART-BE-01, CART-BE-02, CART-PED, and CART BCMA; related to COVID-19 vaccine HIPRA-HH-11; the European projects 3TR-ICS COPD, RETO, LIVERHOPE Efficacy, ASPIRE and ORTHOUNION; medical device BREATHE.

• The **Clinical Trials Unit (CTU) Core Facility** has adapted its procedures to comply with the new EU Regulation No. 536/2014 on clinical trials of medicinal products, supporting the transition of ongoing clinical trials in which FRCB-IDIBAPS acted as Sponsor.
The Unit has contributed to a total of 60 research projects, 49 of which were clinical trials involving medicinal products. Highlighted studies include phase I and II trials in advanced in-house therapies such as CART-BE-02,CART-BCMA, CARTD-BG-01, and TOLDEC-COMBINEM, as well as vaccine studies targeting infectious diseases and COVID-19, such as HIPRA-HH-11 and HIVAC-FOUND. Furthermore, the Unit contributed to LIVERSCREEN, a population-based study on liver fibrosis screening across European countries.

• The **Research Computing Platform** was launched in 2024, including the appointment of a Head of Platform. New platform fees and services were published on the website.
It facilitated access to advanced computational resources such as HPC-BSC, incorporating new research groups upon request.
The new unit also began supporting over 10 research groups and conducting analyses on biomedical data.

58 Total publications
19 Acknowledged publications
97 Educational activities
9 New equipment

	Active internal projects	Active external projects	IDIBAPS groups attended
Biobank of Hospital Clínic - IDIBAPS	92	54	55
Flow cytometry and cell sorting	87	25	42
Functional genomics	81	22	33
Magnetic resonance imaging	58	27	36
Medical statistics	55	16	26
Clinical trials unit (CTU)	56	4	28
Research Computing*	20	0	9

*since september 2024

Training

International PhD Programme

IDIBAPS International PhD Programme is a key initative to support predoctoral researchers along their professional journey at the institute and beyond.

Doctoral theses

102 Doctoral theses defended in 2024

18 Theses with European mention

PhD Day 2024

PhD Day 2024, organized by the PhD community with institutional support, is open to all IDIBAPS R1 researchers.

30 Posters and thesis presentations

137 Attendees

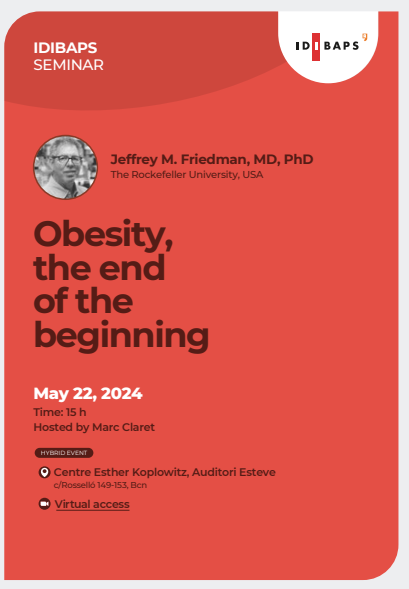
Seminars

IDIBAPS organises yearly scientific seminars of different nature (IDIBAPS, In-house, Core facilities and Liver and OGiP) and the Toolbox talks that are seminars about non-scientific but relevant topics.

1,531 Attendees

28 Total seminars

5	IDIBAPS
4	In-House
6	Core Facilities
5	Liver
4	OGiP
4	Toolbox Talks



Sustainability

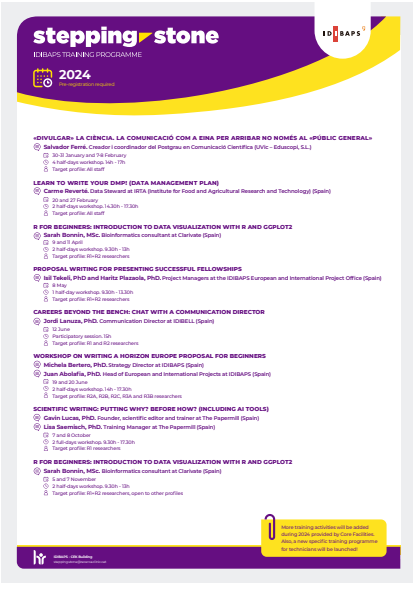
Courses

IDIBAPS implements a comprehensive training plan, including activities and courses to nurture talent and to support its professionals in developing the required knowledge and skills to succeed in their career.

Training programme specific for IDIBAPS employees.
Every year, the institute prepares a plan specific for all its employees, to offering workshops on diverse topics to all professionals, independently of their role within the institution.

Stepping-stone training programme opened to all IDIBAPS research community.
This training programme includes activities for all profiles of researchers from the whole research community, focusing on scientific and transferable skills.

1	Plenary sessions	22	Attendants
12	Workshops	173	Attendants



IDIBAPS is committed to promoting more sustainable practices to reduce the considerable impact that research activity has on the environment.

This is why the Sustainability Committee was established in mid- 2022. During 2024, IDIBAPS carried out multiple actions towards a more sustainable research institute:

• Centralization of supplier deliveries to reduce the number of carrier trips.

• Improvement in water management: new signage detailing the different types of water at the laboratory taps in the CEK. Installation of new aerators on the running water taps in the restrooms. Adjustments in the water flush regulation of the toilets in the CEK. Renewal of the pure water equipment in the CEK with more efficient models.

• Separate collection of tip and freezing boxes for reuse.

Communication and public engagement

Media relations

36 Press releases

2,624 Media Appearances

Public relations

12 Organized events

Social media

Facebook likes
3,271*

X followers
16,339*

Linkedin followers
17,359 *

Bluesky
295 *

*at december 31th

Web

170 Published news

Public engagement

48 Activities

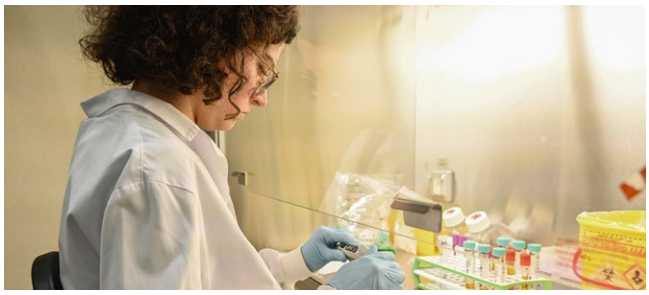
2,240 Audience

- **72** Primary school students *Assistants*
- **664** Secondary school students *Assistants*
- **30** Patients and patients' associations *Assistants*
- **1,474** General public *Assistants*

Institutional news

January
Silvia Affó leads the new group on "Tumor microenvironment plasticity and heterogeneity".

April
Campus Clínic Solidari kicks off to promote our commitment to healthcare cooperation.



January
IDIBAPS receives 2.5 million euros from the Fortalece-Salud programme to promote biomedical research.

May
We celebrate the first edition of Clínic Obert, a festive and participatory day to promote healthy habits.

February
IDIBAPS present the gender equality plan on the occasion of the International Day of Women and Girls in Science.

May
Eduard Parellada succeeds Miquel Bernado as leader of the Schizofrenia group.

April
The Minister of Universities and Research, Joaquim Nadal, and the new director of CERCA, Laia Pellejà, visit IDIBAPS.

July
The PROGENERES decalogue of Clínic-IDIBAPS is awarded the ISCIII Responsible Research and Innovation Prize.

Institutional news

July
IDIBAPS is reaccredited as a health research institute by the Carlos III Health Institute.

September
Fleur Chapus joins as the first roving researcher at IDIBAPS.

July
IDIBAPS expands its facilities by renting over 500 m2 at the Barcelona Science Park.

September
Lina Youssef joins IDIBAPS thanks to the BITRECS program for clinician scientists.

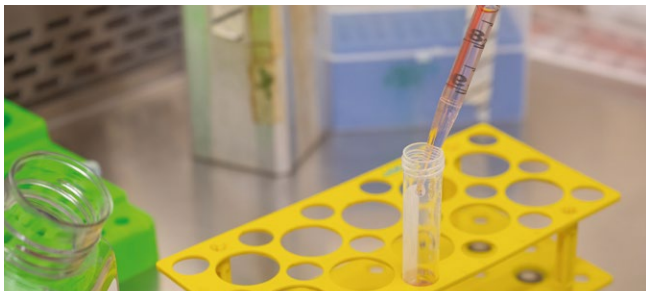
September
Marianna Spatola receives an ERC Starting Grant to investigate autoimmune encephalitis.

October
A hundred professionals meet for two days to work on the institution's new Strategic Plan.

September
David Fuster succeeds Francesca Pons as leader of the Multimodal imaging biomarkers group.

October
Maria Aragon joins IDIBAPS to lead the new Research Computing platform.

Awards and acknowledgements



October
IDIBAPS surpasses one billion euros raised for biomedical research.

May
Josep Maria Miró, IDIBAPS researcher, has been honoured as a Fellow of IDSA by the Infectious Diseases Society of America.

November
Nine researchers from Clínic-IDIBAPS are among the most cited according to the Clarivate Analytics ranking.

June
Elías Campo, awarded an honorary doctorate by the University of Toulouse III - Paul Sabatier.

November
Two new multidisciplinary research programs are created to foster collaboration among groups: the Metabolism and disease programme (MetaDis) and the Translational research programme for brain disorders.

September
Antoni Torres receives the ERS Lifetime Achievement Award in Respiratory Infections award.

December
IDIBAPS receives the highest rating in the CERCA Institution evaluation.

November
Maria Cinta Cid has been awarded the Jan van Breemen medal by the Dutch Society for Rheumatology.

1

BIOLOGICAL AGGRESSION AND RESPONSE MECHANISMS

Annual scientific report 2024

photo: **Marta Peña and Carlos Laredo**

AREA 1

BIOLOGICAL AGGRESSION AND RESPONSE MECHANISMS

1.1 **Ocular inflammation: clinical and experimental studies**
Alfredo Adán

1.2 **Systemic autoimmune diseases**
Ricard Cervera

1.3 **Systemic vasculitis**
Maria Cinta Cid

1.4 **Molecular and cellular bases of inflammation. Structural and biological mass spectrometry**
Daniel Closa

1.5 **Hemotherapy - hemostasis**
Maribel Díaz Ricart

1.6 **Immunogenetics and immunotherapy in autoinflammatory and immune responses**
Manel Juan

1.7 **Immune receptors of the innate and adaptive system**
Francisco Lozano

1.8 **AIDS and HIV infection**
Josep Mallolas

1.9 **Emergencies: processes and pathologies**
Òscar Miró

1.10 **Endocarditis. Cardiovascular infections. Experimental model**
Josep M. Miró

1.11 **Inflammatory joint diseases (IJDs)**
Raimon Sanmartí

1.12 **Nosocomial infection**
Alex Soriano

1.01

Ocular inflammation: clinical and experimental studies

GROUP LEADER
Alfredo Adán (HCB)

RESEARCH INTERESTS

The main objective of the group is focused on the translational research of inflammatory ocular diseases, especially the understanding the pathophysiologic mechanisms and the immune response, together with the identification of biological and immaging biomarkers of prognosis and response to treatment.

Ultimately, the group aims to develop and implement novel therapies for ocular inflammatory disorders.

The group also promotes studies and the research in optic nerve diseases as glaucoma a secondary to neuro ophthalmologic conditions.

KEYWORDS
Ocular inflammation
Biomarkers
Retinal Imaging
Optic Coherence tomography
Visual pathway

RELATED DISEASES
Uveitis
Age-related macular degeneration
Diabetic retinopathy
Glaucoma
Optic neuritis

Publications

Original articles	**Mean IF**	**4,36**
32	Q1	69%
	D1	28%
	MA	53%
	OA	50%
Others	**Mean IF**	**3,45**
4	Q1	50%
	D1	0%
	MA	50%
	OA	50%

IF = Impact Factor
MA = Main authorship (last or corresponding author)
OA = Open Access
Others includes reviews, editorials, clinical guidelines, letters and case reports

Directed PhD theses

4

- Anibal Raimundo Ale
- Salut Alba
- Lena Giralt
- Alba Parrado

Selected active grants

Niveles séricos y eficacia clínica de adalimumab en uveítis. Biomarcadores basados en la imagen multimodal y la respuesta inmune adaptativa.
Instituto de Salud Carlos III (ISCIII).
FIS_PI22/00782
PI: Victor Llorenç, Blanca Molins

I(eye)-SCREEN: A real-world AI-based infrastructure for screening and prediction of progression in age-related macular degeneration.
European Commission.
CE_HE_PathOPEN_23
PI: Javier Zarranz-Ventura

Selected publications

Villoslada P, Solana E, Alba-Arbalat S, ... , Blanco Y, Llufriu S, Sanchez Dalmau BF. **Retinal Damage and Visual Network Reconfiguration Defines Visual Function Recovery in Optic Neuritis.** *Neurology-Neuroimmunology & Neuroinflammation.* 11(6):e200288. D1

Martin-Pinardel R, Izquierdo-Serra J, de Zanet S, ... , Mosinska A, Casaroli Marano RP, Zarranz-Ventura J, from the FRB SPAIN-IMAGE Project Investigators. **Artificial intelligence-based fluid quantification and associated visual outcomes in a real-world, multicentre neovascular age-related macular degeneration national database.** *British Journal of Ophthalmology.* 108(2):253-262. Q1

Moll-Udina A, Dotti-Boada M, Miguel L, ... , Adán Civera AM, Molins B, Llorenc V. **Non-invasive biomarkers for close activity monitoring in birdshot chorioretinitis: Optical coherence tomography angiography and beyond.** *Acta Ophthalmologica.* 102(3):e302-e313. Q1

Giralt L, Figueras-Roca M, de Luis Eguileor B, ... , Adán A, Fonollosa A, Molins B. **C-reactive protein-complement factor H axis as a biomarker of activity in early and intermediate age-related macular degeneration.** *Frontiers in Immunology.* 15:1330913. Q1

Ruiz-Lozano RE, Colorado-Zavala MF, Ramos-Dávila EM, ... , Hall 3rd RP, Rodriguez-Garcia A, Perez VL. **Ocular Mucous Membrane Pemphigoid: The Effect of Risk Factors at Presentation on Treatment Outcomes.** *Ophthalmology.* 131(9):1064-1075. D1

1.02

Systemic autoimmune diseases

GROUP LEADER
Ricard Cervera (HCB)

Publications

Original articles	**Mean IF**	**6,18**
41	Q1	71%
	D1	27%
	MA	34%
	OA	56%
Others	**Mean IF**	**7,38**
8	Q1	50%
	D1	50%
	MA	50%
	OA	38%

IF = Impact Factor
MA = Main authorship (last or corresponding author)
OA = Open Access
Others includes reviews, editorials, clinical guidelines, letters and case reports

Directed PhD theses

4

- Olga Araujo
- Alba Parrado
- Ana Maria Ponce
- Isaac Pons

Selected active grants

Taxonomy, treatment, targets and remission-Identification of the molecular mechanisms of non-response to treatments, relapses and remission in autoimmune, inflammatory, and allergic conditions (3TR).
European Comission.
CE_IMI2-2018-14
PI: Ricard Cervera, Juan de Dios Cañete, Azucena Salas

Redes de Investigación Cooperativa Orientadas a Resultados en Salud 2021: Enfermedades inflamatorias.
Instituto de Salud Carlos III (ISCIII).
FIS_RICORS21
PI: Ricard Cervera

Selected publications

Gómez-Caverzaschi V, Yagüe J, Espinosa G, ... , Aróstegui JI, Mensa-Vilaró A, Hernández-Rodríguez J. **Disease phenotypes in adult patients with suspected undifferentiated autoinflammatory diseases and PFAPA syndrome: Clinical and therapeutic implications.** *Autoimmunity Reviews.* 23(7-8):103520. D1

Fernandes-Serodio J, Prieto-González S, Espígol-Frigolé G, ... , Alobid I, Cid MC, Hernández-Rodríguez J. **Significance of clinical-immunological patterns and diagnostic yield of biopsies in microscopic polyangiitis and granulomatosis with polyangiitis.** *Journal of Internal Medicine.* 295(5):651-667. D1

Pons I, Jeréz A, Espinosa G, ... , Erkan D, Shoenfeld Y, Cervera R, CAPS Registry Project Group/European Forum on Antiphospholipid Antibodies. **Cardiac involvement in the catastrophic antiphospholipid syndrome (CAPS): Lessons from the "CAPS registry ".** *Seminars in Arthritis and Rheumatism.* 66:152439. Q1

Parodis I, Lindblom J, Barturen G, ... , Vasconcelos C, Vigone B, Witte T, PRECISESADS Clinical Consortium. **Molecular characterisation of lupus low disease activity state (LLDAS) and DORIS remission by whole-blood transcriptome-based pathways in a pan-European systemic lupus erythematosus cohort.** *Annals of the Rheumatic Diseases.* 83(7):889-900. D1

Fanouriakis A, Kostopoulou M, Andersen, ... , Wincup C, Bertsias G, Boumpas DT. **EULAR recommendations for the management of systemic lupus erythematosus: 2023 update.** *Annals of the rheumatic diseases.* 83(1):15-29. D1

RESEARCH INTERESTS

The group promotes basic, clinical and translational research on systemic autoimmune diseases using a multidisciplinary approach and with the participation of members from different departments of Hospital Clínic.

It also cooperates with different international working groups, for which its team members are national or international coordinators, including: the European Working Party on Systemic Lupus Erythematosus, the European Forum on Antiphospholipid Antibodies, the Catastrophic Antiphospholipid Syndrome Registry Project Group, and Systemic Lupus International Collaborating Clinics (SLICC).

KEYWORDS

Systemic autoimmune diseases
Multidisciplinary approach
Networking
Translational research
Epidemiologic research

RELATED DISEASES

Systemic autoimmune diseases
Systemic lupus erythematosus
Antiphospholipid syndrome
Sjögren's syndrome
Autoinflammatory diseases

1.03

Systemic vasculitis

GROUP LEADER
Maria Cinta Cid (HCB)

RESEARCH INTERESTS

Investigating mechanisms involved in vascular inflammation, injury, and remodeling in systemic vasculitis with the ultimate goal of identifying clinically useful biomarkers with diagnostic, assessment, and prediction potential as well as therapeutic targets.

Development of functional models to test the mechanistic function of molecules of interest. Validation of the experimental findings in clinical cohorts with prospectively collected clinical data and biospecimens.

Validation of potential therapeutic targets in clinical trials.

KEYWORDS

Vascularr inflammation
Vascular remodeling
Development of functional models
Biomarker identification / validation
Therapeutic targets and clinical trials

RELATED DISEASES

Large vessel vasculitis
ANCA-associated vasculitis
Polymyalgia rheumatica
Other medium / small vessel vasculitis
Vasculitis associated with other diseases

Publications

Original articles	**Mean IF**	**7,32**
14	Q1	93%
	D1	29%
	MA	21%
	OA	86%
Others	**Mean IF**	**10,42**
10	Q1	90%
	D1	60%
	MA	30%
	OA	60%

IF = Impact Factor
MA = Main authorship (last or corresponding author)
OA = Open Access
Others includes reviews, editorials, clinical guidelines, letters and case reports

Selected active grants

Descifrando el rol de las células mieloides y las citocinas de tipo 3 sobre la inflamación y el remodelado vascular en las vasculitis sistémicas.
Agencia Estatal de Investigación.
AEI_PE23
PI: Maria Cinta Cid

Immunopathological impact of targeted therapies in ex-vivo arterial explants and tissue organoids. Towards a personalized medicine for patients with giant-cell arteritis (TARGETART).
Agencia Estatal de Investigación.
AEI_PE20
PI: Maria Cinta Cid

Selected publications

Fernandes-Serodio J, Prieto-Gonzalez S, Espigol-Frigole G, ... , Alobid I, Cid MC, Hernandez-Rodriguez J. **Significance of clinical-immunological patterns and diagnostic yield of biopsies in microscopic polyangiitis and granulomatosis with polyangiitis.** *Journal of Internal Medicine.* 295(5):651-667. D1

Solans-Laqué R, Rúa-Figueroa I, Blanco Aparicio M, ... , Ortiz Sanjuán FM, Arismendi E, Cid MC. **Red flags for clinical suspicion of eosinophilic granulomatosis with polyangiitis (EGPA). European Journal of Internal Medicine.** 128(24):45-52. D1

Greigert H, Ramon A, Genet C, ... , Cid MC, Bonnotte B, Samson M. **Neointimal myofibroblasts contribute to maintaining Th1/Tc1 and Th17/Tc17 inflammation in giant cell arteritis.** *Journal of Autoimmunity.* 142:103151. Q1

Bonacini M, Rossi A, Ferrigno I, ... , Zerbini A, Salvarani C, Croci S. **miR-146a and miR-146b regulate the expression of ICAM-1 in giant cell arteritis.** *Journal of Autoimmunity.* 144:103186. Q1

Carmona EG, Callejas-Rubio JL, Raya E, ... , Ortego-Centeno N, Martín J, Márquez A. **Single-cell transcriptomic profiling reveals a pathogenic role of cytotoxic CD4+ T cells in giant cell arteritis.** *Journal of Autoimmunity.* 142:103124. Q1

1.04

Molecular and cellular bases of inflammation. Structural and biological mass spectrometry

Publications

Original articles	**Mean IF**	**12,96**
5	Q1	100%
	D1	20%
	MA	60%
	OA	100%
Others	**Mean IF**	**5,90**
1	Q1	100%
	D1	0%
	MA	0%
	OA	0%

IF = Impact Factor
MA = Main authorship (last or corresponding author)
OA = Open Access
Others includes reviews, editorials, clinical guidelines, letters and case reports

Directed PhD theses

1

- Aina Areny

Selected active grants

Descubrimiento de marcadores biologicos de exposicion presentes en aguas residuales sin tratar y tratadas mediante proteomica ambiental. Ministerio de Ciencia e Innovación y Universidades.
MCIU_PID2020-114065RB-C22
PI: Montserrat Carrascal

Extracellular modifications of exosomes generated in inflammatory pathologies.
Ministerio de Ciencia e Innovación y Universidades.
MCIU_PID2020-115449RB-I00
PI: Daniel Closa

Selected publications

Rius-Bonet J, Macip S, Massip-Salcedo M, Closa D. **Effects of Fasting on THP1 Macrophage Metabolism and Inflammatory Profile.** *International Journal of Molecular Sciences.* 25(16):9029. Q1

Armengol-Badia O, Maggi J, Casal C, ... , Abian J, Carrascal M, Closa D. **The Microenvironment in an Experimental Model of Acute Pancreatitis Can Modify the Formation of the Protein Corona of sEVs, with Implications on Their Biological Function.** *International Journal of Molecular Sciences.* 25(23):12969. Q1

Arribas YA, Baudon B, Rotival M, ... , Burbage M, Merlotti A, Amigorena S. **Transposable element exonization generates a reservoir of evolving and functional protein isoforms.** *Cell.* 187(26):7603-7620.e22. D1

GROUP LEADER
Daniel Closa (IIBB-CSIC)

RESEARCH INTERESTS

The group studies intercellular signalling mechanisms based on the exchange of soluble molecules and on those transported by extracellular vesicles, the phenotypic changes associated with these diseases, and the alteration of different markers at the molecular level.

It also develops techniques for analysing biomolecules using mass spectrometry and, more especially for proteomic studies, analysing changes in patterns of phosphorylation or acetylation, and other protein modifications.

The group aims to discover innovative strategies that, by altering the communication between cells, will make it possible to develop new therapeutic applications for different diseases.

KEYWORDS

Inflammation
Fibrosis
Proteomics
Cell therapy
Exosomes

RELATED DISEASES

Pancreatitis
Lung fibrosis
Pancreatic cancer

1.05

Hemotherapy – hemostasis

GROUP LEADER

Maribel Díaz Ricart (HCB)

RESEARCH INTERESTS

Molecular mechanisms bleeding and thrombotic disorders:
Platelet dysfunction and plasma proteins; arterial and venous thrombosis; therapeutic strategies.

Endothelial dysfunction:
Common endothelial damage biomarkers in high cardiovascular risk diseases, kidney transplantation and hematological disorders. Biomarkers of complications of haematopoietic progenitor cells transplantation and of pregnancy.

Diagnosis and treatment of thrombotic microangiopathies:
Complement system pathways and NETs.

Implications of circulating procoagulant microparticles in atherothrombosis:
Impact of microparticle phagocytosis by platelets.

KEYWORDS

Thrombosis
Bleeding
Endothelial activation and damage
Complement system
Microparticles

RELATED DISEASES

Chronic kidney disease
Cardiovascular disease
Hematopoietic stem cell transplantation
Septic syndromes
Pregnancy complications

Publications

Original articles	Mean IF	4,93
25	Q1	76%
	D1	24%
	MA	28%
	OA	64%
Others	Mean IF	4,90
8	Q1	75%
	D1	25%
	MA	50%
	OA	50%

IF = Impact Factor
MA = Main authorship (last or corresponding author)
OA = Open Access
Others includes reviews, editorials, clinical guidelines, letters and case reports

Directed PhD theses

1

- Alexandra Pedraza

Selected active grants

Evaluación del sistema del complemento y el daño endotelial en el trasplante renal ABO Incompatible: caracterización de biomarcadores e identificación de dianas terapéuticas.
Instituto de Salud Carlos III (ISCIII).
FIS_PI22/00240
PI: Miquel Blasco Pelícano, Maribel Díaz-Ricart

Selected publications

Barrera K, Rodellar J, Alférez S, Merino A. **A deep learning approach for automatic recognition of abnormalities in the cytoplasm of neutrophils.** *Computers in Biology and Medicine.* 178:108691. D1

Escribano-Serrat S, Pedraza A, Suárez-Lledó M, ... , Rovira M, Salas MQ, Díaz-Ricart M. **Safety and efficacy of G-CSF after allogeneic hematopoietic cell transplantation using post-transplant cyclophosphamide: clinical and in vitro examination of endothelial activation.** *Bone Marrow Transplantation.* 59(10):1466-1476. Q1

Lozano M, Charry P, de Pablo-Miró M, ... , Fernández-Avilés F, Rovira M, Cid J. **Role of extracorporeal photopheresis in the management of acute and chronic graft versus disease: current status.** *Bone Marrow Transplantation.* 59(9):1209-1214. Q1

Ramos A, Youssef L, Molina P, ... , Díaz-Ricart M, Crispi F, Palomo M. **Circulating extracellular vesicles and neutrophil extracellular traps contribute to endothelial dysfunction in preeclampsia.** *Frontiers in Immunology.* 15:1488127. Q1

Röth A, Berentsen S, Barcellini W, ... , Shafer F, Lee M, Broome CM. **Long-term efficacy and safety of continued complement C1s inhibition with sutimlimab in cold agglutinin disease: CADENZA study Part B.** *Eclinicalmedicine.* 74:102733. D1

1.06

Immunogenetics and immunotherapy in autoinflammatory and immune responses

GROUP LEADER
Manel Juan (HCB)

Publications

Original articles	**Mean IF**	**7,22**
28	Q1	79%
	D1	39%
	MA	11%
	OA	89%
Others	**Mean IF**	**8,30**
8	Q1	100%
	D1	50%
	MA	25%
	OA	50%

IF = Impact Factor
MA = Main authorship (last or corresponding author)
OA = Open Access
Others includes reviews, editorials, clinical guidelines, letters and case reports

Directed PhD theses

2

- Ariadna Bartoló
- Mario Vazquez

Selected active grants

Artificial Intelligence-driven, Decentralized Production for Advanced Therapies in the Hospital.
European Commission.
CE_H2020-ICT-20_1s17
PI: Manel Juan

Exploración de TCRs versátiles: uso de péptidos degenerados restringidos por HLA de clase II para la mejora de terapias basadas en TCRs.
Fundación de Investigación Médica Mutua Madrileña. FundMM_24_AP-16014/2024
PI: Manel Juan

Selected publications

Ortiz de Landazuri I, Oliver-Caldés A, Español-Rego, M, ... , Paiva B, Juan M, Fernández de Larrea C. **Serum mass spectrometry for treatment monitoring in patients with multiple myeloma receiving ARI0002h CAR T-cells.** *British Journal of Haematology.* 205(4):1346-1355. Q1

Delgado J, Juan M, Calvo G, Urbano-Ispizua A. **The development of academic CAR T cells.** *Lancet Haematology.* 11(7):e484-e485. D1

Díez-Alonso L, Falgas A, Arroyo-Ródenas J, ... , Menéndez P, Bueno C, Álvarez-Vallina L. **Engineered T cells secreting anti-BCMA T cell engagers control multiple myeloma and promote immune memory in vivo.** *Science Translational Medicine.* 16(734):eadg7962. D1

Molina-López C, Hurtado-Navarro L, García CJ, ... , Tomás-Barberán FA, Arostegui JI, Pelegrin P. **Pathogenic NLRP3 mutants form constitutively active inflammasomes resulting in immune-metabolic limitation of IL-1β production.** *Nature Communications.* 15(1):1096. D1

Rovira J, Arana C, Garcia-Busquets A, ..., Heidt S, Palou E, Diekmann F. **Chimeric autoantibody receptor cell therapy for the treatment of membranous nephropathy.** *Kidney International.* 105(6):1320. D1

RESEARCH INTERESTS

We develop new tools for diagnosing and treating diseases -from autoinflammatory disorders to cancer- including Cell Immunotherapy Products (CITP), from basic research to approval for clinical use.

Our research covers 5 main branches:

1) Genetical evaluation of gene immuno-mediated diseases.
2) Study of new molecular mechanisms defining autoinflammation and other Inborn Errors of Immunity (IEI).
3) Development of new methods to improve new CITP from CITPs based on natural specific T-cells to specific proposal of genetically modified T-cells (and NKs).
4) Production of Cell-Vaccines for new clinical trials and evaluation of T-cell responses in induction of immune responses.
5) Optimization of viral vectors and recombinant proteins for CITP.

KEYWORDS

Cell immunotherapy
CAR-T and gene modified Tcells
Immunogenetics
Immunodeficiences
Autoinflammation

RELATED DISEASES

Hematological neoplasias
Autoinflammatory diseases
Inborn errors of immunity
Solid cancer
Disregulatory diseases

1.07

Immune receptors of the innate and adaptive system

GROUP LEADER

Francisco Lozano (HCB-UB)

RESEARCH INTERESTS

We aim to identify and understand the function of the molecules that regulate immune responses in health and disease.

We particularly focus on the molecular interactions involved in the intercommunication and coordination of immune cells during physiological and pathological processes.

This approach will allow the development of new approaches and biological tools (recombinant proteins and monoclonal antibodies) for the treatment of immune-mediated disorders (e.g., systemic autoimmune and infectious diseases, graft rejection, allergy, or cancer).

KEYWORDS

Innate immunity
Leukocyte cell surface molecules
Viral immune evasion
Immunotherapy
Immune receptors

RELATED DISEASES

Herpes virus infections
Sjögren's syndrome
Bacterial and fungal sepsis
Inflammatory bowel disease
Hematologic malignancies and solid cancers

Publications

Original articles	Mean IF	5,40
4	Q1	75%
	D1	25%
	MA	50%
	OA	75%
Others	Mean IF	0
0	Q1	0%
	D1	0%
	MA	0%
	OA	0%

IF = Impact Factor
MA = Main authorship (last or corresponding author)
OA = Open Access
Others includes reviews, editorials, clinical guidelines, letters and case reports

Selected active grants

Desarrollo y optimización pre-clínica de nuevas terapias inmunomoduladoras en infección y cáncer basadas en receptores linfocitarios tipo scavenger.
Agencia Estatal de Investigación.
AEI_PE22
PI: Francisco Lozano

Explorando la dinámica del surfaceoma de células mieloides en la infección por citomegalovirus: desarrollo de terapias innovadores.
Agencia Estatal de Investigación.
AEI_PID2023-146941OB-I00
PI: Ana Angulo, Pablo Engel

Selected publications

Esquinas E, Moreno-Sanz A, Sandá V, ... , Llamas-Sillero P, Solán-Blanco L, Martin-Antonio B. **Preclinical development of three novel CARs targeting CD79b for the treatment of non-Hodgkin's lymphoma and characterization of the loss of the target antigen.** *Journal for Immunotherapy of Cancer.* 12(12):e009485. D1

Mourglia-Ettlin G, González-Porcile MC, Planells-Romeo V, ... , Miles S, Lozano F, Velasco-de-Andrés Maria. **In Vitro Analysis of Tandem Peptides from Human CD5 and CD6 Scavenger Receptors as Potential Anti-Cryptococcal Agents.** *Journal of Fungi.* 10(10):667. Q1

Giralt L, Figueras-Roca M, de Luis Eguileor B, ... , Adan A, Fonollosa A, Molins B. **C-reactive protein-complement factor H axis as a biomarker of activity in early and intermediate age-related macular degeneration.** *Frontiers in Immunology.* 15:1330913. Q1

García-Luna J, Rivero-Osorio F, González-Porcile MC, ... , Dematteis S, Lozano F, Mourglia-Ettlin G. **Recombinant CD5 and CD6 Ectodomains Induce Antiparasitic and Immunomodulatory Effects in Secondary Cystic Echinococcosis.** *Parasite Immunology.* 46(4):e13034. Q3

1.08

AIDS and HIV infection

GROUP LEADER
Josep Mallolas (HCB)

RESEARCH INTERESTS

The HIV/AIDS Unit cares for 6,500 people living with HIV, most of whom receive antiretroviral therapy.

Its research is divided into two areas: clinical research on treatment efficacy, tolerance, resistance, and coinfections; and basic research in retrovirology and viral immunopathology, focusing on vaccines, HIV reservoirs, and immune senescence.

KEYWORDS

HIV and coinfections
Antiretroviral therapy
Prevention and vaccines
Chemsex
HIV reservoir

RELATED DISEASES

AIDS
Hepatitis C (HCV)
Human papillomavirus (HPV)
Sexually transmitted infections
Opportunistic infections

Publications

Original articles	**Mean IF**	**4,85**
29	Q1	69%
	D1	17%
	MA	41%
	OA	72%
Others	**Mean IF**	**4,78**
16	Q1	56%
	D1	19%
	MA	75%
	OA	25%

IF = Impact Factor
MA = Main authorship (last or corresponding author)
OA = Open Access
Others includes reviews, editorials, clinical guidelines, letters and case reports

Directed PhD theses

2

- Elisa de Lazzari
- Ainoa Ugarte

Selected active grants

Ensayo clínico de fase 1 para evaluar la seguridad e inmunogenicidad de la vacuna 763SIP8/MPLA-5 basada en la envoltura del VIH-1 (HIVAC-FOUND).
Instituto de Salud Carlos III (ISCIII).
FIS_ICI23/00025
PI: Josep Mallolas

Seguridad, tolerancia y actividad antirretroviral de dasatinib: estudio clínico piloto en pacientes con infección reciente por el VIH-1 (Proyecto DASAHIVCURE).
Instituto de Salud Carlos III (ISCIII).
FIS_ICI20/00103
PI: Josep Maria Miró

Selected publications

Martínez E, Foncillas A, Téllez A, ... , Mallolas J, de la Mora L, Castro P. **Epidemiological changes and outcomes of people living with HIV admitted to the intensive care unit: a 14-year retrospective study.** *Infection.* 53(2):583-592. Q1

Ambrosioni J, Díaz NA, Marzolini C, ... , Cortés CP, Naous N, Molto J. **Outcomes of Drug Interactions Between Antiretrovirals and Co-Medications, Including Over-the-Counter Drugs: A Real-World Study.** *Infectious Diseases and Therapy.* 13(3):609-617. Q1

Chivite I, Berrocal L, de Lazzari E, ... , Martínez E, Mallolas J, Ambrosioni J. **Effectiveness, safety and discontinuation rates of bictegravir/emtricitabine/tenofovir alafenamide (BIC/FTC/TAF) in people with HIV using real-world data: a systematic review and meta-analysis.** *Journal of Antimicrobial Chemotherapy.* 79(8):1775-1783. Q1

Ugarte A, de la Mora L, de Lazzari E, ... Martínez E, Mallolas J, Torres B. **Rapid initiation of bictegravir/emtricitabine/tenofovir alafenamide as first-line therapy in HIV infection. A prospective study.** *Journal of Antimicrobial Chemotherapy.* 79(9):2343-2353. Q1

Laguno M, de Lazzari E, Berrocal L, ... , Miro JM, Mallolas J, Martinez E. **Burden of liver steatosis and liver fibrosis in a large cohort of people living with HIV.** *Hiv Medicine.* 25(12):1308-1324. Q2

1.09

Emergencies: processes and pathologies

GROUP LEADER
Òscar Miró (HCB)

RESEARCH INTERESTS

The group has mantained a large and exponentially increasing research activity during the past 15 years in acute heart failure, atrial fibrillaton, chest pain, infection and thromboembolic diseases, and intoxicated patient care, with special focus in consultatons generated by illicit drug consumption. In all these areas, the group has promoted the creation of national and international networks, leading some of them.

In recent years, it has expanded research in geriatric emergency medicine and in specific sex/-gender differences in emergency medicine practice.

KEYWORDS

Acute heart failure
Atrial fibrilation
Clinical toxicology
Infectous diseases
Geriatric emergency medicine

RELATED DISEASES

Myocardiopathies
Cardiac arrhythmias
Drug consumption
Sepsis
Frailty, comorbidity and dependence

Publications

Original articles	**Mean IF**	**5,24**
52	Q1	62%
	D1	31%
	MA	60%
	OA	38%
Others	**Mean IF**	**5,63**
8	Q1	88%
	D1	50%
	MA	88%
	OA	25%

IF = Impact Factor
MA = Main authorship (last or corresponding author)
OA = Open Access
Others includes reviews, editorials, clinical guidelines, letters and case reports

Directed PhD theses

1

- Sònia Moreno

Selected active grants

Influence of intimate partner violence on the prognosis of patients with acute coronary syndrome.
Fundació la Marató de TV3.
Cardiovascular_22
PI: Blanca Coll-Vinent

Selected publications

Miró E, Miró Ò, Villamor A, ... , Salazar P, Montoya R, Rebollo A, Urgències VIHgila. **Impact of specialized training for emergency department nurses screening or undetected HIV infection: the "Urgencies VIHgila" project experience.** *Emergencias: Revista de la Sociedad Española de Medicina de Urgencias y Emergencias.* 36(3):188-196. D1

García-Martínez Ana, García-Rosa S, Gil-Rodrigo A, ... , Martín-Sánchez FJ, Lázaro del Nogal M, Miró Ò. **Prevalence and outcomes of fear of falling in older adults with falls at the emergency department: a multicentric observational study.** *European Geriatric Medicine.* 15(5):1281-1289. Q2

Miró Ò, Núñez J, Trullàs JC, ... , Gil V, Mueller C, Llorens P, ICA-SEMES, INCLIVA, ALCALOTIC research groups. **Combining loop with thiazide diuretics in patients discharged home after a heart failure decompensation: Association with 30-day outcomes.** *European Journal of Internal Medicine.* 127:126-133. D1

Boeddinghaus J, Doudesis D, Lopez-Ayala P, ... , Gray A, Mills NL, Mueller C. **Machine Learning for Myocardial Infarction Compared With Guideline-Recommended Diagnostic Pathways.** *Circulation.* 149(14):1090-1101. D1

Wussler D, Belkin M, Shrestha S, ... , Goudev A, Breidthardt T, Mueller C. **Incremental value of C-reactive protein to the MEESSI acute heart failure risk score.** *European Journal of Heart Failure.* 26(8):1749-1758. D1

1.10

Endocarditis. Cardiovascular infections. Experimental model

GROUP LEADER

Josep M. Miró (HCB)

Publications

Original articles	**Mean IF**	**5,42**
14	Q1	71%
	D1	36%
	MA	36%
	OA	64%
Others	**Mean IF**	**18,43**
4	Q1	100%
	D1	100%
	MA	75%
	OA	50%

IF = Impact Factor
MA = Main authorship (last or corresponding author)
OA = Open Access
Others includes reviews, editorials, clinical guidelines, letters and case reports

Directed PhD theses

2

- Andreu Bruguera
- Sonia Calzado

Selected active grants

Infective endocarditis due to coagulase-negative staphylococci: Current clinical situation in Spain, usefulness of genomic analysis in diagnosis and prognosis and role of lysins and phages in treatment.
Instituto de Salud Carlos III (ISCIII).
FIS_PI23/01656
PI: Cristina Garcia de la Maria, Josep Maria Miró Meda

Preventing infections of cardiac implantable electronic devices through a bimodal coating using thermally smart hydrogels with antimicrobial agents (COAT-IT).
Fundació la Marató de TV3.
Cardiovascular22
PI: Josep Maria Miró Meda

Selected publications

Cuervo G, Quintana E, Regueiro A, ... , Vidal B, Miro JM, Baddour LM. **The Clinical Challenge of Prosthetic Valve Endocarditis: JACC Focus Seminar 3/4.** *Journal of the American College of Cardiology.* 83(15):1418-1430. D1

Panagides V, Cuervo G, Llopis J, ... , Chu V, Rodés-Cabau J, Miro JM, TAVI Infective Endocarditis International Registry and ICE Investigators. **Infective Endocarditis After Transcatheter versus Surgical Aortic Valve Replacement.** *Clinical Infectious Diseases.* 78(1):179-187. D1

Martínez-Sellés M, Kortajarena-Urkola X, Muñoz P, ... , Cabello-Ubeda A, Miró JM, Goenaga-Sánchez, MA, Spanish Collaboration on Endocarditis- Grupo de Apoyo al Manejo de la Endocarditis Infecciosa en España (GAMES). **Infective endocarditis in HIV-infected patients. Analysis of a national cohort.** *Infectious Diseases.* 56(12):1057-1066. Q1

Baddour LM, Garrigos ZE, Sohail MR, ..., El-Chami MF, Miro JM, DeSimone DC, American Heart Association Council on Lifelong Congenital Heart Disease and Heart Health in the Young (Young Hearts); and Council on Clinical Cardiology. **Update on Cardiovascular Implantable Electronic Device Infections and Their Prevention, Diagnosis, and Management: A Scientific Statement From the American Heart Association: Endorsed by the International Society for Cardiovascular Infectious Diseases.** *Circulation.* 149(2):e201-e216. D1

van der Vaart TW, Bossuyt PMM, Durack DT, ... , Selton-Suty C, Fowler VG Jr, van der Meer JTM. **External Validation of the 2023 Duke-International Society for Cardiovascular Infectious Diseases Diagnostic Criteria for Infective Endocarditis.** *Clinical Infectious Diseases.* 78(4):922-929. D1

RESEARCH INTERESTS

Our principal objective is to transfer basic scientific knowledge to daily clinical practice. Making progress in the study of IE requires an interdisciplinary and translational approach, from basic in vitro and in vivo laboratory research in an experimental endocarditis model to clinical studies.

This is achieved by a close collaboration between experts in several specialities joined in the Endocarditis Team, covering all clinical: prevention; improving imaging and microbiological diagnosis; developing new antimicrobials and treatment strategies; and improving cardiac surgical approaches.

KEYWORDS

Cardiovascular infections
Infective endocarditis
Experimental endocarditis model
Antibiotic treatment
Cardiac surgery

RELATED DISEASES

Bacteriemias
Catheter-related infection
Device-associated infections
Endovascular infections
Mediastinitis

1.11

Inflammatory joint diseases (IJDs)

GROUP LEADER
Raimon Sanmartí (HCB)

RESEARCH INTERESTS

This research group aims to increase its knowledge of the different prognostic factors that can determine a better evolution of arthritis and which treatment can be most effective for each patient.

It studies biomarkers present in the blood of patients with arthritis at the initial stages of the disease (especially autoantibodies) and is a pioneer in the field of immunopathological study of the synovial membrane in different forms of arthritis, including those that do not have an initial diagnosis, in order to improve the diagnostic and prognostic process.

The group also participates in strategic studies working towards the advancement of personalised medicine and therapeutic strategies in pre-clinical stages.

KEYWORDS

Arthritis
Remission
Personalized
Synovial
Biomarkers

RELATED DISEASES

Rheumatoid arthritis
Palindromic rheumatism
Spondyloarthritis
Pre-rheumatoid arthritis
Psoriatic arthritis

Publications

Original articles	**Mean IF**	**7,02**
13	Q1	77%
	D1	31%
	MA	31%
	OA	54%
Others	**Mean IF**	**12,74**
8	Q1	88%
	D1	25%
	MA	75%
	OA	50%

IF = Impact Factor
MA = Main authorship (last or corresponding author)
OA = Open Access
Others includes reviews, editorials, clinical guidelines, letters and case reports

Directed PhD theses

1

- Beatriz Frade

Selected active grants

Taxonomy, treatment, targets and remission-Identification of the molecular mechanisms of non-response to treatments, relapses and remission in autoimmune, inflammatory, and allergic conditions (3TR).
European Comission.
CE_IMI2-2018-14
PI: Ricard Cervera, Juan de Dios Cañete, Azucena Salas

Dissecting the cellular and molecular atlas of Rheumatoid Arthritis (RA) in sustained remission to identify pathways maintaining Remission and Triggering Flares.
Foundation for Research in Rheumatology. INT_FOREUM_21
PI: Juan de Dios Cañete

Selected publications

Azuaga AB, Cuervo A, Celis R, ... , Gómez-Puerta JA, Sanmartí R, Ramírez J. **Synovial tissue features associated with poor prognosis in inflammatory arthritis.** *Arthritis Research & Therapy.* 26(1):18. Q1

Frade-Sosa B, Ponce A, Ruiz-Ortiz E, ... , Viñas O, Haro I, Sanmartí R. **Neutrophilic Activity Biomarkers (Plasma Neutrophil Extracellular Traps and Calprotectin) in Established Patients with Rheumatoid Arthritis Receiving Biological or JAK Inhibitors: A Clinical and Ultrasonographic Study.** *Rheumatology Therapy.* 11(3):501-521. Q2

Alivernini S, Cañete JD, Bacardit J, Kurowska-Stolarska M. **Using explainable artificial intelligence to predict and forestall flare in rheumatoid arthritis.** *Nature Medicine.* 30(3):925-926. D1

Rauber S, Mohammadian H, Schmidkonz C, ..., Cañete JD, Schett G, Ramming A. **CD200+ fibroblasts form a pro-resolving mesenchymal network in arthritis.** *Nature Immunology.* 25(4):682-692. D1

Murillo-Saich JD, Coras R, Ramírez J, ..., Cañete JD, Singh A, Guma M. **Synovial 5-Lipoxygenase-Derived Oxylipins Define a Lympho-Myeloid-Enriched Synovium.** *Arthritis & Rheumatology.* 76(8):1230-1242. D1

1.12

Nosocomial infection

GROUP LEADER

Alex Soriano (HCB)

Publications

Original articles	**Mean IF**	**5,85**
54	Q1	57%
	D1	20%
	MA	33%
	OA	85%
Others	**Mean IF**	**5,06**
10	Q1	80%
	D1	10%
	MA	50%
	OA	80%

IF = Impact Factor
MA = Main authorship (last or corresponding author)
OA = Open Access
Others includes reviews, editorials, clinical guidelines, letters and case reports

Directed PhD theses

1

- Mariana Chumbita

Selected active grants

Eficacia del PET-TC precoz en la detección de metástasis sépticas en pacientes con bacteremia por S. aureus de alto riesgo. Estudio piloto empleando el 2-[18F]F-PABA-PET/TC como marcador de S. aureus.
Instituto de Salud Carlos III (ISCIII).
FIS_PI19/01116
PI: Alex Soriano

Utilidad de la prueba ELISPOT-BKV para predecir el riesgo de desarrollar nefropatía por virus BK en receptores de riñon. Estudio multicéntrico.
Instituto de Salud Carlos III (ISCIII).
FIS_ PI19/00608
PI: Marta Bodro

Selected publications

Sempere A, Castillo N, Rudilla F, ... , Torregrossa V, Dieckmann F, Marta Bodro. **Successful BK virus-specific T cell therapy in a kidney transplant recipient with progressive multifocal leukoencephalopathy.** *American Journal of Transplantation.* 24(9):1698-1702. D1

Aiello TF, Salmanton-Garcia J, Marchesi F, ... , Cornely OA, Garcia-Vidal C, Pagano L, Epicovideha Study Group. **Dexamethasone treatment for COVID-19 is related to increased mortality in hematologic malignancy patients: results from the EPICOVIDEHA registry.** *Haematologica.* 109(8):2693-2700. Q1

Monzo-Gallo P, Alastruey-Izquierdo A, Chumbita M, ... , Soriano A, Marco F, Garcia-Vidal C. **Report of three azole-resistant Aspergillus fumigatus cases with TR34/L98H mutation in hematological patients in Barcelona, Spain.** *Infection.* 52(5):1651-1656. Q1

Pitart C, Piquet M, Burgwinkel T, ... , Vila J, Higgins PG, Roca I. **Early identification of the nosocomial spread of vancomycin-resistant Enterococcus faecium by Fourier-transform infrared spectroscopy and performance comparison with PFGE and WGS.** *Emerging Microbes & Infections.* 13(1): 2392659. D1

Kaasch AJ, López-Cortés LE, Rodríguez-Baño J, ... , Winfried V, Hellmich M, Seifert H, SABATO study group. **Efficacy and safety of an early oral switch in low-risk Staphylococcus aureus bloodstream infection (SABATO): an international, open-label, parallel-group, randomised, controlled, trial.** *Lancet Infectious Diseases.* 24(5): 523-534. D1

RESEARCH INTERESTS

Our group is dedicated to complex infections with projects in immunosuppressed patients including onco-hematological patients and patients with solid organ transplant, orthopedic infections, infections in intensive care units and patients with nosocomial and community-acquired infections. In addition, our research group works in projects related with infection prevention and antibiotic policies.

We are working to obtain data from electronic health records and to implement research using advanced analytical techniques.

KEYWORDS

Nosocomial infection
Bacteremia
Inmunosuppresed patients
Bone and joint infection
Antibiotic policy

RELATED DISEASES

Bacteremia
Fungal infections
in inmunosupressed patients
S. aureus infections
Solid organ transplant infections
Urinary tract infections

2

RESPIRATORY, CARDIOVASCULAR AND RENAL PATHOBIOLOGY AND BIOENGINEERING

Annual scientific report 2024

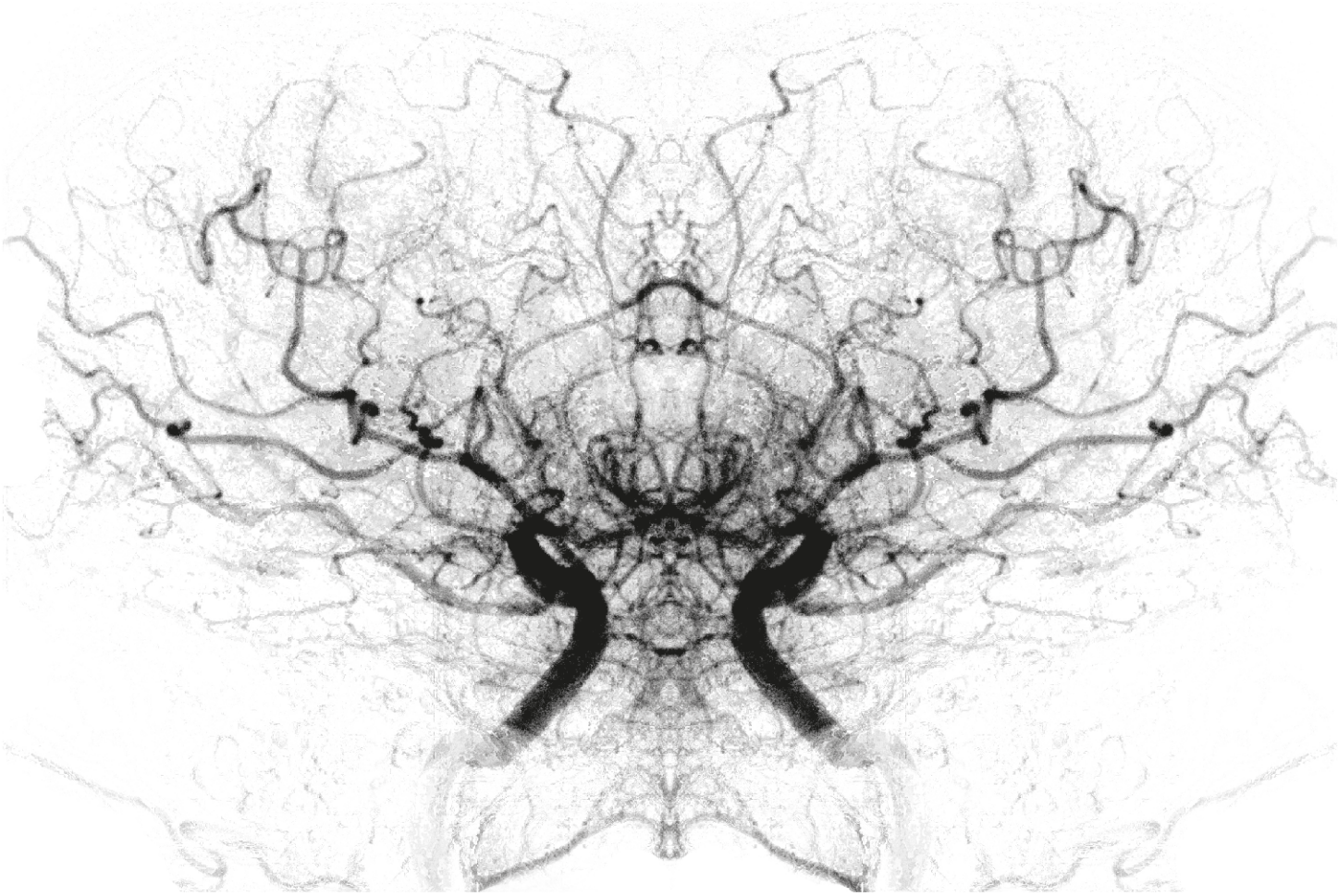


photo: **Alejandro Hinojosa and Carlos Laredo**

AREA 2

RESPIRATORY, CARDIOVASCULAR AND RENAL PATHOBIOLOGY AND BIOENGINEERING

2.1 **Inflammation and repair in respiratory diseases**
Àlvar Agustí

2.2 **Physiopathological mechanisms of respiratory diseases**
Joan Albert Barberà

2.3 **Translational research in pulmonary vascular diseases: cell proliferation and apoptotic mechanisms in pulmonary arterial hypertension**
Isabel Blanco

2.4 **Familial cardiomyopathies and sudden death syndrome**
Josep Brugada

2.5 **Nephrology and transplantation (LENIT)**
Fritz Diekmann

2.6 **Vascular cell biology**
Gustavo Egea

2.7 **Cardiovascular risk, nutrition and aging**
Ramon Estruch

2.8 **Respiratory biophysics and bioengineering**
Ramon Farré

2.9 **Arrhythmias and physical activity**
Eduard Guasch

2.10 **Biopathology and treatment of cardiac arrhythmias**
Lluís Mont

2.11 **Clinical and experimental respiratory immunoallergy**
Joaquim Mullol

2.12 **Atherosclerosis, coronary disease and heart failure**
Manel Sabaté

2.13 **Cardiac imaging**
Marta Sitges

2.14 **Applied research in infectious respiratory diseases and critically ill patients**
Antoni Torres

2.01

Inflammation and repair in respiratory diseases

GROUP LEADER

Àlvar Agustí (HCB)

RESEARCH INTERESTS

Our group is interested in translational research of the most frequent chronic respiratory diseases, including chronic obstructive pulmonary disease, interstitial lung diseases, bronchiectasis, and lung cancer.

They are all the end-result of dynamic and cumulative interactions between environmental factors and genetic factors through the lifetime, a concept epitomized by the term GETomics (Agusti, Faner, Lancet RM 2022).

We sought to applying this GETomic approach to improve the prevention, early diagnosis and treatment of these patients, as we recently reported (Melén and Faner, Lancet 2024), but as early as possible due to the lack of plateau phase (Garcia-Aymerich J, Lancet RM 2025).

KEYWORDS

Respiratory diseases
Lung health
Lung immunity
Genomics
Networks

RELATED DISEASES

COPD
Interstitial lung diseases
Bronchiectasis
Lung cancer

Publications

Original articles	Mean IF	9,37
31	Q1	77%
	D1	52%
	MA	26%
	OA	61%
Others	Mean IF	13,69
19	Q1	100%
	D1	63%
	MA	63%
	OA	58%

IF = Impact Factor
MA = Main authorship (last or corresponding author)
OA = Open Access
Others includes reviews, editorials, clinical guidelines, letters and case reports

Directed PhD theses

1

- Núria Mendoza

Selected active grants

Understanding the host-environmental interactions across the lifespan determining lung function.
European Commission.
CE_ERC_2021_CoG
PI: Maria Rosa Faner

P4COPD. Predicción, prevención, tratamiento personalizado y preciso de la EPOC en adultos jóvenes.
Instituto de Salud Carlos III (ISCIII).
FIS_PMP21/00090
PI: Àlvar Agustí

Selected publications

Melén E, Faner R, Allinson JP, ... , Dharmage SC, Wedzicha J, Agusti A, CADSET Investigators. **Lung-function trajectories: relevance and implementation in clinical practice.** *Lancet.* 403(10435):1494-1503. D1

Casas-Recasens S, Cassim R, Mendoza N, ... , Martino D, Dharmage SC, Faner R. **Epigenome-Wide Association Studies of Chronic Obstructive Pulmonary Disease and Lung Function A Review.** *American Journal of Respiratory and Critical Care Medicine.* 210(6): 766-778. D1

Olvera N, Sánchez-Valle J, Núñez-Carpintero I, ... , Polverino F, Valencia A, Faner R. **Lung Tissue Multilayer Network Analysis Uncovers the Molecular Heterogeneity of Chronic Obstructive Pulmonary Disease.** *American Journal of Respiratory and Critical Care Medicine.* 210(10):1219-1229. D1

Perea L, Faner R, Chalmers JD, Sibila O. **Pathophysiology and genomics of bronchiectasis.** *European Respiratory Review.* 33(173):240055. D1

Frino-García A, Pérez Rodas EN, Hernández-González F, ... , de Granda-Orive JI, Riesco Miranda JA, Sellares J. **Everyone was Fooled, it Burns: Simple Diy Proof of the Falsity of Heat-Not- Burn Tobacco.** *Archivos de Bronconeumologia.* 60(5):316-318. D1

2.02

Physiopathological mechanisms of respiratory diseases

GROUP LEADER

Joan Albert Barberà (HCB)

Publications

Original articles	Mean IF	6,44
40	Q1	78%
	D1	33%
	MA	30%
	OA	63%
Others	Mean IF	5,98
12	Q1	75%
	D1	50%
	MA	42%
	OA	42%

IF = Impact Factor
MA = Main authorship (last or corresponding author)
OA = Open Access
Others includes reviews, editorials, clinical guidelines, letters and case reports

Directed PhD theses

4

- Erik Baltaxe
- Rubén González
- Sebastián Jaramillo
- Manuel López

Selected active grants

Análisis transcriptómico de células endoteliales en la hipertensión arterial pulmonar para identificar firmas de genes relacionados con la enfermedad y cambios moleculares inducidos por el tratamiento.
Instituto de Salud Carlos III (ISCIII).
FIS_PI21/00403
PI: Joan Albert Barberà

Knowledge for improving indoor AIR quality and HEALTH (K-HEALTHinAIR).
European Commission.
CE_HE_CH_21_1s21_RIA
PI: Joan Albert Barberà, Josep Roca

Selected publications

Ferrando C, Carramiñana A, Piñeiro P, ... , Tusman G, Suárez-Sipmann F, Villar J, iPROVE-OLV Research Network Group. **Individualised, perioperative open-lung ventilation strategy during one-lung ventilation (iPROVE-OLV): a multicentre, randomised, controlled clinical trial.** *Lancet Respiratory Medicine.* 12(3):195-206. D1

Liley J, Newnham M, Bleda M, ... , Morrell N, Pepke Zaba J, Toshner M. **Shared and Distinct Genomics of Chronic Thromboembolic Pulmonary Hypertension and Pulmonary Embolism.** *American Journal of Respiratory and Critical Care Medicine.* 209(12):1477-1485. D1

Torres G, Sánchez-de-la-Torre M, Gràcia-Lavedán E, ... , Casitas R, Lee CH, Barbé F. **Long-term effect of obstructive sleep apnea management on blood pressure in patients with resistant hypertension: The SARAH study.** *European Respiratory Journal.* 64(2):2400269-2400269. D1

Santamans AM, Cicuendez B, Mora A, ..., Daiber A, Oliver E, Sabio G. **MCJ: A mitochondrial target for cardiac intervention in pulmonary hypertension.** *Science Advances.* 10(3):eadk6524. D1

González-Colom R, Mitra K, Roca J, ... , Mäkinen H, Kuokkanen M, Juhasz G. **Multicentric Assessment of a Multimorbidity-Adjusted Disability Score to Stratify Depression-Related Risks Using Temporal Disease Maps: Instrument Validation Study.** *Journal of Medical Internet Research.* 26:e53162. D1

RESEARCH INTERESTS

Alterations of the pulmonary circulation in respiratory diseases, focusing on the identification of therapeutic targets for associated pulmonary hypertension.

Perioperative medicine, evaluating prehabilitation as a preoperative intervention to reduce complications and strategies to minimize complications of mechanical ventilation.

Sleep and ventilatory disorders, aiming to identify personalized treatment indications and to evaluate technological innovations for non-invasive home ventilation.

Integrated healthcare, evaluating models for risk prediction and developing tools to support clinical decisions.

KEYWORDS

Pulmonary hypertension
Perioperative medicine
Sleep apnea
Non-invasive home ventilation
Integrated healthcare

RELATED DISEASES

Pulmonary hypertension
Chronic thromboembolic pulmonary hypertension
Chronic obstructive pulmonary disease
Sleep apnea and ventilatory disorders
Perioperative care

GROUP LEADER

Isabel Blanco (HCB)

RESEARCH INTERESTS

The group focuses on pulmonary hypertension (PH), studying disease mechanisms, identifying biomarkers, and developing new therapies.

We evaluate therapeutic targets, disease progression, and remodeling in PH, with an interest in exercise and pulmonary circulation's impact. Our goal is to develop tailored interventions for PH management.

Utilizing animal, cell models, and patient samples, we aim to have a molecular and clinical impact. Conducting clinical research, exploring non-pharmacological interventions, and investigating biomarkers and therapies are key activities.

The group collaborates with prestigious medical institutions in translational research and international trials.

KEYWORDS

Pulmonary hypertension
Proliferation-apoptosis pathway
Hypoxia
Animal models
Exercise

RELATED DISEASES

Pulmonary arterial hypertension
Connective tissue diseases
Congenital heart diseases
Chronic thromboembolic pulmonary hypertension
Pulmonary hypertension associated lung diseases

2.03

Translational research in pulmonary vascular diseases: cell proliferation and apoptotic mechanisms in pulmonary arterial hypertension

Publications

Original articles	Mean IF	5,93
12	Q1	67%
	D1	25%
	MA	25%
	OA	75%
Others	Mean IF	5,77
12	Q1	83%
	D1	75%
	MA	42%
	OA	42%

IF = Impact Factor
MA = Main authorship (last or corresponding author)
OA = Open Access
Others includes reviews, editorials, clinical guidelines, letters and case reports

Selected active grants

Rehabilitación en hipertensión pulmonar: efectos a largo plazo de un programa de entrenamiento urbano.
Instituto de Salud Carlos III (ISCIII).
FIS_PI21/00555
PI: Isabel Blanco

Evolution of the technological readiness of two components (AINA and A-6MWT) part of the entire FOOXY suite for chronic respiratory patients.
Generalitat de Catalunya.
AGAUR_PRODUCTE21
PI: Isabel Blanco

Selected publications

Kovacs G, Humbert M, Avian A, ... , Mccabe C, Herve P, Olschewski H, PEX-NET (Pulmonary Haemodynamics during Exercise Network) ERS Clinical Research Collaboration. **Prognostic relevance of exercise pulmonary hypertension: results of the multicentre PEX-NET Clinical Research Collaboration.** *European Respiratory Journal.* 64(6): 2400698. D1

Peroy-Badal R, Sevillano-Castaño A, Torres-Castro R, ... , Sánchez Rodriguez E, de Frutos Lobo MJ, Vilaró J. **Comparison of different field tests to assess the physical capacity of post-COVID-19 patients.** *Pulmonology*. 30(1): 17-23. D1

Vellvé K, Garcia-Canadilla P, Nogueira M, ... , Crovetto F, Bijnens B, Crispi F. **Pulmonary vascular reactivity in growth restricted fetuses using computational modelling and machine learning analysis of fetal Doppler waveforms.** *Scientific Reports*. 14(1):5919. Q1

Torralba-García Y, Alsina-Restoy X, Torres-Castro R, ... , García-Navarro CA, Vilaró J Blanco I. **Six-minute walking distance and desaturation-distance ratio in allogeneic stem cell transplantation.** *European Journal of Clinical Investigation.* 54(5):e14151. Q1

Pascual-Saldaña H, Masip-Bruin X, Asensio A, Alonso A, Blanco I. **Innovative Predictive Approach towards a Personalized Oxygen Dosing System.** *Sensors*. 24(3):764. Q2

2.04

Familial cardiomyopathies and sudden death syndrome

GROUP LEADER
Josep Brugada (HCB)

Publications

Original articles	Mean IF	9,18
20	Q1	95%
	D1	55%
	MA	10%
	OA	85%
Others	Mean IF	14,75
4	Q1	100%
	D1	75%
	MA	50%
	OA	100%

IF = Impact Factor
MA = Main authorship (last or corresponding author)
OA = Open Access
Others includes reviews, editorials, clinical guidelines, letters and case reports

Directed PhD theses

1 • Paloma Jordà

Selected active grants

Characterization and risk stratification in Brugada Syndrome through the developement and validation of novel artificial intelligence model-based approaches for precision medicine.- Fundació la Marató de TV3.
TV3_Minoritaries_20
PI: Elena Arbelo

Selected publications

Carrick RT, de Marco C, Gasperetti A, ... , Calkins H, James CA, Cadrin-Tourigny J. **Implantable cardioverter defibrillator use in arrhythmogenic right ventricular cardiomyopathy in North America and Europe.** *European Heart Journal.* 45(7):538-548. D1

Bergonti M, Sacher F, Arbelo E, ... , Haissaguerre M, Auricchio A, Conte G. **Implantable loop recorders in patients with Brugada syndrome: the BruLoop study.** *European Heart Journal.* 45(14) :1255-1265. D1

Gómez-Caverzaschi V, Yagüe J, Espinosa G, ... , Aróstegui JI, Mensa-Vilaró A, Hernández-Rodríguez J. **Disease phenotypes in adult patients with suspected undifferentiated autoinflammatory diseases and PFAPA syndrome: Clinical and therapeutic implications**. *Autoimmunity Reviews.* 23(7-8): 103520. D1

Conte G, Bergonti M, Probst V, ... , Brugada P, Belhassen B, Auricchio A. **aTrial arrhythmias in inhEriTed aRrhythmIa Syndromes: results from the TETRIS study.** *Europace.* 26(12):euae288. D1

Lenarczyk R, Zeppenfeld K, Tfelt-Hansen J, ... , Tereshchenko LG, Kojodjojo P, Atie J. **Management of patients with an electrical storm or clustered ventricular arrhythmias: a clinical consensus statement of the European Heart Rhythm Association of the ESC-endorsed by the Asia-Pacific Heart Rhythm Society, Heart Rhythm Society, and Latin-American Heart Rhythm Society.** *Europace.* 26(4):euae049. D1

RESEARCH INTERESTS

The group, a pioneer at a national and international level, studies the clinical, electrical, structural and genetic variables involved in the onset, natural history and prognosis of sudden death, with the aim of being able to identify risk indicators and to prevent it.

In cases of diseases that affect cardiac function, the group works to prevent progression. The group also aims to be able to establish a careful diagnosis that allows personalized measures to be adopted, both in the prevention and in the treatment of sudden family death.

KEYWORDS
Inherited arrhythmias
Inherited cardiomyopathies
Sudden cardiac death
Cardiogenetic diseases
Personalised medicine

RELATED DISEASES
Brugada syndrome
Long QT syndrome
Catecholaminergic polymorphic ventricular tachycardia
Arrhtyhmogenic cardiomyopathy
Other familial cardiomyopathies and sudden arrhythmic death syndromes

2.05

Nephrology and transplantation (LENIT)

GROUP LEADER

Fritz Diekmann (HCB)

RESEARCH INTERESTS

Chronic kidney disease due to any cause and especially diabetes-related kidney disease are a major burden for patients and for health care budgets.

We conduct research that is directed towards new and improved treatment strategies for chronic kidney disease, dialysis treatment and kidney and pancreas transplantation.

This also includes techniques of kidney regeneration in early and late stages of chronic kidney failure as well as diagnostics and therapies in transplant immunology.

KEYWORDS

Kidney
Dialysis
Renal & pancreas transplant
Transplant inmunology
Kidney regeneration

RELATED DISEASES

Chronic/acute kidney disease
Hereditary kidney disease
Graft rejection
Diabetes
Autoinmune kidney diseases

Publications

Original articles	Mean IF	6,00
27	Q1	67%
	D1	26%
	MA	44%
	OA	78%
Others	Mean IF	5,66
19	Q1	68%
	D1	32%
	MA	42%
	OA	58%

IF = Impact Factor
MA = Main authorship (last or corresponding author)
OA = Open Access
Others includes reviews, editorials, clinical guidelines, letters and case reports

Directed PhD theses

2

- Enrique Montagud
- Alícia Molina

Selected active grants

Innovative Applications of Extracorporeal Photopheresis in Solid Organ Transplantation (exTra).
European Comission.
CE_HE_MSCA_22_DN
PI: Fritz Diekmann

Células dendríticas tolerogénicas autólogas donante-específicas (dsATDC) para receptores de trasplante de riñón altamente sensibilizados.
Instituto de Salud Carlos III (ISCIII).
FIS_ ICI21/00049
PI: Fritz Diekmann

Selected publications

Rovira J, Ramirez-Bajo MJ, Bañon-Maneus E, ... , García-Pagán JC, Campistol JM, Diekmann F. **Mediterranean Diet Pattern: Potential Impact on the Different Altered Pathways Related to Cardiovascular Risk in Advanced Chronic Kidney Disease**. *Nutrients.* 16(21):3739. Q1

Montagud-Marrahi E, Luque Y, Rabadan Ros R, ... , Campistol JM, Diekmann F, Musquera M. **Ex vivo normothermic preservation of a kidney graft from uncontrolled donation after circulatory death over 73 hours.** *Frontiers in Bioengineering and Biotechnology.* 11:1330043. Q1

Blasco M, Quiroga B, García-Aznar JM, ... , Torra R, Ortiz A, de Sequera P, GENSEN Study Investigators. **Genetic Characterization of Kidney Failure of Unknown Etiology in Spain: Findings From the GENSEN Study.** *American Journal of Kidney Diseases.* 84(6):719-730.e1. D1

Liu M, Zhang C, Gong X, ... , Izpisua Belmonte JC, Foo JN, Xia Y. **Kidney organoid models reveal cilium-autophagy metabolic axis as a therapeutic target for PKD both in vitro and in vivo.** *Cell Stem Cell.* 31(1):52-70. D1

Diaz-Bulnes P, Rodríguez RM, Bañon-Maneus E, ... , Aransay AM, Lopez-Larrea C, Suarez Alvarez B. **Inhibition of BRD4 Attenuates ER Stress-induced Renal Ischemic-Reperfusion Injury.** *International Journal of Biological Sciences.* 20(5):1547-1562. D1

2.06

Vascular cell biology

Selected active grants

Patogénesis del aneurisma aórtico y estrés oxidativo en el síndrome de Marfan.
Agencia Estatal de Investigación.
AEI_PID2020-113634RB-C21
PI: Gustavo Egea

Oxidative stress-based mechanisms and associated therapeutic effects in the cognitive and cardiovascular phenotypes in Williams-Beuren syndrome.
Agencia Estatal de Investigación.
AEI_PID2021-124799OB-I00
PI: Victoria Campuzano

GROUP LEADER
Gustavo Egea (UB)

RESEARCH INTERESTS

We are interested to investigate the pathomechanisms involved in the aortopathy that occurs in some genetic diseases of the connective tissue such as Marfan syndrome (MFS) and Williams-Beurem syndrome (WBS).

The former is caused by mutations in fibril·lin-1 gene (FBN1) and the latter caused by an extense chromosomic deletion in which elastin gene (ELN) is lost.

Both fibril·lin-1 and elastin are crucial molecular components of elastic fibers, but strikingly their cardiovascular injuries are opposed: aortic aneurysm for MFS and aortic stenosis for WBS.

Currently, we assay new or repositioned pharmacological drugss targeting TGF-beta and redox stress in mouse models of both diseases.

KEYWORDS

Marfan syndrome
Williams-Beuren syndrome
Aortopathy
Redox stress
TGF-beta signalling

RELATED DISEASES

Loeys-Dietz syndrome
Ehlers-Danlos syndrome
Other fibrillinopathies
Bicuspid aortic valve
Supravalvular aortic stenosis

2.07

Cardiovascular risk, nutrition and aging

GROUP LEADER

Ramon Estruch (HCB)

RESEARCH INTERESTS

The leading cause of premature death in industrialized countries is cardiovascular disease, which accounts for 17.3 million deaths/year around the world and is considered a public-health priority.

Evidence exists that indicates that lifestyle, and more specifically a healthy diet such as the Mediterranean diet, may play a key role in the prevention of this disease and in the management of associated risk factors, such as diabetes, obesity, hypertension and dyslipidaemia.

Our research interest is to find tools to prevent the onset of cardiovascular disease and its associated risk factors.

KEYWORDS

Mediterranean diet
Healthy aging
Lifestyle
Cardiovascular disease
Inflammation

RELATED DISEASES

Cardiovascular disease
Obesity
Hypertension
Diabetes
Dyslipidaemia

Publications

Original articles	Mean IF	6,48
40	Q1	83%
	D1	33%
	MA	28%
	OA	80%
Others	Mean IF	10,08
6	Q1	83%
	D1	33%
	MA	17%
	OA	33%

IF = Impact Factor
MA = Main authorship (last or corresponding author)
OA = Open Access
Others includes reviews, editorials, clinical guidelines, letters and case reports

Selected active grants

Efecto de una intervención con dieta mediterránea hipocalórica, ayuno intermitente y senolíticos naturales en los marcadores de senescencia celular.
Instituto de Salud Carlos III (ISCIII).
FIS_ PI23/00921
PI: Ramon Estruch, Emilio Sacanella

Peanut consumption on cognitive performance, weight management, and inflammation in young adolescents (PEANUTY).
The Peanut Institute_NCT0612751
PI: Rosa Casas

Selected publications

Mayor M, Camafort M, Estruch R. **Retinal microvasculature assessment: useful to refine cardiovascular risk.** *European Heart Journal.* 45(33):3086-3088. D1

Castro-Barquero S, Crovetto F, Estruch R, ... , Gratacos E, Crispi F, Casas R. **Validation of a pregnancy-adapted Mediterranean Diet Adherence Screener (preg-MEDAS): a validation study nested in the Improving Mothers for a better PrenAtal Care Trial BarCeloNa (IMPACT BCN) trial.** *American Journal of Clinical Nutrition.* 120(2):449-458. D1

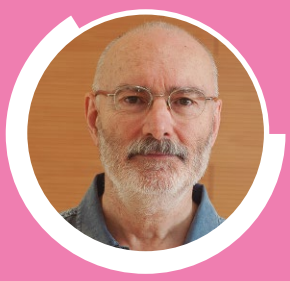
Gabara C, Aibar J, Nishimoto Y, ... , Peris ML, Nguyen ST, Monreal M, Registro Informatizado Enfermedad Trombo Embólica Investigators. **Clinical outcomes after discontinuing anticoagulant therapy in patients with fi rst unprovoked venous thromboembolism.** *Journal of Thrombosis and Haemostasis.* 22(8):2234-2246. Q1

Domínguez López I, Arancibia-Riveros C, Casas R, ... , Ros E, Estruch R, Lamuela-Raventós RM. **Moderate wine consumption measured using the biomarker urinary tartaric acid concentration decreases inflammatory mediators related to atherosclerosis.** *Journal of Nutrition Health & Aging.* 28(2):100003. Q1

Capdevila-Reniu A, Navarro-López M, Sierra-Benito C, ... , Suárez-Lombraña A, Camafort-Babkowski M, López-Soto A. **Clinical and subclinical arteriosclerotic disease in octagenarians with hip fracture. A case-control study.** *Medicina Clinica.* 163(9):431-435. Q1

2.08

Respiratory biophysics and bioengineering



Publications

Original articles	Mean IF	3,97
3	Q1	67%
	D1	0%
	MA	100%
	OA	100%
Others	Mean IF	6,25
2	Q1	50%
	D1	50%
	MA	50%
	OA	100%

IF = Impact Factor
MA = Main authorship (last or corresponding author)
OA = Open Access
Others includes reviews, editorials, clinical guidelines, letters and case reports

Directed PhD theses

2

- Adriana Carbó
- Anna Ulldemolins

Selected active grants

Deciphering the mechanobiology of mesenchymal stromal cells in regenerative therapies for the treatment of acute respiratory distress syndrome.
Agencia Estatal de Investigación.
AEI_PID2023-146070OB-I00
PI: Ramon Farré

Estudio de los mecanismos involucrados en los efectos nocivos de la hipoxia intermitente en diferentes tejidos utilizando un nuevo modelo fisiomimético ex vivo.
Agencia Estatal de Investigación.
AEI_PID2022-140774OB-I00
PI: Isaac Almendros

Selected publications

González JE, Rodríguez MA, Caballero E, Pardo A, Marco S, Farré R. **Open-source, low-cost App-driven Internet of Things approach to facilitate respiratory oscillometry at home and in developing countries.** *Pulmonology.* 30(2):180-183. D1

Ulldemolins A, Narciso M, Sanz-Fraile H, ... , Farre R, Gavara N, Almendros I. **Effects of aging on the biomechanical properties of the lung extracellular matrix: dependence on tissular stretch.** *Frontiers in Cell and Developmental Biology.* 12:1381470. Q1

Carrero-Cardenal E, Vollmer-Torrubiano I, Torres-López M, ... , Paez-Carpio A, Fábregas-Julià N, Valero-Castell R. **Continuous positive airway pressure is unsafe for radiofrequency ablation of lung cancer under sedation: a randomised controlled trial.** *Insights Into Imaging.* 15(1):153. Q1

Farré R, Rodríguez-Lázaro MA, Otero J, ... , Farré N, Gozal D, Almendros I. **Low-cost, open-source device for simultaneously subjecting rodents to different circadian cycles of light, food, and temperature.** *Frontiers in Physiology.* 15:1356787. Q2

Moro-López M, Farré R, Otero J, Sunyer R. **Trusting the forces of our cell lines.** *Cells & Development.* 179:203931. Q3

GROUP LEADER
Ramon Farré (UB)

RESEARCH INTERESTS

To deepen our understanding of the mechanical behavior of the respiratory system for improving the diagnosis and treatment of respiratory diseases.

On the one hand, we study respiratory mechanics in animal models and patients to optimize medical devices for diagnosing and treating lung dysfunctions.

On the other hand, we investigate how the mechanical interplay between lung cells and their extracellular matrix is altered in respiratory diseases and how this crosstalk can be modified to treat lung repair and regeneration.

KEYWORDS

Respiratory mechanics
Respiratory medical devices
Cell mechanics
Tissue engineering
Regenerative medicine

RELATED DISEASES

Sleep apnea
Acute lung injury
Cancer
Pulmonary fibrosis
COPD

2.09

Arrhythmias and physical activity

GROUP LEADER

Eduard Guasch (HCB-IDIBAPS)

RESEARCH INTERESTS

Our group aims at identifying the deleterious cardiovascular consequences of long-term strenuous physical activity and describing their causes and pathology, taking advantage of a translational approach including animal and ex vivo models, and human samples.

We specifically focus on the development of atrial fibrillation, right ventricle arrhythmias, and vascular stiffening in heavily trained athletes.

We are also interested in uncovering the mechanisms of the atrial arrhythmogenic remodelling underlying atrial fibrillation in the absence of overt cardiac conditions, but also heart failure.

KEYWORDS

Atrial fibrillation
Arterial stiffening
Animal model
Strenuous exercise

RELATED DISEASES

Atrial fibrillation

Publications

Original articles	Mean IF	8,74
14	Q1	100%
	D1	57%
	MA	0%
	OA	100%
Others	Mean IF	8,60
2	Q1	100%
	D1	100%
	MA	100%
	OA	100%

IF = Impact Factor
MA = Main authorship (last or corresponding author)
OA = Open Access
Others includes reviews, editorials, clinical guidelines, letters and case reports

Directed PhD theses

2

- Gal·la Caixal
- Clara Gunturiz

Selected active grants

Diseño, validación y aplicación de una nueva herramienta, los cortes de miocardio vivo, para el estudio de la patología arrítmica inducida por el ejercicio.
Fundación Casa del Corazón.
SEC_InvBasica24
PI: Eduard Guasch

Vascular and myocardial strenous exercise- induced disease: from mitochondria, cells and tissues to ageing athletes.
Instituto de Salud Carlos III (ISCIII).
FIS_PI22/00953
PI: Eduard Guasch

Selected publications

Guichard JB, Guasch E. **Preventing Ischemic Stroke in Patients with Isolated Sinus Node Disease: The Value of Evaluating Atrial Cardiomyopathy.** *European Journal of Preventive Cardiology.* 31(5):504-506. D1

Fabritz L, Al-Taie C, Borof K, ... , Zapf A, Zeller T, Kirchhof P. **Biomarker-based prediction of sinus rhythm in atrial fibrillation patients: the EAST-AFNET 4 biomolecule study.** *European Heart Journal.* 45(47):5002-5019. D1

Linz D, Andrade JG, Arbelo E, ... , Willems S, Witt H, Kirchhof P. **Longer and better lives for patients with atrial fibrillation: the 9th AFNET/EHRA consensus conference.** *Europace.* 26(4):euae070. D1

Sterlinski M, Bunting KV, Boriani G, ... , van Deutekom C, Van Gelder IC, Kotecha D. **Design and deployment of the STEEER-AF trial to evaluate and improve guideline adherence: a cluster-randomized trial by the European Society of Cardiology and European Heart Rhythm Association.** *Europace.* 26(7):euae178. D1

Invers-Rubio E, Hernandez-Romero I, Reventos-Presmanes J, ... , Climent AM, Mont LI, Althoff TF. **Regional conduction velocities determined by noninvasive mapping are associated with arrhythmia-free survival after atrial fibrillation ablation.** *Heart Rhythm.* 21(9):1570-1580. Q1

2.10

Biopathology and treatment of cardiac arrhythmias

GROUP LEADER

Lluís Mont (HCB)

Publications

Original articles	Mean IF	14,99
36	Q1	89%
	D1	64%
	MA	28%
	OA	78%
Others	Mean IF	6,14
11	Q1	91%
	D1	27%
	MA	55%
	OA	45%

IF = Impact Factor
MA = Main authorship (last or corresponding author)
OA = Open Access
Others includes reviews, editorials, clinical guidelines, letters and case reports

Directed PhD theses

4

- Margarida Pujol
- Gal·la Caixal
- Clara Gunturiz
- Manuel López

Selected active grants

Prevención y tratamiento de la muerte súbita cardíaca basados en mapeo cardíaco de alta precisión: resultados personalizados a través de una localización optimizada (APOLO).
Agencia Estatal de Investigación.
AEI_CPP23
PI: Ivo Roca-Luque

SAVE-COR: Stratification of Atrial and Ventricular Arrhythmias based on Electrocardiographic Imaging.
European Comission.
CE_EIT_Inn_22_24marz
PI: Lluís Mont

Selected publications

Schuger C, Joung B, Ando K, ... , Wold N, Stein KM, Daubert JP, APPRAISE ATP Investigators. **Assessment of Antitachycardia Pacing in Primary Prevention Patients: The APPRAISE ATP Randomized Clinical Trial.** *JAMA-Journal of the American Medical Association.* 332(20):1723-1731. D1

Knops RE, Lloyd MS, Roberts PR, ... , Stein KM, Reddy VY, Mont L, MODULAR ATP Investigators. **A Modular Communicative Leadless Pacing-Defibrillator System.** *New England Journal of Medicine.* 391(15):1402-1412. D1

Lip GYH, Nikorowitsch J, Sehner S, ... , Wichterle D, Zapf A, Kirchhof P. **Oral anticoagulation in device-detected atrial fibrillation: effects of age, sex, cardiovascular comorbidities, and kidney function on outcomes in the NOAH-AFNET 6 trial.** *European Heart Journal.* 45(19):1733-1737. D1

Guichard JB, Guasch E. **Preventing Ischemic Stroke in Patients with Isolated Sinus Node Disease: The Value of Evaluating Atrial Cardiomyopathy.** *European Journal of Preventive Cardiology.* 31(5):504-506. D1

Becher N, Toennis T, Bertaglia E, ... , Wichterle D, Zapf A, Kirchhof P. **Anticoagulation with edoxaban in patients with long atrial high-rate episodes ≥24 h.** *European Heart Journal.* 45(10):837-849. D1

RESEARCH INTERESTS

Our group is working in etiopathology and therapy of arrhythmias, from animal models of atrial cardiomyopathy, to the use of new diagnostic like Magnetic resonance and electrocardiorapic imaging, to personalize therapy.

Furthermore, we are analyzing the usefulness of new available therapies, such as pulse field ablation, or conducting system pacing.

We are also interested in the use of new mapping catheters, to improve ventricular tachycardia ablation.

KEYWORDS

Ablation
MRI
ECG imaging
CRT
Physiological pacing

RELATED DISEASES

Atrial fibrillation
Supraventricular arrhythmias
Ventricular arrhythmias
Heart Failure
Bradycardia

2.11

Clinical and experimental respiratory immunoallergy

GROUP LEADER

Joaquim Mullol (IDIBAPS)

RESEARCH INTERESTS

Respiratory, skin, drug and food allergies, and chronic rhinosinusitis and asthma are chronic diseases with high prevalence.

These diseases affect over 30% of the general population having a high burden on quality of life and personal and public health costs.

Identifying mechanisms of action responsible for these disorders may improve the efficacy of current treatments, allow the development of new therapeutic strategies, and facilitate the identification of biological markers (biomarkers) for diagnosis and monitoring therapeutic response within a context of personalized and precision medicine.

KEYWORDS

CRS with NP & loss of smell
Severe asthma
Drug & food allergy
Urticaria & skin allergy
Anaphylaxis

RELATED DISEASES

CRS, rhinitis, and severe asthma
Smell and taste disorders
Drug- & Food-induced allergy, anaphylaxis
Atopic dermatitis, urticaria
Sinus and skull base tumors

Publications

Original articles	Mean IF	4,73
47	Q1	74%
	D1	28%
	MA	53%
	OA	70%
Others	Mean IF	6,50
40	Q1	73%
	D1	40%
	MA	50%
	OA	75%

IF = Impact Factor
MA = Main authorship (last or corresponding author)
OA = Open Access
Others includes reviews, editorials, clinical guidelines, letters and case reports

Directed PhD theses

1

- Sara Balsells

Selected active grants

Caracterización fenotípica y funcional de basófilos y mastocitos de pacientes con anafilaxia por alergia a alimentos.
Instituto de Salud Carlos III (ISCIII).
FIS_PI22/00920
PI: Rosa Muñoz

Mecanismos implicados en la eficacia de los nuevos tratamientos biológicos en la EREA (enfermedad respiratoria exacerbada por aspirina y AINE), prototipo de patología compleja de la vía respiratoria única.
Instituto de Salud Carlos III (ISCIII).
FIS_PI23/01024
PI: Irina Bobolea, Joaquim Mullol

Selected publications

Mora T, Muñoz-Cano R, Ribó P, Mullol J, Valero A. **Differential healthcare direct costs of asthma and chronic rhinosinusitis with nasal polyps in Catalonia (Spain).** *Rhinology*. 62(5):590-596. D1

Mullol J, Sastre J, Dominguez-Ortega J, ... , Alobid I, Garcia-Vitoria M, Palomo-Jimenez PI. **Prevalence of chronic rhinosinusitis without/with nasal polyps according to severity in Spain.** *Rhinology*. 62(4):421. D1

Ollé L, García-García L, Ruano-Zaragoza M, ... , Pascal M, Martín M, Muñoz-Cano R. **Mast Cell Activation Profile and TFH13 Detection Discriminate Food Anaphylaxis Versus Sensitization.** *Journal of Investigational Allergology and Clinical Immunology*. 35(3):203-215. Q1

Ruano-Zaragoza M, Araujo-Sanchez G, Gelis S, ... , Pascal M, Muñoz-Cano R, Bartra J. **Gastrointestinal Symptoms: Under the Tip of the Iceberg in Lipid Transfer Protein Food Allergy.** *Journal of Investigational Allergology and Clinical Immunology*. 34(6):404. Q1

Alobid I, Calvo-Henríquez C, Vivero-Diez P, ... , Langdon C, Marin C, Mullol J. **Validation of a Visual Analog Scale for Loss of Smell as a Quick Test in Chronic Rhinosinusitis With Nasal Polyps.** *Journal of Investigational Allergology and Clinical Immunology*. 34(6):377-384. Q1

2.12

Atherosclerosis, coronary disease and heart failure

GROUP LEADER
Manel Sabaté (HCB)

RESEARCH INTERESTS

To evaluate the performance of novel strategies to treat coronary artery disease (acute/ chronic).

To assess the influence of hormonal factors, gender, and aging in ischemic heart disease.

To study the efficacy of stem cell therapy.

To study the pathogenesis of neointimal hyperplasia, inflammation, and thrombosis.

To determine the efficiency of new transcatheter devices to treat structural and congenital heart disease and the role of imaging techniques.

To study the pathogenesis of ventricular remodelling in dilated cardiomyopathy.

To evaluate new therapies for pulmonary hypertension.

KEYWORDS

Coronary artery disease
Percutaneous coronary intervention
Stem cell therapy
Structural heart disease
Heart failure

RELATED DISEASES

Coronary artery disease
Acute coronary syndrome
Structural heart disease
Heart failure
Pulmonary hypertension

Publications

Original articles	Mean IF	7,11
68	Q1	69%
	D1	37%
	MA	13%
	OA	56%
Others	Mean IF	9,41
33	Q1	82%
	D1	45%
	MA	45%
	OA	24%

IF = Impact Factor
MA = Main authorship (last or corresponding author)
OA = Open Access
Others includes reviews, editorials, clinical guidelines, letters and case reports

Selected active grants

AI Scalable Solution for ST Myocardial Infarction (ASSIST).
European Comission.
CE_EIT_Inn_Flag23_C1
PI: Manel Sabaté

Pre-Symptomatic Detection of Decompensated Heart Failure from Voice (PRE-DETECT-HF).
European Commission.
CE_EIT_Inn_Flag23_C2
PI: Manel Sabaté

Selected publications

Freixa X, Cruz-González I, Cepas-Guillén P, ... , SanchisL, Rodés-Cabau J, Arzamendi D. **Low-Dose Direct Oral Anticoagulation vs Dual Antiplatelet Therapy After Left Atrial Appendage Occlusion: The ADALA Randomized Clinical Trial.** *Jama Cardiology.* 9(10):922-926. D1

Garcia-Lunar I, Inmaculada I, Saiz J, ..., Ibanez B, Pereda D, Garcia-Alvarez A. **Metabolic changes contribute to maladaptive right ventricular hypertrophy in pulmonary hypertension beyond pressure overload: an integrative imaging and omics investigation.** *Basic Research in Cardiology.* 119(3):419-433. D1

Verardi FM, Bujak K, Tolomeo P, ... , Serruys PW, Sabaté M, Brugaletta S. **Ten-year prognostic impact of target versus non-target vessel failure after STEMI.** *Revista Española de Cardiología.* 77(3):215-255. Q1

Cepas-Guillén P, Gabani R, Giménez-Milà M, Sanchis L, Freixa X, Regueiro A. **Safety and efficacy of the BASILICA technique in patients at high risk of coronary obstruction undergoing TAVI.** *Revista Española de Cardiología.* 77(2):181-183. Q1

Fuster V, García-Álvarez A, Devesa A, ..., Andres V, Muntendam P, Ibanez B. **Influence of Subclinical Atherosclerosis Burden and Progression on Mortality.** *Journal of the American College of Cardiology.* 84(15):1391-1403. D1

2.13

Cardiac imaging

GROUP LEADER

Marta Sitges (HCB)

RESEARCH INTERESTS

Characterization of cardiac mechanics in heart failure.

Characterization of hypertrophic hearts (INDEPTH-HCM).

Identification of athletes at risk of sudden death.

Identification of candidates for and impact of percutaneous therapies for heart valve diseases.

Identification of patients at risk of sudden death and heart failure after myocardial infarction.

Non invasive characterization of arrhythmia substrate.

Prediction of atrial fibrillation in patients at risk (PREDICTAF study).

Usefulness of non-invasive cardiac imaging in the identification of acute coronary syndromes.

KEYWORDS

Cardiac imaging
Echocardiography
Cardiac magnetic resonance
Valvular heart disease
Structural heart disease

RELATED DISEASES

Heart valve disease
Athlete's heart
Arrhythmia
Acute coronary syndromme
Atrial fibrillation

Publications

Original articles	Mean IF	6,44
24	Q1	83%
	D1	38%
	MA	4%
	OA	67%
Others	Mean IF	7,72
21	Q1	76%
	D1	38%
	MA	24%
	OA	38%

IF = Impact Factor
MA = Main authorship (last or corresponding author)
OA = Open Access
Others includes reviews, editorials, clinical guidelines, letters and case reports

Directed PhD theses

1

- Cheryl Teres

Selected active grants

REMAI-DIF. Remodelado auricular diferencial en pacientes en riesgo de fibrilación auricular: implicación funcional y potencial embolígeno.
Instituto de Salud Carlos III (ISCIII).
FIS_PI21/00905
PI: Marta Sitges

CARDIATEAM. Cardiomyopathy in type 2 DIAbetes mellitus.
European Commission.
CE_IMI2_2017_13th
PI: Marta Sitges

Selected publications

Muraru D, Badano LP, Hahn RT, ... , Maisano F, Praz F, Sitges M. **Atrial secondary tricuspid regurgitation: pathophysiology, definition, diagnosis, and treatment.** *European Heart Journal.* 45(11):895-911. D1

Cascos E, Loncaric F, Vidal B, Sanchis L, Sitges M. **Agreement between 3D volumetric and strain parameters to assess left atrial function.** *Revista Española de Cardiología.* 77(1):103-105. Q1

Freixa X, Cruz-González I, Cepas-Guillén P, ... , Sanchis L, Rodés-Cabau J, Arzamendi D. **Low-Dose Direct Oral Anticoagulation vs Dual Antiplatelet Therapy After Left Atrial Appendage Occlusion: The ADALA Randomized Clinical Trial.** *Jama Cardiology.* 9(10):922-926. D1

Nickenig G LP, Lurz P, Sorajja P, ... , Ying SW, Weber M, Hahn RT; TRILUMINATE Investigators. **Percutaneous Edge-to-Edge Repair for Tricuspid Regurgitation: 3-Year Outcomes From the TRILUMINATE Study.** *Jacc-Cardiovascular Interventions.* 17(18):2113-2122. D1

Grapsa J, Praz F, Sorajja P, ... , Hahn RT, Maisano F, Enriquez-Sarano M. **Tricuspid Regurgitation: From Imaging to Clinical Trials to Resolving the Unmet Need for Treatment.** *Jacc-Cardiovascular Imaging.* 17(1):79-95. D1

2.14

Applied research in infectious respiratory diseases and critically ill patients

Publications

Original articles	Mean IF	8,70
39	Q1	90%
	D1	44%
	MA	36%
	OA	74%
Others	Mean IF	9,27
29	Q1	69%
	D1	38%
	MA	59%
	OA	45%

IF = Impact Factor
MA = Main authorship (last or corresponding author)
OA = Open Access
Others includes reviews, editorials, clinical guidelines, letters and case reports

Directed PhD theses

1

- Roberto Martín

Selected active grants

Long-term alterations of host-microbiome interactions and cardiovascular and respiratory diseases progression after pneumonia.
European Comission.
CE_HE_CH_23_1s13_RIA
PI: Antoni Torres

Host-targeted Approaches for the Prevention and the treatment of Hospital-Acquired Pneumonia.
European Comission.
CE-H2020-SC1_2019_2s
PI: Antoni Torres

Selected publications

Ferrando C, Carraminana A, Navarro-Ripoll R, ... , Tusman G, Suárez-Sipmann F, Villar J, iPROVE-OLV Research Network Group. **Individualised, perioperative open-lung ventilation strategy during one-lung ventilation (iPROVE-OLV): a multicentre, randomised, controlled clinical trial.** *Lancet Respiratory Medicine.* 12(3):195-206. D1

Bruse N, Motos A, van Amstel R, ... , van Vught L, Pickkers P, Kox M. **Clinical phenotyping uncovers heterogeneous associations between corticosteroid treatment and survival in critically ill COVID-19 patients.** *Intensive Care Medicine.* 50(11):1884-1896. D1

Calabretta D, Cilloniz C, Gabarrus A, ... , Espasa M, Martin-Loeches I, Torres A. **Impact of empirical treatment recommendations from 2017 European guidelines for nosocomial pneumonia.** *Chest.* S0012-3692(24):05398-4. D1

Ceccato A, Forne C, Bos LD, ... , Calfee CS, Artigas A, Torres A, CIBERESUCICOVID Project. **Clustering COVID-19 ARDS patients through the first days of ICU admission. An analysis of the CIBERESUCICOVID Cohort.** *Critical Care.* 28(1):91. D1

Oliveira V de C, Soler-Comas A, Rocha ACSD, ... , Watanabe E, Torres A, Fernandez-Barat L. **The synergistic effect between phages and Ceftolozane/Tazobactam in Pseudomonas aeruginosa endotracheal tube biofilm.** *Emerging Microbes & Infections.* 13(1):2420737. D1

GROUP LEADER
Antoni Torres (HCB)

RESEARCH INTERESTS

We are a multidisciplinary team of researchers focused in the Study of respiratory infections, critical illness and respiratory distress (including COVID-19) with a personalized approach through omics sciences.

We perform translational research through big clinical datasets, a porcine model of pneumonia and a research laboratory for omics, biofilms and rapid diagnostics.

Our ultimate goal is to uncover novel therapeutic targets and develop personalized medicine strategies for prevention and treatment of respiratory infections, considering the unique microbiome and immune tone of individuals.

Pneumonia in the elderly and particularly aspiration pneumonia is another field of interest including epidemiology, physiopathology, prevention and treatment.

KEYWORDS
Animal model of pneumonia
Research laboratory
Immunomodulators and novel therapies
Microbiome
Inmunomarkers and biomarkers

RELATED DISEASES
Respiratory infections
Mechanical ventilation
Pneumonia
COPD and bronchiectasis
Acute respiratory distress syndrome

3

LIVER, DIGESTIVE SYSTEM AND METABOLISM

Annual scientific report 2024

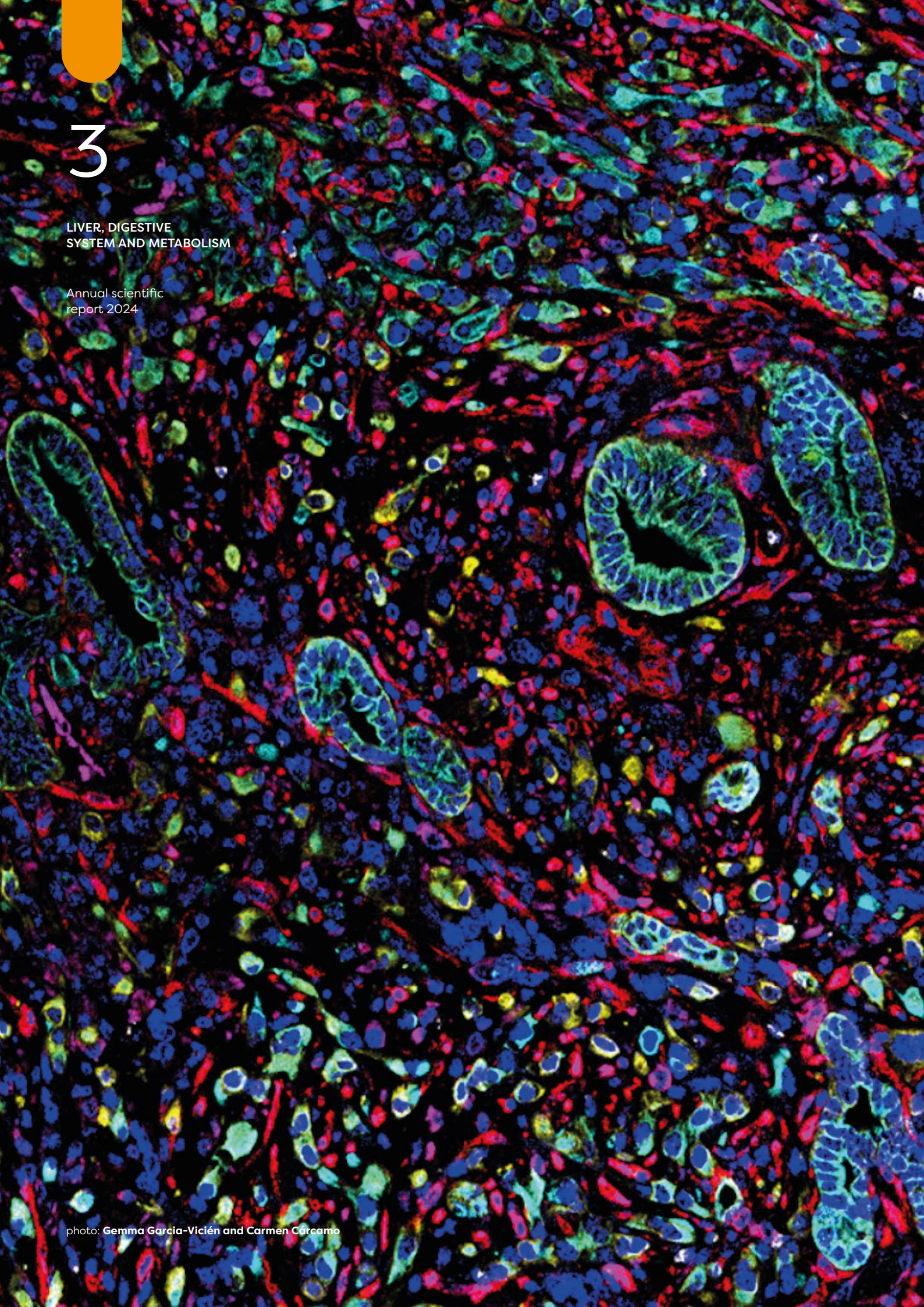


photo: **Gemma Garcia-Vicién and Carmen Cárcamo**

AREA 3

LIVER, DIGESTIVE SYSTEM AND METABOLISM

3.1 **Steatohepatitis and liver transplantation**
Ramón Bataller

3.2 **Neuronal control of metabolism (NeuCoMe)**
Marc Claret

3.3 **Inflammation and liver disease**
Joan Clària

3.4 **Mitochondrial regulation of cell death and steatohepatitis**
José Carlos Fernández-Checa

3.5 **Translational control of liver disease and cancer**
Mercedes Fernández-Lobato

3.6 **Viral, genetic and immune-mediated liver diseases**
Xavier Forns

3.7 **Regulation of liver microcirculation in cirrhosis and hepatic vascular diseases**
Juan Carlos García-Pagán

3.8 **Chronic liver diseases: molecular mechanisms and clinical consequences**
Pere Ginès

3.9 **Liver vascular biology**
Jordi Gracia-Sancho

3.10 **Fetal and perinatal medicine**
Eduard Gratacós

3.11 **Metabolic bone disease**
Núria Guañabens

3.12 **Endocrine disorders: crosstalk between molecular, metabolic and therapeutic determinants**
Felicia Alexandra Hanzu

3.13 **Gynecology, human reproduction and women's health**
M. Àngels Martínez-Zamora

3.14 **Translational research group in new therapeutic and diagnostic strategies in liver diseases**
Manuel Morales-Ruiz

3.15 **Pathogenesis and prevention of diabetes**
Anna Novials

3.16 **Molecular biology of reproduction and development**
Rafael Oliva

3.17 **Protective strategies against hepatic ischemia reperfusion injury**
Carmen Peralta

3.18 **Lipid trafficking and disease**
Albert Pol

3.19 **Inflammatory bowel disease**
Azucena Salas

3.20 **Liver cell plasticity and tissue repair**
Pau Sancho-Bru

3.21 **Pathogenesis and treatment of autoimmunity**
Pere Santamaria

3.22 **Translational research in diabetes, lipids and obesity**
Josep Vidal

3.01

Steatohepatitis and liver transplantation

GROUP LEADER

Ramón Bataller (HCB)

RESEARCH INTERESTS

Alcohol-related steatohepatitis is the main cause of advanced liver disease. Our interest includes the identification of major disease determinants and molecular drivers in alcohol-related hepatitis. Liver transplantation is the only treatment available for end-stage liver disease and some liver tumors.

This is a multidisciplinary group of clinic and basic researchers focused on optimizing the number of organs available for transplantation by improving techniques of procurement and preservation as well as improving the survival, quality of life and management of transplanted patients.

KEYWORDS

Biomarkers of alloreactivity
Liver transplantation
Steatohepatitis
Post-transplant complications
Graft viability

RELATED DISEASES

Alcohol-related liver disease
Cardiovascular risk and de novo neoplasia
Ischemia-reperfusion injury
Biliary complications
Allograft rejection

Publications

Original articles	Mean IF	7,82
45	Q1	80%
	D1	49%
	MA	24%
	OA	64%
Others	Mean IF	10,23
33	Q1	76%
	D1	52%
	MA	27%
	OA	36%

IF = Impact Factor
MA = Main authorship (last or corresponding author)
OA = Open Access
Others includes reviews, editorials, clinical guidelines, letters and case reports

Directed PhD theses

2

- Maria Caballero
- Sebastián Jaramillo

Selected active grants

Caracterización de la respuesta inmune en los pacientes trasplantados hepáticos con cáncer: identificación de biomarcadores que permitan la personalización de la inmunosupresión.
Instituto de Salud carlos III (ISCIII).
FIS_PI22/01234
PI: Jordi F Colmenero

Aplicación de la preservación dinàmica normotérmica ex situ en la recuperación de órganos para trasplante hepático.
Fundación de Investigación Médica Mutua Madrileña. FundMM_22_AP180672022
PI: Jordi F Colmenero, Yiliam Fundora

Selected publications

Duijzer R, Bernts LHP, Geerts A, ... , Cardinale V, Drenth JPH, Lantinga MA. **Clinical management of liver cyst infections: an international, modified Delphi-based clinical decision framework**. *Lancet Gastroenterol Hepatol.* 9(9):884-894. D1

Marti-Aguado D, Calleja JL, Vilar-Gomez E, ... , Bataller R, Crespo J, Arias-Loste MT. **Low-to-moderate alcohol consumption is associated with increased fibrosis in individuals with metabolic dysfunction-associated steatotic liver disease.** *J Hepatol.* 81(6):930-940. D1

Blasi A, Garcia-Criado A, Moreno-Rojas J, ... , Escobosa P, Rivas E, Cardenas A. **A multicenter study of the risk of major bleeding in patients with and without cirrhosis undergoing percutaneous liver procedures.** *Liver Transpl.* 31(3):269-276. D1

Pagano G, Sastre L, Blasi A, ... , Martínez-Palli G, Colmenero J, Crespo G. **CACS, CCTA and mCAD-LT score in the pre-transplant assessment of coronary artery disease and the prediction of post-transplant cardiovascular events.** *Liver Int.* 44(8):1912-1923. Q1

Chullo G, Panisello-Rosello A, Marquez N, ... , Bataller R, García-Valdecasas JC, Fundora Y. **Focusing on Ischemic Reperfusion Injury in the New Era of Dynamic Machine Perfusion in Liver Transplantation**. *Int J Mol Sci.* 25(2):1117. Q1

3.02

Neuronal control of metabolism (NeuCoMe)

GROUP LEADER
Marc Claret (IDIBAPS)

RESEARCH INTERESTS

Our team employs state-of-the-art technologies to understand the molecular mechanisms and neuronal circuits regulating energy balance and systemic metabolism, in the context of highly prevalent metabolic disorders such as obesity and type 2 diabetes.

We are also interested in investigating the interface of food intake, complex behaviours, and psychological processes.

KEYWORDS

Hypothalamus
POMC neurons
AgRP neurons
Obesity
Diabetes

RELATED DISEASES

Obesity
Diabetes
Eating disorders

Publications

Original articles	Mean IF	5,20
2	Q1	100%
	D1	50%
	MA	50%
	OA	100%
Others	Mean IF	6,50
1	Q1	100%
	D1	0%
	MA	100%
	OA	100%

IF = Impact Factor
MA = Main authorship (last or corresponding author)
OA = Open Access
Others includes reviews, editorials, clinical guidelines, letters and case reports

Directed PhD theses

1 • Maria Milà

Selected active grants

MitoHealth: The Mitochondrial Paradox: Embracing Mitohormesis for Improved Metabolic and Aging Health.
European Commission.
CE_ERC_2023_PoC
PI: Marc Claret

Molecular and functional characterization of the subset of neurons coexpressing antagonistic neuropeptides POMC and AgRP.
Agencia Estatal de Investigación.
AEI_PE22
PI: Marc Claret

Selected publications

Dragano NRV, Milbank E, Haddad-Tóvolli R, ... , Claret M, Velloso LA, López M. **Hypothalamic free fatty acid receptor-1 regulates whole-body energy balance.** *Mol Metab.* 79:101840. D1

Díaz-Castro F, Morselli E, Claret M. **Interplay between the brain and adipose tissue: a metabolic conversation.** *EMBO Rep.* 25(12):5277-5293. Q1

Tahiri I, Llana SR, Fos-Domènech J, ... , Haddad-Tóvolli R, Claret M, Obri A. **Paternal obesity induces changes in sperm chromatin accessibility and has a mild effect on offspring metabolic health**. *Heliyon.* 10(14):e34043

3.03

Inflammation and liver disease

GROUP LEADER

Joan Clària (HCB)

RESEARCH INTERESTS

Inflammation is a major driver of liver disease, playing a role in both the early stages of liver injury when unresolved inflammation leads to liver fibrosis as well as in advanced stages, when the systemic inflammatory burden impacts the liver and other extrahepatic organs leading to multiorgan failure.

Our research group is mostly interested in the translational aspects of liver disease and has broad experience in the investigation of the molecular and cellular mechanisms underlying the dysregulation of the immune system, mainly its role in inflammatory tissue injury and immunosuppression.

KEYWORDS

Inflammation
Innate immune cells
Lipid mediators
Omics technologies
Tissue injury

RELATED DISEASES

Chronic liver disease
Systemic inflammatory conditions
Organ failure
Acute-on-chronic liver failure

Publications

Original articles	Mean IF	6,44
9	Q1	67%
	D1	33%
	MA	22%
	OA	89%
Others	Mean IF	0
0	Q1	0%
	D1	0%
	MA	0%
	OA	0%

IF = Impact Factor
MA = Main authorship (last or corresponding author)
OA = Open Access
Others includes reviews, editorials, clinical guidelines, letters and case reports

Selected active grants

DECISION: Decompensated cirrhosis: identification of new combinatorial therapies based on system approaches.
European Commission.
CE_H2020-SC1_2019_2s
PI: Joan Clària

PROGNOSLIVER: Precision medicine-based prediction of disease progression and response to treatment in patients with advanced liver disease.
Agencia Estatal de Investigación.
AEI_PE22
PI: Joan Clària

Selected publications

Feio-Azevedo R, Boesch M, Radenkovic S, ... , Ghesquière B, Korf H, van der Merwe S. **Distinct immunometabolic signatures in circulating immune cells define disease outcome in acute-on-chronic liver failure.** *Hepatology*. 81(2):509-522. D1

Clària J, Aguilar F, Lozano JJ, ..., Heyn H, Arroyo V, Moreau R. **Albumin reprograms the B cell transcriptional landscape and improves neutrophil antimicrobial function in patients with decompensated cirrhosis.** *JHEP Rep.* 6(11):101184. D1

Wei Zhang I, Sánchez-Rodríguez MB, López-Vicario C, ... , Trebicka J, Arroyo V, Clària J. **Palmitoylcarnitine impairs immunity in decompensated cirrhosis.** *JHEP Rep.* 6(11):101187. D1

Palomino-Echeverria S, Huergo E, Ortega-Legarreta A, ... , Planell N, Rautou PE, Gomez-Cabrero D. **A robust clustering strategy for stratification unveils unique patient subgroups in acutely decompensated cirrhosis.** *J Transl Med.* 22(1):599. Q1

3.04

Mitochondrial regulation of cell death and steatohepatitis

Publications

Original articles	Mean IF	10,49
9	Q1	100%
	D1	78%
	MA	56%
	OA	78%
Others	Mean IF	13,73
4	Q1	100%
	D1	100%
	MA	75%
	OA	75%

IF = Impact Factor
MA = Main authorship (last or corresponding author)
OA = Open Access
Others includes reviews, editorials, clinical guidelines, letters and case reports

Selected active grants

Role of Hypernutrition and Metabolic Stress in Non-Alcoholic Steatohepatitis (NASH) Driven Hepatocellular Carcinoma (HCC).
Sanford Burnham Prebys Medical Discovery Institute.
INT_NIH_PAR-23-059_1
PI: José Carlos Fernández-Checa

Selected publications

Segovia-Zafra A, Villanueva-Paz M, Serras AS, ... , Cubero FJ, Miranda JP, Nelson LJ. **Control compounds for preclinical drug-induced liver injury assessment: Consensus-driven systematic review by the ProEuroDILI network.** *J Hepatol.* 81(4):630-640. D1

Garcia-Ruiz C, Torres S, Fernandez-Checa JC. **Cholesterol's new tricks propel MASH-HCC: impact in immunotherapy.** *Gut.* 73(12):1926-1929

Conde de la Rosa L, Fàbrega L, Torres S, ... , Marin JJG, García-Ruiz C, Fernandez-Checa JC. **Stard1 promotes cholestatic liver injury and disease progression by sensitizing to bile acid hepatotoxicity.** *Hepatology.* D1

Goicoechea L, Torres S, Fàbrega L, ... , Fabrias G, García-Ruiz C, Fernández-Checa JC. **S-Adenosyl-l-methionine restores brain mitochondrial membrane fluidity and GSH content improving Niemann-Pick type C disease.** *Redox Biol.* 72:103150. D1

Lucena MI, Villanueva-Paz M, Alvarez-Alvarez I, ... , Andrade RJ, Daly AK, Fernandez-Checa JC. **Roadmap to DILI research in Europe. A proposal from COST action ProEuroDILINet.** *Pharmacol Res.* 200:107046. D1

GROUP LEADER
José Carlos Fernández-Checa (IIBB-CSIC)

RESEARCH INTERESTS

The structure-function relation between endoplasmic reticulum (ER) and mitochondria is essential for cell and tissue homeostasis.

Disruption of ER-mitochondrial function contributes to the development of metabolic diseases, such as metabolic-associated steatotic liver disease, and its advanced stages of liver fibrosis, and hepatocellular carcinoma, as well as pancreatic adenocarcinoma, and lysosomal storage disorders.

Our goal is to elucidate the players involved in the disruption of the physiological interaction of ER-mitochondria axis, focusing on the role of structural lipids, like cholesterol and sphingolipids.

KEYWORDS

Mitochondria
Lipids
Fibrosis
Cancer
Biomarkers
Tissue remodeling

RELATED DISEASES

Alcohol-related liver disease (ARLD)
Metabolic-associated steatotic live disease (MASLD)
Hepatocellular carcinoma (HCC)
Pancreatic ductal adenocarcinoma (PDAC)
Lysosomal disorders (LD)

GROUP LEADER

Mercedes Fernández-Lobato (IDIBAPS)

RESEARCH INTERESTS

Our group investigates how metabolic stress, particularly that arising from obesity and aging, drives liver disease progression and cancer development. We focus on post-transcriptional dysregulation, with a special emphasis on the RNA-binding protein CPEB4, as a key mechanism by which cells adapt to chronic stress.

Through multiomic approaches and animal and in vitro models, we study how translational control reprograms liver function in response to high-fat diets, with implications for MASLD/MASH and hepatocellular carcinoma. In addition, we explore liver vascular remodeling, cancer-associated cachexia, and the epigenetic inheritance of disease risk.

Our ultimate goal is to identify novel therapeutic targets and strategies for the prevention and treatment of metabolic liver disease and liver cancer.

KEYWORDS

Post-transcriptional regulation
Translational control
CPEB4
Liver cancer
Obesity & aging
Cachexia
Neovascularization

RELATED DISEASES

Liver cancer
Metabolic dysfunction-associated steatotic liver disease (MASLD/MASH)
Obesity-related cancer
Age-related liver pathologies
Cancer-associated cachexia78

3.05

Translational control of liver disease and cancer

Directed PhD theses

2

- Alexandra Balvey
- Beatriz Iralde

Selected active grants

Targeting translational control to advance liver cancer therapy.
Agencia Estatal de Investigación.
AEI_PID2020-118937RB-I00
PI: Mercedes Fernández-Lobato

Integrative Approach to Liver Cancer: Unveiling the Impact of High-Fat Diets and Aging (ILUC).
Agencia Estatal de Investigación.
AEI_PID2023-150033OB-I00
PI: Mercedes Fernández-Lobato

3.06

Viral, genetic and immune -mediated liver diseases

GROUP LEADER
Xavier Forns (HCB)

Publications

Original articles	Mean IF	10,32
33	Q1	70%
	D1	52%
	MA	24%
	OA	70%
Others	Mean IF	13,15
10	Q1	80%
	D1	50%
	MA	70%
	OA	40%

IF = Impact Factor
MA = Main authorship (last or corresponding author)
OA = Open Access
Others includes reviews, editorials, clinical guidelines, letters and case reports

Directed PhD theses

1 • Mireia García

Selected active grants

THERVACB: A therapeutic vaccine to cure hepatitis B.
European Commission.
CE-H2020-SC1_2019_2s
PI: Xavier Forns, Sabela Lens

Descifrando los mecanismos utilizados por el VHB para evadir la respuesta inmune del huésped.
Instituto de Salud Carlos III (ISCIII).
FIS_PI22/00013
PI: Sofia Pérez del Pulgar, Xavier Forns

Selected publications

Mariño Z, García-Solà C, Ríos J, ..., Forns X, Torra M, Berenguer M. **Exchangeable copper for patients with Wilson disease at follow-up: Rethinking normal ranges or changing methodology.** *Hepatology.* 81(6):1728-1739. D1

Olivas I, Arvaniti P, Gabeta S, ... , Zachou K, Dalekos GN, Londoño MC. **Liver stiffness measurement predicts clinical outcomes in autoimmune hepatitis.** *JHEP Rep.* 6(11):101213. D1

Pocurull A, Moreta MJ, Heitman D, ... , Lens S, Londoño MC, Forns X. **Anticancer drugs are the first cause of drug-induced liver injury in a reference hospital.** *Liver Int.* 44(2):286-292. Q1

Rodríguez-Tajes S, García-Eliz M, Caballero-Marcos A, ... , Crespo G, Lens S, Forns X. **The role of HBIG in real life for patients undergoing liver transplantation due to HDV-related cirrhosis.** *Liver Int.* 44(2):279-285. Q1

Riveiro-Barciela M, Barreira-Díaz A, Esteban P, ... , Salcedo M, Ruiz-Cobo JC, Londoño MC. **Rituximab is a safe and effective alternative treatment for patients with autoimmune hepatitis: Results from the ColHai registry.** *Liver Int.* 44(9):2303-2314. Q1

RESEARCH INTERESTS

Viral, genetic and immune-mediated liver diseases are relevant causes of cirrhosis, hepatocellular carcinoma, and liver-related mortality worldwide.

As for HBV and HDV infection, we are interested in investigating the viral factors and host responses that explain viral persistence and pathogenesis. We also focus on clinical and translational aspects of autoimmune hepatitis and cholestatic liver diseases, particularly on the role of adaptive immune responses.

Our team is also involved in clinical research on genetic liver diseases (mainly Wilson disease) and drug-induced liver injury.

KEYWORDS

Immune responses
Clinical outcomes
Therapy
Serum biomarkers
Epidemiology
Genetics

RELATED DISEASES

Viral hepatitis: HCV, HBV and HDV
Autoimmune hepatitis
Cholestatic liver diseases
Wilson disease
Drug-induced liver injury

3.07

Regulation of liver microcirculation in cirrhosis and hepatic vascular diseases

GROUP LEADER

Juan Carlos García-Pagán (HCB)

RESEARCH INTERESTS

Physiopathology, natural history, prognosis, and management of patients with portal hypertension, cirrhosis, or vascular alterations.

Precision medicine: Leading clinical trials evaluating different treatment strategies based on individual risk of decompensation in patients with cirrhosis.

Hepatic vascular diseases (Budd -Chiari, PVT, PSVD): We are a European Reference Network (ERN) for the treatment of rare vascular disorders.

We lead international trials to improve knowledge on vascular liver diseases, focusing on the discovery of diagnostic biomarkers and risk stratification for PSVD using genomics and transcriptomics strategies.

KEYWORDS

Portal hypertension
Liver vascular diseases
Hepatic hemodynamics
Endothelial dysfunction
Translational research

RELATED DISEASES

Cirrhosis
Budd Chiari syndrome
Portal vein trombosis (PVT)
Porto sinusoidal vascular disorder (PSVD)

Publications

Original articles	Mean IF	14,88
24	Q1	96%
	D1	75%
	MA	29%
	OA	63%
Others	Mean IF	14,06
13	Q1	92%
	D1	46%
	MA	38%
	OA	31%

IF = Impact Factor
MA = Main authorship (last or corresponding author)
OA = Open Access
Others includes reviews, editorials, clinical guidelines, letters and case reports

Selected active grants

Nuevas herramientas diagnósticas, pronósticas y de evaluación de la respuesta al tratamiento de pacientes con enfermedades vasculares del hígado.
Instituto de Salud Carlos III (ISCIII).
FIS_ PI23/01102
PI: Juan Carlos García-Pagán

PortoSinusoidal Vascular Disease: Risk stratification & Therapeutic approaches (RiTA)
Instituto de Salud Carlos III (ISCIII).
FIS_AC23
PI: Virginia Hernández-Gea

Selected publications

Lee EW, Eghtesad B, Garcia-Tsao G, ..., Mohanty A, Thabut D, Abraldes JG. **AASLD Practice Guidance on the use of TIPS, variceal embolization, and retrograde transvenous obliteration in the management of variceal hemorrhage.** *Hepatology.* 79(1):224-250. D1

Nicoară-Farcău O, Han G, Rudler M, ... , Fan D, Hernández-Gea V, García-Pagán JC; pre-emptive TIPS individual data metanalysis, International Variceal Bleeding Study and Baveno Cooperation Study groups. **Pre-emptive TIPS in high-risk acute variceal bleeding. An updated and revised individual patient data meta-analysis.** *Hepatology.* 79(3):624-635. D1

Olivas P, Perez-Campuzano V, Orts L, ... , Lens S, García Pagán JC, Hernández-Gea V. **Porto-sinusoidal vascular disorder in chronic HBV: A significant coexistence not to be overlooked.** *JHEP Rep.* 6(3):100996. D1

Perez-Campuzano V, Rautou PE, Marjot T, ... , Barnes E, Plessier A, Hernández-Gea V; ERN RARE-LIVER; a study of VALDIG, an EASL consortium and REHEVASC. **Impact of SARS-CoV-2 vaccination in patients with vascular liver diseases: Observations from a VALDIG multicenter study.** *JHEP Rep.* 6(12):101191. D1

Campreciós G, Vilaseca M, Tripathi DM, ... , Anton A, Hernández-Gea V, García-Pagán JC. **Interspecies transcriptomic comparison identifies a potential porto-sinusoidal vascular disorder rat model suitable for in vivo drug testing.** *Liver Int.* 44(1):180-190. Q1

3.08

Chronic liver diseases: molecular mechanisms and clinical consequences

Publications

Original articles	Mean IF	13,27
28	Q1	89%
	D1	75%
	MA	29%
	OA	75%
Others	Mean IF	15,05
18	Q1	89%
	D1	78%
	MA	56%
	OA	44%

IF = Impact Factor
MA = Main authorship (last or corresponding author)
OA = Open Access
Others includes reviews, editorials, clinical guidelines, letters and case reports

Directed PhD theses

2

- Jordi Gratacós
- Ana Martínez

Selected active grants

A Biomarker-based Platform for Early Diagnosis of Chronic Liver Disease to Enable Personalized Therapy.
European Commission. (LIVERAIM).
CE_IHI_23_1s15_RIA
PI: Pere Ginès

Screening for liver fibrosis-population-based study across European countries. (LIVERSCREEN).
European Commission.
CE_H2020-SC1_2019_2s
PI: Pere Ginès

Selected publications

Thiele M, Kamath PS, Graupera I, ... , Serra-Burriel M, Lammert F, Ginès P. **Screening for liver fibrosis: lessons from colorectal and lung cancer screening.** *Nat Rev Gastroenterol Hepatol.* 21(7):517-527. D1

Ma AT, Solé C, Juanola A, ... , Graupera I, Pose E, Ginès P. **Prospective validation of the EASL management algorithm for acute kidney injury in cirrhosis.** *J Hepatol.* 81(3):441-450. D1

Gratacós-Ginès J, Bruguera P, Pérez-Guasch M, ... , Ginès P, López-Pelayo H, Pose E. **Medications for alcohol use disorder promote abstinence in alcohol-associated cirrhosis: Results from a systematic review and meta-analysis**. *Hepatology.* 79(2):368-379. D1

Gratacós-Ginès J, Avitabile E, Montironi C, ... , Bataller R, Ginès P, Pose E. **Alcoholic Foamy Degeneration, an Entity Resembling Alcohol-Associated Hepatitis: Diagnosis, Prognosis, and Molecular Profiling.** *Clin Gastroenterol Hepatol.* 22(4):768-777.e8. D1

Avitabile E, Gratacós-Ginès J, Pérez-Guasch M, ... , Ginès P, López-Pelayo H, Pose E. **Liver fibrosis screening increases alcohol abstinence.** *JHEP Rep.* 6(10):101165. D1

GROUP LEADER
Pere Ginès (HCB)

RESEARCH INTERESTS

The main objectives of our research group are to investigate the pathogenic mechanisms leading to disease progression in chronic liver diseases as well as design and test new therapeutic and preventive interventions. Our main areas of interest are:

1) Metabolic-dysfunction associated steatotic liver disease
2) Alcohol-related liver disease
3) Complications of cirrhosis
4) Biomarkers of chronic liver disease
5) Acute-on-chronic liver failure
6) Translational/experimental studies in chronic liver diseases
7) Screening for liver fibrosis in the general population and at-risk populations

KEYWORDS

Liver cirrhosis
Liver fibrosis
Liver biomarkers
Alcohol-related liver disease
MASLD
ACLF

RELATED DISEASES

Decompensated cirrhosis
Alcohol-related liver disease
Metabolic-associated steatotic liver disease
Hepatorenal syndrome
Acute-on-chronic liver failure

3.09

Liver vascular biology

GROUP LEADER

Jordi Gracia-Sancho (IDIBAPS)

RESEARCH INTERESTS

The group studies the molecular and biomechanical processes that regulate the status and function of liver cells, as well as the hepatic intercellular communication mechanisms in healthy situations, in response to acute liver damage, in chronic liver disease and in ageing.

We apply our results to discover new therapeutic targets and to develop novel therapies that improve liver microcirculation, fibrosis and function in a precision medicine manner.

To achieve this, the group uses a wide range of experimental methods, which include tissues and primary cells (from humans or rodents), in vivo and in vitro models of liver disease, including liver-on-a-chip technology, and advanced analysis of big data, among others.

KEYWORDS

Cirrhosis
Portal hypertension
Aging
Liver sinusoidal endothelial cells
Liver fibrosis

RELATED DISEASES

Chronic liver disease
Steatohepatitis
Alcohol-related liver disease
Metabolic dysfunction-associated steatotic liver disease

Publications

Original articles	Mean IF	10,68
10	Q1	80%
	D1	60%
	MA	20%
	OA	60%
Others	Mean IF	24,84
7	Q1	100%
	D1	86%
	MA	57%
	OA	43%

IF = Impact Factor
MA = Main authorship (last or corresponding author)
OA = Open Access
Others includes reviews, editorials, clinical guidelines, letters and case reports

Selected active grants

Endothelial senescence in chronic liver disease: pathogenic mechanism & novel theranostic opportunity.
Instituto de Salud Carlos III (ISCIII).
FIS_PI23/00945
PI: Jordi Gracia-Sancho

PH-Care: Desarrollo y validación de un ensayo "point of care" para el diagnóstico y pronóstico de la hipertensión portal.
Instituto de Salud Carlos III (ISCIII).
FIS_DTS22
PI: Jordi Gracia-Sancho

Selected publications

Sanfeliu-Redondo D, Gibert-Ramos A, Gracia-Sancho J. **Cell senescence in liver diseases: pathological mechanism and theranostic opportunity**. *Nat Rev Gastroenterol Hepatol.* 21(7): 477-492. D1

Guixé-Muntet S, Quesada-Vázquez S, Gracia-Sancho J. **Pathophysiology and therapeutic options for cirrhotic portal hypertension.** *Lancet Gastroenterol Hepatol.* 9(7):646-663. D1

Zhu CP, Liu SQ, Wang KQ, ... , Dong WH, Gracia-Sancho J, Xie WF. **Targeting 5-Hydroxytryptamine Receptor 1A in the Portal Vein to Decrease Portal Hypertension.** *Gastroenterology.* 167(5): 993-1007. D1

Wang C, Felli E, Selicean S, ... , Bosch J, Berzigotti A, Gracia-Sancho J. **Role of calcium integrin-binding protein 1 in the mechanobiology of the liver endothelium.** *J Cell Physiol.* 239(5): e31198. Q1

3.10

Fetal and perinatal medicine

GROUP LEADER

Eduard Gratacós (HCB)

RESEARCH INTERESTS

We are a scientific group in the field of Maternal and Fetal Medicine. We treat the fetus as a patient and with this vision we aim at minimizing future sequelae of diseases that can be diagnosed and treated prenatally.

Our group includes different medical and research disciplines and investigates on these research areas: fetal cardiac programming, prematurity, fetal neurodevelopment, preterm inflammation, fetal therapy and surgery, placental diseases and the influence of the environment in pregnancy.

KEYWORDS

Fetal cardiac programming
Prematurity
Fetal neurodevelopment
Preterm inflammation
Placental diseases

RELATED DISEASES

Fetal programming
Fetal surgery
Placental insufficiency
New solutions for prematurity

Publications

Original articles	Mean IF	6,74
47	Q1	68%
	D1	36%
	MA	36%
	OA	74%
Others	Mean IF	3,27
15	Q1	60%
	D1	7%
	MA	53%
	OA	60%

IF = Impact Factor
MA = Main authorship (last or corresponding author)
OA = Open Access
Others includes reviews, editorials, clinical guidelines, letters and case reports

Directed PhD theses

2

- Júlia Ponce
- Clara Murillo

Selected active grants

PE37: Ensayo clínico aleatorizado multicéntrico de cribado con sFlt1/PlGF e inducción selectiva del parto para la prevención de preeclampsia a término.
Instituto de Salud Carlos III (ISCIII).
FIS_PI22/00109
PI: Eduard Gratacós

PHASE 2 - Interdisciplinary program for a clinical prototype of artificial placenta evaluation of impact on fetal programming and development of the technological requirements.
Fundació "la Caixa".
LCF/PR/SP23/52950010
PI: Eduard Gratacós

Selected publications

González A, Peguero A, Meler E, ... , Tàssies MD, Figueras F, Mazarico E. **Treatment of early-onset fetal growth restriction with low molecular weight heparin does not prolong gestation: a randomized clinical trial.** *Am J Obstet Gynecol.* 232(6):552.e1-552.e10. D1

Murillo C, Rueda C, Larroya M, ... , Crispi F, Palacio M, Cobo T. I**ntra-amniotic infection and/or inflammation is associated with fetal cardiac concentric hypertrophy and diastolic dysfunction in preterm labor and preterm prelabor rupture of membranes.** *Am J Obstet Gynecol.* 230(6):665.e1-665.e30. D1

Castro-Barquero S, Crovetto F, Estruch R, ... , Gratacós E, Crispi F, Casas R. **Validation of a pregnancy-adapted Mediterranean Diet Adherence Screener (preg-MEDAS): a validation study nested in the Improving Mothers for a better PrenAtal Care Trial BarCeloNa (IMPACT BCN) trial.** *Am J Clin Nutr.* 120(2):449-458. D1

Sayols N, Hernansanz A, Parra J, ..., Xambó-Descamps S, Gratacós E, Casals A. **Robust tracking of deformable anatomical structures with severe occlusions using deformable geometrical primitives.** *Comput Methods Programs Biomed.* 251:108201. Q1

Nakaki A, Gomez Y, Castro-Barquero S, ... , Crispi F, Gratacos E, Crovetto F. **The Mediterranean Diet in Pregnancy: Implications for Maternal Brain Morphometry in a Secondary Analysis of the IMPACT BCN Randomized Clinical Trial.** *Nutrients.* 16(11):1604. Q1

3.11

Metabolic bone disease

GROUP LEADER

Núria Guañabens (HCB)

RESEARCH INTERESTS

Our main interest is in the study of osteoporosis in liver disease, analysing the effects of cholestasis on bone tissue at a clinical level, as well as the study of osteoporosis in end-stage liver disease and after liver transplantation.

Another research interest is the usefulness of bone turnover markers in assessing metabolic bone diseases, including osteoporosis and Paget's disease of bone.

A more recent area of interest has been the study of glucocorticoid-induced osteoporosis.

KEYWORDS

Osteoporosis
Bone turnover markers

RELATED DISEASES

Osteoporosis
Paget's disease of bone
Osteoporosis in chronic cholestasis
Glucocorticoid-induced osteoporosis

Publications

Original articles	**Mean IF**	**6,17**
6	Q1	83%
	D1	17%
	MA	50%
	OA	100%
Others	**Mean IF**	**2,27**
7	Q1	14%
	D1	0%
	MA	57%
	OA	100%

IF = Impact Factor
MA = Main authorship (last or corresponding author)
OA = Open Access
Others includes reviews, editorials, clinical guidelines, letters and case reports

Selected publications

Phillips J, Subedi D, Lewis SC, ... , Horne A, Gilchrist N, Ralston SH. **Randomised trial of genetic testing and targeted intervention to prevent the development and progression of Paget's disease of bone.** *Ann Rheum Dis.* 83(4):529-536. D1

de Lazzari E, Nomah DK, Blanco JL, ... , Martínez E, Mallolas J, Miro JM; Hospital Clinic HIV investigators. **Prevalence, risk factors and the impact of tenofovir treatment in SARS-CoV-2 infection and COVID-19 disease among people living with HIV: A cross-sectional population-based study.** *Int J Infect Dis.* 149:107266. Q1

Peris P, Blasco J, Monegal A, Florez H, Guañabens N, Carrasco JL. **Effect of gender on the evolution of pain and quality of life after treatment of symptomatic vertebral fragility fractures.** *Osteoporos Int.* 35(3):515-521. Q1

Cortet B, Guañabens N, Brandi ML, Siggelkow H. **Similarities and differences between European guidelines for the management of postmenopausal osteoporosis.** *Arch Osteoporos.* 19(1):84. Q1

Artiga-Solana X, Muñoz-Mahamud E, Combalia A. **Trends in authorship in Medicina Clínica: an 11-year analysis of author gender.** *Med Clin (Barc).* 163(8):415-420. Q1

3.12

Endocrine disorders: crosstalk between molecular, metabolic and therapeutic determinants

Publications

Original articles	Mean IF	4,11
22	Q1	50%
	D1	0%
	MA	27%
	OA	41%
Others	Mean IF	2,75
4	Q1	0%
	D1	0%
	MA	75%
	OA	0%

IF = Impact Factor
MA = Main authorship (last or corresponding author)
OA = Open Access
Others includes reviews, editorials, clinical guidelines, letters and case reports

Directed PhD theses

1

- Laura Boswell

Selected active grants

Assesment of senecence as a novel target in Cushing Syndrome: study in animal model.
Fundació la Marató de TV3.
Minoritaries_20
PI: Felicia Alexandra Hanzu

Selected publications

Isand K, Feelders R, Brue T, ... , Webb SM, Wass J, Valassi E; Ercusyn Study Group. **High prevalence of venous thrombotic events in Cushing's syndrome: data from ERCUSYN and details in relation to surgery.** *Eur J Endocrinol.* 190(1):75-85. Q1

Araujo-Castro M, Paja-Fano M, González-Boillos M, ... , Moya-Mateo EM, Gutiérrez-Medina S, Hanzu FA. **Influence of smoking on cardiometabolic profile and surgical outcomes in patients with primary aldosteronism: a cohort study.** *Eur J Endocrinol.* 191(6):579-587. Q1

Marques-Pamies M, Gil J, Sampedro-Nuñez M, ... , Webb SM, Marazuela M, Puig-Domingo M. P**ersonalized Medicine in Acromegaly: The ACRO-FAST Study.** *J Clin Endocrinol Metab.* 110(1):30-40. Q1

Boswell L, Vega-Beyhart A, Blasco M, ..., Amor AJ, Casals G, Hanzu FA. **Hair cortisol and changes in cortisol dynamics in chronic kidney disease.** *Front Endocrinol (Lausanne).* 15:1282564. Q2

Capatina C, Hanzu FA, Hinojosa-Amaya JM, Fleseriu M. **Medical treatment of functional pituitary adenomas, trials and tribulations.** *J Neurooncol.* 168(2):197-213. Q2

GROUP LEADER
Felicia Alexandra Hanzu (HCB-IDIBAPS)

RESEARCH INTERESTS

The group studies the molecular mechanisms underlying the tissue alterations that determine the clinical phenotype induced by steroids and hormone-secreting, pituitary, adrenal and neuroendocrine tumors.

The disorders developed during active disease and the specific mechanisms of persistence of comorbidities throughout life as well as the response to treatment, are the main lines of research.

KEYWORDS

Pituitary, Adrenal,
Neuroendocrinology
Cardiovascular and metabolism
Neuroendocrinology
Steroids

RELATED DISEASES

Pituitary and Neuroendocrine Tumors
Cushing syndrome and hypercortisolism
Adrenal tumors
Secondary arterial hypertension

3.13

Gynecology, human reproduction and women's health

GROUP LEADER

M. Àngels Martínez-Zamora (HCB)

RESEARCH INTERESTS

To increase the knowledge of the etiopathogenesis and treatment of different gynecological processes, obtain early diagnostic tools, improve treatments and optimize follow-up to ensure the safety of our patients. We aim to integrate into this knowledge the improvement of quality of life and to encourage our patients to be involved in decision-making.

The main health issues that focus our research are endometriosis and adenomyosis, sterility and reproductive failure, cervical pathology and human papillomavirus, endocrine disorders and sexual dysfunctions, as well as oncological gynecological pathology.

KEYWORDS

Gynecology
Infertility
Cancer
Hormones
Surgery

RELATED DISEASES

Human papillomavirus
Gynecological cancer
Fertility preservation
Endometriosis
Sexual health

Publications

Original articles	Mean IF	4,07
33	Q1	73%
	D1	18%
	MA	39%
	OA	76%
Others	Mean IF	3,15
11	Q1	45%
	D1	27%
	MA	45%
	OA	45%

IF = Impact Factor
MA = Main authorship (last or corresponding author)
OA = Open Access
Others includes reviews, editorials, clinical guidelines, letters and case reports

Directed PhD theses

1 • Sara Peralta

Selected active grants

Detección del ganglio centinela con 99MTC- nanocoloide de albúmina e ICG- Verde de indocianina en pacientes con cáncer epitelial de ovario inicial.
Instituto de Salud Carlos III (ISCIII).
FIS_ PI22/01174
PI: Berta Díaz-Feijóo

STAR-9: Estudio sobre preguntas no resueltAs en Relación con la vacuna 9valente en mujeres conizadas. Papel en la reducción del la persistencia/recurrencia de lesiones premalignas del tracto genital.
Instituto de Salud Carlos III (ISCIII).
FIS_PI21/00928
PI: Marta del Pino

Selected publications

del Pino M, Vorsters A, Joura EA, ... , Kodjamanova P, Velicer C, Drury R. **Risk factors for human papillomavirus infection and disease: A targeted literature summary.** *J Med Virol.* 96(2):e29420. D1

Sebio-Garcia R, Celada-Castro C, Arguis MJ, ... , Tena B, Díaz-Feijoo B, Martinez-Palli G. **Multimodal prehabilitation improves functional capacity in patients with advanced ovarian cancer undergoing cytoreductive surgery.** *Int J Gynecol Cancer.* ijgc-2024-005686. D1

Cebrecos I, Torras I, Castillo H, ... , Molla M, Vidal M, Mension E. **Predicting Additional Metastases in Axillary Lymph Node Dissection After Neoadjuvant Chemotherapy: Ratio of Positive/Total Sentinel Nodes.** *Cancers (Basel).* 16(21):3638. Q1

Agusti I, Alvarez-Mora MI, Wijngaard R, ... , Goday A, Manau D, Rodriguez-Revenga L. **Correlation of FMR4 expression levels to ovarian reserve markers in FMR1 premutation carriers.** *J Ovarian Res.* 17(1):103. Q1

Valdés-Bango M, Gracia M, Rubio E, ..., Mension E, Quintas L, Carmona F. **Comparative analysis of endometrial, vaginal, and gut microbiota in patients with and without adenomyosis.** *Acta Obstet Gynecol Scand.* 103(7):1271-1282. Q1

3.14

Translational research group in new therapeutic and diagnostic strategies in liver diseases

GROUP LEADER

Manuel Morales-Ruiz (HCB)

Publications

Original articles	**Mean IF**	**5,56**
27	Q1	67%
	D1	19%
	MA	33%
	OA	81%
Others	**Mean IF**	**5,80**
4	Q1	25%
	D1	25%
	MA	50%
	OA	50%

IF = Impact Factor
MA = Main authorship (last or corresponding author)
OA = Open Access
Others includes reviews, editorials, clinical guidelines, letters and case reports

Directed PhD theses

1

- Bernat Cordoba

Selected active grants

Novel industrially feasible nanotherapies to treat portal hypertension and liver fibrosis in humans (LiveNano).
Agencia Estatal de Investigación.
AEI_PE22
PI: Wladimiro Jiménez

Función y potencial terapéutico de las helicasas de RNA y de miR-122a-5p en la regeneración hepática y el cancer.
Agencia Estatal de Investigación.
AEI_PE22
PI: Manuel Morales-Ruiz

Selected publications

Simón-Codina B, Cacho-Pujol J, Moles A, Melgar-Lesmes P. **Reprogramming macrophages to treat liver diseases.** *Hepatology.* D1

Perramón M, Navalón-López M, Fernández-Varo G, ... , Melgar-Lesmes P, Borrós S, Jiménez W. **Liver-targeted nanoparticles delivering nitric oxide reduce portal hypertension in cirrhotic rats.** *Biomed Pharmacother.* 171:116143 D1

Portolés I, Ribera J, Fernandez-Galán E, ... , Reig M, Jiménez W, Morales-Ruiz M. **Identification of Dhx15 as a Major Regulator of Liver Development, Regeneration, and Tumor Growth in Zebrafish and Mice.** *Int J Mol Sci.* 25(7):3716. Q1

Csals G, Ballesteros MA, Zamora A, ... , Mora M, Hanzu FA, Morales-Ruiz M. **LC-HRMS and GC-MS Profiling of Urine Free Cortisol, Cortisone, 6β-, and 18-Hydroxycortisol for the Evaluation of Glucocorticoid and Mineralocorticoid Disorders.** *Biomolecules.* 14(5):558. Q1

RESEARCH INTERESTS

Identification of non-invasive biomarkers of liver injury.

Evaluation of new strategies to stimulate functional liver regeneration in cirrhosis.

Establish new therapies for the normalisation of the intrahepatic vasculature in cirrhotic livers.

Evaluation of the therapeutic potential of cerium oxide nanoparticles in liver diseases.

Modulation of macrophages properties to treat liver diseases through functionalised nanoparticles and gene editing.

Identification of new molecular alterations in neurodevelopmental diseases.

Molecular characterization of FMR1 premutation associated pathologies.

KEYWORDS

Chronic liver disease
Liver regeneration
Nanomedicine
Biomarker discovery
Neurodevelopmental disorder
FMR1 gene

RELATED DISEASES

Cirrhosis
Metabolic syndrome
Hepatocellular carcinoma
Cancer
Neurodevelopmental disorders
FMR1 associated pathologies

3.15

Pathogenesis and prevention of diabetes

GROUP LEADER

Anna Novials (IDIBAPS)

RESEARCH INTERESTS

Diabetes is a major global health issue, affecting over 500 million people worldwide. Its high prevalence, economic burden, and the mortality linked to chronic complications underscore the need for effective prevention and treatment. Our research integrates clinical and basic science in humans and animal models, with a focus on:

1. Lifestyle interventions to prevent and manage diabetes, particularly through physical exercise.

2. The adaptation and dysfunction of pancreatic beta-cells throughout disease progression.

3. Molecular mechanisms of organ crosstalk contributing to metabolic imbalance, with emphasis on small extracellular vesicles as biomarkers and disease mediators.

KEYWORDS

Diabetes
Obesity
Physical exercise
Pancreatic beta-cell
Small extracellular vesicles

RELATED DISEASES

Diabetes
Obesity
Metabolic dysfunction–associated steatotic liver disease (MASLD)
Cardiovascular diseases
Neurodegenerative diseases

Publications

Original articles	Mean IF	4,50
2	Q1	50%
	D1	0%
	MA	50%
	OA	50%
Others	Mean IF	2,90
1	Q1	0%
	D1	0%
	MA	100%
	OA	100%

IF = Impact Factor
MA = Main authorship (last or corresponding author)
OA = Open Access
Others includes reviews, editorials, clinical guidelines, letters and case reports

Selected active grants

Effects of physical exercise implementation in type 2 diabetes: extracellular vesicles as biomarkers and response mediators in cardiovascular protection.
Instituto de Salud Carlos III (ISCIII).
FIS_PI23/00514
PI: Anna Novials, Joan-Marc Servitja

Effects of circulating extracellular vesicles on pancreatic islets during obesity.
European Foundation for the Study of Diabetes.
INT_EFSD/Boehr_22
PI: Joan-Marc Servitja

Selected publications

Murillo S, Brugnara L, Ríos S, Ribas V, Servitja JM, Novials A. **People with type 1 diabetes exhibit lower exercise capacity compared to a control population with similar physical activity levels.** *Diabetes Res Clin Pract.* 211:111655. Q1

Garcia-Diez AI, Porta-Vilaro M, Isern-Kebschull J, ... , del Amo M, Novials A, Tomas X. **Myosteatosis: diagnostic significance and assessment by imaging approaches.** *Quant Imaging Med Surg.* 14(11):7937-7957. Q2

Soler-Perromat JC, Isern-Kebschull J, del Amo M, ... , García-Diez AI, Porta-Vilaró M, Tomás X. **Ultrasound-guided minimally invasive removal of deep contraceptive implants: outcomes and challenges.** *Quant Imaging Med Surg.* 14(11):7791-7802.

3.16

Molecular biology of reproduction and development

GROUP LEADER

Rafael Oliva (HCB-UB)

Publications

Original articles	Mean IF	3,33
10	Q1	30%
	D1	0%
	MA	30%
	OA	70%
Others	Mean IF	3,00
1	Q1	0%
	D1	0%
	MA	0%
	OA	0%

IF = Impact Factor
MA = Main authorship (last or corresponding author)
OA = Open Access
Others includes reviews, editorials, clinical guidelines, letters and case reports

Selected active grants

The paternal age effect on the sperm molecular composition and identification of proteomic and chromatin alterations relevant for male fertility and Infertility.
Instituto de Salud Carlos III (ISCIII).
FIS_PI23/00986
PI: Judit Castillo, Rafael Oliva

Impact of COVID-19 on male reproductive Health.
Fundació la Marató de TV3.
COVID19_21SalutMental_21
PI: Rafael Oliva

Selected publications

Agusti I, Alvarez-Mora MI, Wijngaard R, ... , Goday A, Manau D, Rodriguez-Revenga L. **Correlation of FMR4 expression levels to ovarian reserve markers in FMR1 premutation carriers.** *J Ovarian Res.* 17(1):103. Q1

Milla E, Laguna J, Alforja MS, ... , Duch S, Carballo M, Jodar M; EMEIGG group. **Next-generation sequencing-based gene panel tests for the detection of rare variants and hypomorphic alleles associated with primary open-angle glaucoma.** *PLoS One.* 19(1):e0282133. Q1

Valdés N, Romero A, Diego E, ... , Chiara MD, Castaño L, Casterás A. **Long term outcomes of pituitary adenomas in Multiple Endocrine Neoplasia type 1: a nationwide study.** *Front Endocrinol (Lausanne).* 8:15:1427821. Q2

Oriola J, Díez O, Mora M, ... , Bernal A, Duran R, Orois A. **Novel truncating germline variant reinforces TINF2 as a susceptibility gene for familial non-medullary thyroid cancer.** *J Med Genet.* 61(10):939-942. Q2

Jodar M, Barral Y, Leiva M, ... , Bassas L, Manau D, Oliva R. **Reversible effects of the SARS-CoV-2 on semen parameters.** *Syst Biol Reprod Med.* 70(1):261-271. Q3

RESEARCH INTERESTS

He team aims at identifying both normal molecular mechanisms and alterations in the reproductive function, embryonic development, and the transmission of information, that can affect the health of the following generations.

The group applies genetic, genomic, epigenomic, transcriptomic and proteomic description strategies to the study of the male germinal line towards correct diagnosis and prognosis, as well as open opening doors to new strategies for prevention and treatment.

KEYWORDS

Germinal cell line
Assisted reproduction
Spermatozoa
Epigenetics
Proteomics

RELATED DISEASES

Male infertility
Couple infertility
Assisted reproductive failure
Reproductive endocrine disorders
Sterility

3.17

Protective strategies against hepatic ischemia reperfusion injury

GROUP LEADER

Carmen Peralta (IDIBAPS)

RESEARCH INTERESTS

Organs available for transplant are insufficient to meet demand and many patients die while waiting. Given the shortage of donors, the criteria have been expanded and pathological livers including steatotic livers are also now accepted.

Both brain death/cardiac arrest and steatosis (with or without inflammation) negatively affect graft quality, post-transplant results and many organs are rejected due to their pathological conditions.

The group's research is focused on protective strategies in transplantation and hepatic resection, especially in pathological livers from extended criteria donors to reduce the waiting-list for transplant.

KEYWORDS

Liver transplantation
Liver surgery
Ischemia-reperfusion injury
Partial hepatectomy
Liver diseases

RELATED DISEASES

Transplantation
Obesity
Diabetes
NAFLD & NASH
Cirrhosis

Publications

Original articles	**Mean IF**	**1,70**
3	Q1	0%
	D1	0%
	MA	0%
	OA	33%
Others	**Mean IF**	**0**
0	Q1	0%
	D1	0%
	MA	0%
	OA	0%

IF = Impact Factor
MA = Main authorship (last or corresponding author)
OA = Open Access
Others includes reviews, editorials, clinical guidelines, letters and case reports

Directed PhD theses

2

- Carlos Rojano
- Marc Micó

Selected active grants

Intervening to correct signals arriving at the liver after brain death in order to protect steatotic and non-steatotic liver grafts used in transplantation.
Agencia Estatal de Investigación.
AEI_PID2021-123123OB-I00
PI: Carmen Peralta

Selected publications

Rojano-Alfonso C, Micó-Carnero M, Maroto-Serrat C, Casillas-Ramírez A, Peralta C. **Role of VEGFA in type 2 diabetes mellitus rats subjected to partial hepatectomy.** *NPJ gut and liver.* 1:12

Casillas-Ramírez A, Maroto-Serrat C, Rojano-Alfonso C, ... , Cabrer M, Martínez-Padrón HY, Perlata C. **The role of Neuregulin-1 in steatotic and non-steatotic liver transplantation from donors after cardiocirculatory death.** *NPJ gut and liver.* 1:8

Casillas-Ramírez A, Micó-Carnero M, Sánchez-González A, ... , Caballeria-Casals A, Cabrer M, Peralta C. **Controlling inflammation during liver transplants: Novel pathways for therapeutics**. *Researh Features Health & Medicine*

Bejaoui M, Slim C, Peralta P, Ben Abdennebi H. **Effect of PERLA®, a new cold-storage solution, on oxidative stress injury and early graft function in rat kidney transplantation model.** *BMC Nephrol.* 25(1):62. Q2

Barrios O, Dopazo C, López-Boado MA, ... , Fundora-Suarez Y, Torrents A, Llado L. **Optimized results of the liver partition program for split-liver transplantation**. *Cir Esp (Engl Ed).* 102(2):84-89. Q3

3.18

Lipid trafficking and disease

GROUP LEADER
Albert Pol (ICREA-IDIBAPS)

Publications

Original articles	**Mean IF**	**24,83**
3	Q1	100%
	D1	100%
	MA	0%
	OA	67%
Others	**Mean IF**	**3,00**
1	Q1	0%
	D1	0%
	MA	100%
	OA	100%

IF = Impact Factor
MA = Main authorship (last or corresponding author)
OA = Open Access
Others includes reviews, editorials, clinical guidelines, letters and case reports

Selected active grants

Lipid droplets as key players in brain microgliosis after stroke.
Fundació Bancaria "La Caixa".
HealthRes23-00560
PI: Albert Pol

Lipid droplets as innate immunity hubs.
European Commission.
CE_HE_ERC_2022_SyG
PI: Albert Pol

Selected publications

Herms A, Colom B, Piedrafita G, ... , Frezza C, Vanhaesebroeck B, Jones PH. **Organismal metabolism regulates the expansion of oncogenic PIK3CA mutant clones in normal esophagus.** *Nat Genet.* 56(10):2144-2157. D1

Herms A, Fernandez-Antoran D, Alcolea MP, ... , Lowe AR, Gerstung M, Jones PH. **Self-sustaining long-term 3D epithelioid cultures reveal drivers of clonal expansion in esophageal epithelium.** *Nat Genet.* 56(10):2158-2173. D1

Bórquez JC, Díaz-Castro F, Pino-de La Fuente F, ... , Cortés V, Hernández-Alvarez MI, Troncoso R. **Mitofusin-2 induced by exercise modifies lipid droplet-mitochondria communication, promoting fatty acid oxidation in male mice with NAFLD.** *Metabolism.* 152:155765. D1

Safi R, Menéndez P, Pol A. **Lipid droplets provide metabolic flexibility for cancer progression.** *FEBS Lett.* 598(10):1301-1327. Q2

RESEARCH INTERESTS

Lipid droplets are organelles that store and supply lipids in eukaryotic cells. Thus, lipid droplets provide cells with essential nutrients and the energy needed for functioning.

For this reason, lipid droplets are an attractive nutrient source for viruses and bacteria and a powerful energy source hijacked for cancer cells to proliferate.

The premise of our research is that by understanding the cell biology of lipid droplets we will be able to discover metabolic vulnerabilities in pathogens and the metabolic pathways exploited by cancer cells to design novel therapeutic strategies.

KEYWORDS

Lipid droplets
Lipids
Innate immunity
Energetic metabolism
Cancer metabolism

RELATED DISEASES

Infection
Cancer
Obesity
Diabetes
Stroke

3.19

Inflammatory bowel disease

GROUP LEADER

Azucena Salas (IDIBAPS)

RESEARCH INTERESTS

Crohn's disease and ulcerative colitis are chronic inflammatory diseases of the intestine for which there is no cure. Available treatment attempts to reduce disease activity. Despite access to newly developed drugs, some patients will not respond which can severely impact their quality of life.

Our group works to understand the mechanisms that support disease, particularly in patients that do not respond to currently approved therapies.

By using cutting edge molecular, cellular and imaging technologies we aim to understand the pathways supporting lack of response so that we can design alternative effective treatment for all patients.

KEYWORDS

Transcriptomics
Organoids
Magnetic resonance
Cell therapies

RELATED DISEASES

Inflammatory bowel disease
Ulcerative colitis
Crohn's disease

Publications

Original articles	Mean IF	8,18
27	Q1	78%
	D1	48%
	MA	2%
	OA	33%
Others	Mean IF	5,60
3	Q1	67%
	D1	33%
	MA	67%
	OA	100%

IF = Impact Factor
MA = Main authorship (last or corresponding author)
OA = Open Access
Others includes reviews, editorials, clinical guidelines, letters and case reports

Directed PhD theses

2

- Agnés Fernandez-Clotet
- Antonio Giordiano

Selected active grants

FIBROTARGET: Validation of novel immunotherapeutic targets against fibrosis in inflammatory bowel diseases.
European Commission.
CE_HE_CH_22_2s22_RIA
PI: Azucena Salas

MADHcell: Mapping disease heterogeneity in inflammatory bowel disease using single-cell analysis.
Agencia Estatal de Investigación.
AEI_PID2021-123918OB-I00
PI: Azucena Salas

Selected publications

Oliver AJ, Huang N, Bartolome-Casado R, ... , Jahnsen FL, Elmentaite R, Teichmann SA. **Single-cell integration reveals metaplasia in inflammatory gut diseases.** *Nature.* 635(8039):699-707. D1

Rimola J, Castro-Poceiro J, Sapena V, ... , Ordás I, Ricart E, Panés J. **Magnetic Resonance Imaging Features Indicative of Permanent Colon Damage in Ulcerative Colitis: An Exploratory Study.** *J Crohns Colitis.* 18(10):1690-1700. D1

Giordano A, Rovira M, Veny M, ... , Panés J, Salas A, Ricart E. **Cyclophosphamide-free Mobilisation Increases Safety While Preserving the Efficacy of Autologous Haematopoietic Stem Cell Transplantation in Refractory Crohn's Disease Patients.** *J Crohns Colitis.* 18(10):1701-1712. D1

Fernández-Clotet A, Ordás I, Masamunt MC, ... , Panés J, Ricart E, Rimola J. **Magnetic resonance enterography findings 46 weeks after initiation of biological therapy predict long-term adverse outcomes in Crohn's disease.** *Aliment Pharmacol Ther.* 59(11):1435-1445. D1

Garrido-Trigo A, Veny M, Salas A. **Uncovering intestinal macrophages through the integration of single-cell and spatial transcriptomics.** *Genes Immun.* 25(3):254-255. Q1

3.20

Liver cell plasticity and tissue repair

GROUP LEADER

Pau Sancho-Bru (IDIBAPS)

Publications

Original articles	**Mean IF**	**8,66**
5	Q1	80%
	D1	80%
	MA	0%
	OA	80%
Others	**Mean IF**	**9,10**
1	Q1	100%
	D1	100%
	MA	0%
	OA	100%

IF = Impact Factor
MA = Main authorship (last or corresponding author)
OA = Open Access
Others includes reviews, editorials, clinical guidelines, letters and case reports

Directed PhD theses

1

- Raquel Adela Martinez

Selected active grants

B-ORG: Patient-derived liver biopsy-organoids for personalized medicine in NAFLD (Non-Alcoholic Fatty Liver Disease): towards real time assessment of drug response.
Ministerio de Ciencia, Innovación y Universidades (MCIU) & Generalitat de Catalunya. Planes Complementarios 2022
PI: Pau Sancho-Bru

Halt-RONIN: Discovering chronic inflammation biomarkers that define key stages in the Healthy-to-NASH transition to inform early prevention and treatment strategies.
European Commission.
CE_HE_CH_22_1s21_RIA
PI: Pau Sancho-Bru

Selected publications

Gratacós-Ginès J, Ruz-Zafra P, Celada-Sendino M, ... , Bataller R, Caballería J, Pose E; REHALC Registry investigators. **Recurrent alcohol-associated hepatitis is common and is associated with increased mortality.** *Hepatology.* 80(3):621-632. D1

Rodríguez-Agudo R, González-Recio I, Serrano-Maciá M, ... , Simon J, Goikoetxea-Usandizaga N, Martínez-Chantar ML. **Anti-miR-873-5p improves alcohol-related liver disease by enhancing hepatic deacetylation via SIRT1.** *JHEP Rep.* 6(1):100918. D1

Lucena MI, Villanueva-Paz M, Alvarez-Alvarez I, ... , Andrade RJ, Daly AK, Fernandez-Checa JC. **Roadmap to DILI research in Europe. A proposal from COST action ProEuroDILINet.** *Pharmacol Res.* 200:107046. D1

Ruiz-Blázquez P, Fernández-Fernández M, Pistorio V, ... , Coll M, Fernández-Checa JC, Moles A. **Cathepsin D is essential for the degradomic shift of macrophages required to resolve liver fibrosis.** *Mol Metab.* 87:101989. D1

RESEARCH INTERESTS

We are conducting translational research in chronic liver disease and carcinogènesis. The group is interested in understanding the mechanisms governing the liver cell plasticity in chronic liver diseases and the interplay of these processes with liver inflammation, fibrosis and cancer.

In this context, one of our main research interests is assessing the potential of stem cells for biomedical and biotechnological applications and particularly to develop 3D organotypic in vitro systems for disease modeling and drug development.

KEYWORDS

Liver cell plasticity
Fibrosis
Hepatoblastoma
Organoids
iPSC-derived liver cells

RELATED DISEASES

Chronic liver diseases
Steatotic liver disease
Hepatoblastoma

3.21

Pathogenesis and treatment of autoimmunity

GROUP LEADER

Pere Santamaria (IDIBAPS)

RESEARCH INTERESTS

Our group focusses on a new class of drugs, based on nanomedicine, that can comprehensively blunt several experimental autoimmune diseases without compromising normal immunity to infections and cancer.

We investigate the underlying mechanisms, in particular the molecular changes that result in the conversion of pathogenic T-cells into disease-suppressing progeny, with a major focus on mice humanized with peripheral blood mononuclear cells or hematopoietic stem cells.

In addition, we enumerate the presence of, and clone autoantigen-specific T-cell specificities in patients with various autoimmune diseases.

KEYWORDS

Autoimmunity
Diabetes
Nanoparticle
Tolerance
T-cell development

RELATED DISEASES

Diabetes
Multiple sclerosis
Inflammatory bowel disease
Obesity
Systemic lupus erythematosus

Publications

Original articles	Mean IF	5,90
7	Q1	100%
	D1	43%
	MA	29%
	OA	57%
Others	Mean IF	7,80
1	Q1	100%
	D1	0%
	MA	100%
	OA	0%

IF = Impact Factor
MA = Main authorship (last or corresponding author)
OA = Open Access
Others includes reviews, editorials, clinical guidelines, letters and case reports

Selected active grants

Decision on optimal combinatorial therapies in imids using systems approaches.
European Commission.
CE_H2020-SC1_2019_2s
PI: Pere Santamaria

Nanomedicine for organ transplantation tolerance (Phoenix).
European Commission.
CE_HE_CH_22_2s22_RIA
PI: Pere Santamaria

Selected publications

Martín-Pérez C, Aguilar R, Jiménez A,... , García-Basteiro AL, Moncunill G, Dobaño C. **Correlates of protection and determinants of SARS-CoV-2 breakthrough infections 1 year after third dose vaccination**. *BMC Med.* 22(1):103. D1

Aguilar R, Jiménez A, Santano R, ... , Adriaensen W, Dobaño C, Moncunill G. **Malaria and other infections induce polyreactive antibodies that impact SARS-CoV-2 seropositivity estimations in endemic settings.** *J Med Virol.* 96(6):e29713. D1

Garnica J, Sole P, Yamanouchi J, ... , Fandos C, Serra P, Santamaria P. **T-follicular helper cells are epigenetically poised to transdifferentiate into T-regulatory type 1 cells.** *Elife.* 13:RP97665. D1

Peakman M, Santamaria P. **Autoantigen-Specific Immunotherapies for the Prevention and Treatment of Type 1 Diabetes.** *Cold Spring Harb Perspect Med.* 15(6):a041598. Q1

Montaño J, Garnica J, Yamanouchi J, ... , Serra P, Yang Y, Santamaria P. **Transcriptional re-programming of liver-resident iNKT cells into T-regulatory type-1-like liver iNKT cells involves extensive gene de-methylation.** *Front Immunol.* 9:15:1454314. Q1

3.22

Translational research in diabetes, lipids and obesity

Publications

Original articles	Mean IF	4,78
34	Q1	68%
	D1	21%
	MA	47%
	OA	65%
Others	Mean IF	5,58
9	Q1	100%
	D1	22%
	MA	44%
	OA	44%

IF = Impact Factor
MA = Main authorship (last or corresponding author)
OA = Open Access
Others includes reviews, editorials, clinical guidelines, letters and case reports

Directed PhD theses

2

- Alex Mesa
- Antonio Serés

Selected active grants

Decoding the paracrine control of metabolic fitness by endothelial nutrient signaling
Fundació Bancaria "La Caixa".
HealthRes21
PI: Josep Vidal

FIBROBETA: Optimización de la reprogramación de fibroblastos humanos a células productoras de insulina.
Agencia Estatal de Investigación.
AEI_PE22AEI_PE22
PI: Rosa Gasa

Selected publications

Pané A, Videla L, Calvet A, ... , Chiva-Blanch G, Fortea J, Jiménez A. **Hypothalamic Inflammation Improves Through Bariatric Surgery, and Hypothalamic Volume Predicts Short-Term Weight Loss Response in Adults With or Without Type 2 Diabetes.** *Diabetes Care.* 47(7):1162-1170. D1

Moize V, Laferrère B, Shapses S. **Nutritional Challenges and Treatment After Bariatric Surgery.** *Annu Rev Nutr.* 44(1):289-312. D1

Khoury N, Martínez MA, Nishi SK, ... , Fitó M, Babio N, Salas-Salvadó J. **Dietary intake of Perfluorooctanesulfonic acid (PFOS) and glucose homeostasis parameters in a non-diabetic senior population.** *Environ Int.* 186:108565. D1

Shyam S, Gómez-Martínez C, Ni J, ... , Babio N, Fitó M, Salas-Salvadó J. **COVID-19 and Cognitive Decline in Older Adults with High-Cardiovascular Risk: A Post Hoc Analysis.** *Aging Dis.* D1

García-Gavilán JF, Atzeni A, Babio N, ... , Tinahones FJ, Hu FB, Salas-Salvadó J. **Effect of 1-year lifestyle intervention with energy-reduced Mediterranean diet and physical activity promotion on the gut metabolome and microbiota: a randomized clinical trial.** *Am J Clin Nutr.* 119(5):1143-1154. D1

GROUP LEADER
Josep Vidal (HCB)

RESEARCH INTERESTS

Nutrition, obesity, diabetes, and cardiovascular disease: from epidemiology to mechanistic studies.

Detection of atherosclerosis: a road to personalized medicine in dyslipidemia and diabetes.

Monogenic forms of diabetes.

Impact of bariatric surgery on health.

Advanced therapies for type 1 diabetes. The artificial pancreas concept.

Hypoglycemia and its consequences in patients with diabetes.

Regenerative medicine strategies to treat beta cell deficiency in diabetes.

Advancing antigen-specific nanomedicines for the treatment of type 1 diabetes.

KEYWORDS
Diabetes
Pancreatic islet
Obesity
Hypercolesterolemia
Cardiovascular disease

RELATED DISEASES
Obesity
Type 1 diabetes mellitus
Type 2 diabetes mellitus
Familial hypercholesterolemia

4

CLINICAL AND EXPERIMENTAL NEUROSCIENCE

Annual scientific report 2024

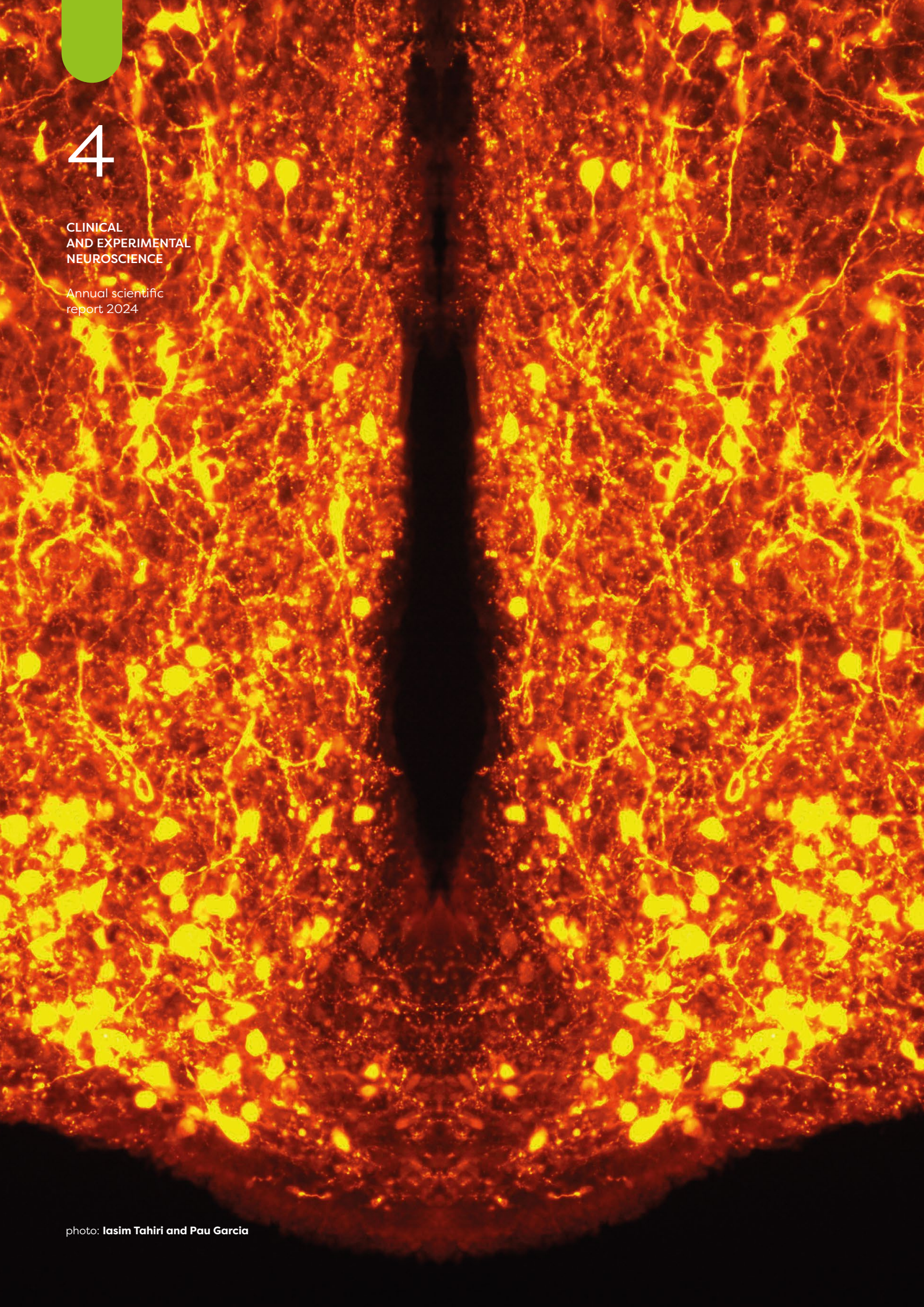


photo: **Iasim Tahiri and Pau Garcia**

AREA 4

CLINICAL AND EXPERIMENTAL NEUROSCIENCE

4.1 **Pathophysiology and treatment of neurodegenerative disorders**
Jordi Alberch

4.2 **Systems neuropharmacology**
Analía Bortolozzi

4.3 **Child and adolescent psychiatry and psychology**
Josefina Castro-Fornieles

4.4 **Cerebrovascular diseases**
Ángel Chamorro

4.5 **Theoretical neurobiology of cortical circuits**
Albert Compte

4.6 **Pathogenesis of autoimmune neuronal disorders**
Josep Dalmau

4.7 **Cortical circuit dynamics**
Jaime de la Rocha

4.8 **Inherited metabolic diseases and muscular disorders**
Glòria Garrabou

4.9 **Neurophysiology**
Xavier Gasull

4.10 **Clinical neurophysiology**
Alejandro Iranzo

4.11 **Neuropsychology**
Carme Junqué

4.12 **Advanced imaging in neuroimmunological diseases (ImaginEM)**
Sara Llufriu

4.13 **Clinical addictions**
Hugo López-Pelayo

4.14 **Parkinson disease and other neurodegenerative movement disorders: clinical and experimental research**
M. Josep Martí

4.15 **Schizophrenia**
Eduard Parellada

4.16 **Imaging of mood-and anxiety-related disorders (IMARD)**
Joaquim Radua

4.17 **Alzheimer's disease and other cognitive disorders**
Raquel Sanchez-Valle

4.18 **Systems neuroscience**
Mavi Sanchez-Vives

4.19 **Multimodal neuroimaging in high risk and early psychosis**
Gisela Sugranyes

4.20 **Neurobiology**
Ramon Trullàs

4.21 **Bipolar and depressive disorders**
Eduard Vieta

4.01

Pathophysiology and treatment of neurodegenerative disorders

GROUP LEADER
Jordi Alberch (UB)

RESEARCH INTERESTS

Neuronal connectivity in Huntington's disease and other basal ganglia disorders.
PI: Dr. Jordi Alberch

Epitranscriptomic regulation in brain disorders.
PI: Dr Veronica Brito

Stem cells and regenerative medicine.
PI: Dr. Josep M Canals

In vivo reprogramming during cortex development.
PI: Dr. Daniel del Toro

Glia-neuron crosstalk in Huntington's disease.
PI: Dr. Silvia Ginés

Neural plasticity in neurological and neuropsychiatric disorders.
PI: Dr. Albert Giralt

Monitoring and modulating neuronal circuitry in brain disorders.
PI: Dr. Mercè Masana

Kinases and phosphatases in neuronal function and dysfunction.
PI: Dr. Esther Pérez-Navarro

Neural Stem Cells and Brain Damage.
PI: Dr. Daniel Tornero

Probabilistic Machine Learning for Neuroscience In Silico Modeling.
PI: Dr. Jordi Abante

Functional Genomics of Neurodegenertive Diseases.
PI: Dr Eulàlia Martí

KEYWORDS

Neuronal dysfunction
Motor and cognitive alterations
Psychiatric disturbances
Neurodevelopment
Regenerative medicine

RELATED DISEASES

Huntington's disease
Alzheimer's disease
Chorea acanthocytosis
Stroke
Schizophrenia

Publications

Original articles	**Mean IF**	**9,05**
11	Q1	91%
	D1	45%
	MA	64%
	OA	100%
Others	**Mean IF**	**3,80**
1	Q1	0%
	D1	0%
	MA	100%
	OA	100%

IF = Impact Factor
MA = Main authorship (last or corresponding author)
OA = Open Access
Others includes reviews, editorials, clinical guidelines, letters and case reports

Directed PhD theses

1

- Genís Campoy

Selected active grants

Molecular interactions of guidance receptors acting in early cortical development.
Wellcome Discovery Awards.
UNS141550
PI: Daniel del Toro

Next Generation Glioma Treatments using Direct Light Therapy (GlioLighT).
European Commission. CE_HORIZON_PATHFINDEROPEN
PI: Merce Masana

Selected publications

Shen YR, Zaballa S, Bech X, ... , Klein R, Giralt A, del Toro D. **Expansion of the neocortex and protection from neurodegeneration by in vivo transient reprogramming.** *Cell Stem Cell.* 31(12):1741-1759.e8. D1

Herrero-Lorenzo M, Pérez-Pérez J, Escaramís G, ... , Kulisevsky J, Gámez-Valero A, Martí E. **Small RNAs in plasma extracellular vesicles define biomarkers of premanifest changes in Huntington's disease.** *J Extracell Vesicles.* 13(10):e12522. D1

Ballasch I, López-Molina L, Galán-Ganga M, ... , Arranz B, Canals JM, Giralt A. **Alterations of the IKZF1-IKZF2 tandem in immune cells of schizophrenia patients regulate associated phenotypes.** *J Neuroinflammation.* 21(1):326. D1

Pupak A, Rodríguez-Navarro I, Sathasivam K, ... , Vang-Ørom UA, Martí E, Brito V. **m6A modification of mutant huntingtin RNA promotes the biogenesis of pathogenic huntingtin transcripts.** *EMBO Rep.* 25(11):5026-5052. Q1

López-Molina L, Sancho-Balsells A, Al-Massadi O, ... , Arranz B, Girault JA, Giralt A. **Hippocampal Pyk2 regulates specific social skills: Implications for schizophrenia.** *Neurobiol Dis.* 194:106487. Q1

4.02

Systems neuropharmacology

GROUP LEADER

Analía Bortolozzi (IIBB-CSIC)

Publications

Original articles	**Mean IF**	**8,02**
6	Q1	100%
	D1	67%
	MA	17%
	OA	100%
Others	**Mean IF**	**12,25**
2	Q1	100%
	D1	50%
	MA	50%
	OA	100%

IF = Impact Factor
MA = Main authorship (last or corresponding author)
OA = Open Access
Others includes reviews, editorials, clinical guidelines, letters and case reports

Selected active grants

Depression and its treatment: Role of miRNAs in the anterior cingulate cortex, as peripheral biomarkers, and their targeted modulation by nano-tools as a promising antidepressant therapy (DemiRNApy).
Fundació la Marató de TV3.
Salut Mental_21
PI: Analía Bortolozzi

Mapping the ventromedial prefrontal cortex-raphe nuclei network underlying mood disorders in Parkinson's disease to identify novel therapeutic circuits (MoodPD).
Agencia Estatal de Investigación.
AEI_PI22
PI: Analía Bortolozzi

Selected publications

Bortolozzi A, Fico G, Berk M, ... , Kessing LV, Vieta E, Carvalho AF. **New Advances in the Pharmacology and Toxicology of Lithium: A Neurobiologically Oriented Overview.** *Pharmacol Rev.* 76(3):323-357. D1

Laguna A, Peñuelas N, Gonzalez-Sepulveda M, ... , Bortolozzi A, Carballo-Carbajal I, Vila M. **Modelling human neuronal catecholaminergic pigmentation in rodents recapitulates age-related neurodegenerative déficits.** *Nat Commun.* 15(1):8819. D1

Riga MS, Pérez-Fernández M, Miquel-Rio L, ... , Artigas F, Bortolozzi A, Álvarez-Dolado M. **Scn1a haploinsufficiency in the prefrontal cortex leads to cognitive impairment and depressive phenotype.** *Brain.* 147(12):4169-4184. D1

Sánchez-Fernández N, Gómez-Acero L, Castañé A, ... , Ferreira SG, Ciruela F, Aso E. **A combination of Δ9-tetrahydrocannabinol and cannabidiol modulates glutamate dynamics in the hippocampus of an animal model of Alzheimer's disease.** *Neurotherapeutics.* 21(5):e00439. D1

Miquel-Rio L, Sarriés-Serrano U, Sancho-Alonso M, ... , Campa L, Pilar-Cuéllar F, Bortolozzi A. **ER stress in mouse serotonin neurons triggers a depressive phenotype alleviated by ketamine targeting eIF2α signaling.** *iScience.* 27(5):109787. Q1

RESEARCH INTERESTS

The group studies brain circuits and synaptic processes involved in the pathophysiology and treatment of depression and Parkinson's disease.

The team employs innovative technologies ranging from molecular approaches and connectivity analysis (ephys, optogenetic, microdialysis) to neuroimaging and behavioral assessment in animal models, providing detailed insights into the functioning of neural circuits at different levels of complexity.

The group has extensive experience in the neuropharmacology of monoamine systems and is engaged to developing next- generation oligonucleotide-based therapies.

KEYWORDS

Brain circuits
Synaptic plasticity
Neuropsychopharmacology
RNA nanotherapies
Animal models

RELATED DISEASES

Major depressive disorder
Stress-related disorders
Parkinson's disease
Proteinopathies

4.03

Child and adolescent psychiatry and psychology

GROUP LEADER

Josefina Castro-Fornieles (HCB)

RESEARCH INTERESTS

Approximately between 15-25% of children and adolescents are diagnosed with a mental Health disorder psychiatric disorder.

The aim of our group is to promote clinical research and to collaborate with groups specializing in genetics, neuroimaging and neurobiology at national and international level in order to expand our understanding of the most severe psychiatric disorders in children and adolescents.

Thus our main research lines are: schizophrenia and affective disorders, anorexia nervosa and other eating disorders, obsessive-compulsive disorder and Tourette syndrome and autism spectrum disorders.

KEYWORDS

Child/adolescent psychopathology

RELATED DISEASES

Psychotic and affective disorders
Obsessive-compulsive disorder
Eating disorders
Autism spectrum disorder
Tourette syndrome

Publications

Original articles	Mean IF	6,96
39	Q1	87%
	D1	54%
	MA	33%
	OA	59%
Others	Mean IF	13,05
4	Q1	100%
	D1	100%
	MA	50%
	OA	25%

IF = Impact Factor
MA = Main authorship (last or corresponding author)
OA = Open Access
Others includes reviews, editorials, clinical guidelines, letters and case reports

Selected active grants

Biomarcadores multi-omics perfiféricos como predictores de evolución a largo plazo en el TOC: la cohorte TOC Barcelona (OCD-BC).
Instituto de Salud Carlos III (ISCIII).
FIS_PI22/00843
PI: Luisa Lázaro García

Clinical, cognitive, neuroimaging and epigenetic characteristics of the child and adolescent offspring of patients diagnosed with schizophrenia or bipolar disorder: a predictive model of psychopathology and functioning at ten-year follow-up.
Fundació La Marató de TV3.
SalutMental_21
PI: Josefina Castro-Fornieles

Selected publications

Camprodon-Boadas P, de la Serna E, Baeza I, ... , Andres-Perpina S, Sugranyes G, Castro-Fornieles J. **Psychometric properties of the Cognitive Reserve Questionnaire for Adolescents (CoRe-A).** *Rev Psiquiatr Salud Ment (Engl Ed).* 17(3):132-137. D1

Hermida-Barros L, Primé-Tous M, García-Delgar B, ... , Radua J, Lázaro L, Fullana MA. **Family accommodation in obsessive-compulsive disorder: An updated systematic review and meta-analysis.** *Neurosci Biobehav Rev.* 161:105678. D1

Segura AG, de la Serna E, Sugranyes G, ... , García-Rizo C, Mas S, Castro-Fornieles J. **Polygenic risk scores mediating functioning outcomes through cognitive and clinical features in youth at family risk and controls.** *Eur Neuropsychopharmacol.* 81:28-37. D1

Solerdelcoll M, Ilzarbe D, Fortea A, Morer A, Lazaro L, Sugranyes G, Baeza I. **Psychopathology and mental health service use among youth in foster care admitted to a psychiatric inpatient unit: a 4-year retrospective controlled study.** *Eur Child Adolesc Psychiatry.* 33(1):39-50. D1

Flamarique I, Pineda M, Tasa-Vinyals E, ... , Plana MT, Mora M, Castro-Fornieles J. **Blood Parameters in Children and Adolescents With Underweight and Atypical Anorexia Nervosa.** *Int J Eat Disord.* 58(1):171-180. D1

4.04

Cerebrovascular diseases

GROUP LEADER

Ángel Chamorro (HCB)

Publications

Original articles	**Mean IF**	**4,46**
25	Q1	60%
	D1	28%
	MA	48%
	OA	72%
Others	**Mean IF**	**5,53**
3	Q1	67%
	D1	33%
	MA	67%
	OA	100%

IF = Impact Factor
MA = Main authorship (last or corresponding author)
OA = Open Access
Others includes reviews, editorials, clinical guidelines, letters and case reports

Selected active grants

Optimización química de la embolectomía cerebral en pacientes con accidente cerebrovascular agudo tratados con trombectomía mecánica (ENSAYO CHOICE-2).
Instituto de Salud Carlos III (ISCIII).
FIS_ ICI22/00064
PI: Ángel Chamorro

Functional role of the diverse microglia and macrophage phenotypes in cerebrovascular diseases.
Ministerio de Ciencia e Innovación y Universidades.
MCIU_PID2023-150949OB-I00
PI: Anna M. Planas

Selected publications

Denes A, Hansen CE, Oezorhan U, ... , Planas AM, Engelhardt B, Schwaninger M. **Endothelial cells and macrophages as allies in the healthy and diseased brain.** *Acta Neuropathol.* 147(1):38. D1

Clancy U, Arteaga-Reyes C, Garcia DJ, ... , Job D, Doubal FN, Wardlaw JM. **Incident Infarcts in Patients With Stroke and Cerebral Small Vessel Disease: Frequency and Relation to Clinical Outcomes**. *Neurology*. 103(5):e209750. D1

Rodriguez-Luna D, Pancorbo O, Llull L, ... , Perez-Hoyos S, Chamorro A, Molina CA; RAINS Study Group. **Effects of Achieving Rapid, Intensive, and Sustained Blood Pressure Reduction in Intracerebral Hemorrhage Expansion and Functional Outcome.** *Neurology*. 102(9):e209244. D1

Santana D, Mosteiro A, Llull L, ... , Torné R, Amaro A, Chamorro A. **Stroke Unit as an alternative to Intensive Care Unit for initial hospital admission of low-grade non-aneurysmal subarachnoid haemorrhage: A safety and cost-minimisation análisis.** *Eur Stroke J.* 9(1):180-188. D1

Rodríguez-Vázquez A, Laredo C, Reyes L, ... , Torné R, Urra X, Chamorro A. **Computed tomography perfusion as an early predictor of malignant cerebral infarction.** *Eur Stroke J.* 10(1):172-180. D1

RESEARCH INTERESTS

Strokes are caused by a sudden interruption of brain blood flow due to the obstruction or rupture of a cerebral artery.

Despite progress in reopening large arteries, we need to improve capillary and tissue reperfusion and to promote brain recovery.

Moreover, we need novel treatments for brain and subarachnoid hemorrhages, cerebral small vessel disease arteriovenous malformations, and to prevent the contribution of cerebrovascular diseases to dementia.

Our group brings together clinical and basic researchers who study the underlying mechanisms and strategies for improving diagnosis and treatment.

KEYWORDS

Stroke
Mechanical thrombectomy
Blood-brain barrier
Neuroinflammation
Uric acid

RELATED DISEASES

Ischemic stroke
Cerebral small vessel disease
Brain hemorrhage
Arterio-venous malformations
Subarachnoid hemorrhage

4.05

Theoretical neurobiology of cortical circuits

GROUP LEADER
Albert Compte (IDIBAPS)

RESEARCH INTERESTS

Many neuropsychiatric disorders are associated with altered cognitive functions of the prefrontal cortex, such as working memory.

These alterations are subtle but highly debilitating, and still lack effective treatment. We study cognitive function in patients with autoimmune encephalitis or schizophrenia using behavioural testing, EEG and fMRI.

In parallel, we analyze data recorded in the cerebral cortex of animals while they perform working memory tasks. We aim to formulate computational models that link neural activity and cognitive function, and specify the neural bases of brain diseases.

KEYWORDS

Working memory
Prefrontal cortex
Neural network
NMDA receptor
Slow-wave sleep

RELATED DISEASES

Autoimmune encephalitis
Schizophrenia

Publications

Original articles	Mean IF	25,50
2	Q1	100%
	D1	50%
	MA	50%
	OA	50%
Others	Mean IF	0
0	Q1	0%
	D1	0%
	MA	0%
	OA	0%

IF = Impact Factor
MA = Main authorship (last or corresponding author)
OA = Open Access
Others includes reviews, editorials, clinical guidelines, letters and case reports

Selected active grants

Cognitive Neuroscience of Attention and Working Memory in Schizophrenia.
National Institutes of Health.
INT_NIH_R01MH065034
PI: Albert Compte

MEMHIST – La base neuronal de sesgos históricos en memoria de trabajo como componentes del aprendizaje estadístico.
Agencia Estatal de Investigación.
AEI_PE21
PI: Albert Compte

Selected publications

Muñoz-Lopetegi A, Guasp M, Prades L, ... , Gaig C, Santamaria J, Dalmau J; Spanish anti-LGI1 Encephalitis Study Group. **Neurological, psychiatric, and sleep investigations after treatment of anti-leucine-rich glioma-inactivated protein 1 (LGI1) encephalitis in Spain: a prospective cohort study.** *Lancet Neurol.* 23(3):256-266. D1

Mahrach A, Bestue D, Qi XL, Constantinidis C, Compte A. **Cholinergic Neuromodulation of Prefrontal Attractor Dynamics Controls Performance in Spatial Working Memory.** *J Neurosci.* 44(23):e1225 232024. Q1

4.06

Pathogenesis of autoimmune neuronal disorders

Publications

Original articles	Mean IF	7,89
32	Q1	88%
	D1	53%
	MA	28%
	OA	69%
Others	Mean IF	4,67
10	Q1	50%
	D1	20%
	MA	70%
	OA	20%

IF = Impact Factor
MA = Main authorship (last or corresponding author)
OA = Open Access
Others includes reviews, editorials, clinical guidelines, letters and case reports

Directed PhD theses

2

- Estibaliz Maude
- Amaia Muñoz

Selected active grants

Antibody-mediated NMDA receptor encephalitis: symptoms, biomarkers, and mechanisms of the prolonged recovery stage.
Fundació Bancaria "La Caixa".
HealthRes22-00221
PI: Josep Dalmau

Definición del papel de la interacción entre anticuerpos e inmunidad innata en la patogenia de la encefalitis por NMDAR.
Instituto de Salud Carlos III (ISCIII).
FIS_PI23/01366
PI: Marianna Spatola

Selected publications

Muñoz-Lopetegi A, Guasp M, Prades L, ... , Gaig C, Santamaria J, Dalmau J; Spanish anti-LGI1 Encephalitis Study Group. **Neurological, psychiatric, and sleep investigations after treatment of anti-leucine-rich glioma-inactivated protein 1 (LGI1) encephalitis in Spain: a prospective cohort study.** *Lancet Neurol.* 23(3):256-266. D1

Gelpi E, Reinecke R, Gaig C, ... , Graus F, Koneczny I, Höftberger R. **Neuropathological spectrum of anti-IgLON5 disease and stages of brainstem tau pathology: updated neuropathological research criteria of the disease-related tauopathy.** *Acta Neuropathol.* 148(1):53. D1

Alba-Arbalat S, Solana E, Lopez-Soley E, ... , Blanco Y, Sanchez-Dalmau B, Llufriu S. **Predictive value of retinal atrophy for cognitive decline across disease duration in multiple sclerosis.** *J Neurol Neurosurg Psychiatry.* 95(5):419-425. D1

Olivé-Cirera G, Bruijstens AL, Fonseca EG, ... , Saiz A, Dalmau J, Armangue T; Spanish Pediatric MOGAD Study Group. **MOG antibodies restricted to CSF in children with inflammatory CNS disorders.** *Neurology.* 102(7):e209199. D1

Maudes E, Jamet Z, Marmolejo L, Dalmau J, Groc L. **Positive allosteric modulation of NMDARs prevents the altered surface dynamics caused by patients' antibodies.** *Neurol Neuroimmunol Neuroinflamm.* 11(4):e200261

GROUP LEADER
Josep Dalmau (IDIBAPS-CaixaResearch Institute)

RESEARCH INTERESTS

The group studies autoimmune/-inflammatory brain diseases. This includes identifying novel diagnostic and prognostic biologic, genetic, immunologic, and neuroimaging biomarkers.

The group also aims to elucidate the underlying immunopathogenic disease mechanisms through studies that link immunological processes to abnormal neuronal function.

The research is carried out with patients in the clinic and in the laboratory with patient derived samples.

Techniques include immunocytochemistry, immunoprecipitation, animal model development, advanced neuroimaging and clinical trials.

KEYWORDS

Encephalitis
Paraneoplastic
Demyelination
Autoimmunity
Systems serology

RELATED DISEASES

Autoimmune encephalitis
Paraneoplastic disorders
Multiple sclerosis
Autoimmune sleep disorders
Immunotherapy side effects

4.07

Cortical circuit dynamics

GROUP LEADER

Jaime de la Rocha (IDIBAPS)

RESEARCH INTERESTS

Our goal is to understand the neural circuit mechanisms underlying a number of cognitive functions such as perception, decision making and working memory, and the alterations occurring in animal models of different brain disorders (e.g. NMDAr hypofunction).

We investigate these questions by combining finely-controlled behavioral tasks in rodents with electrophysiological recordings and optogenetic manipulation of neuronal activity. We also develop automated behavioural systems for deep behavioural phenotyping of murine models of brain disorders.

Finally, we use state-of-the-art statistical analysis and mathematical models to characterize behavior and simulate neural circuit dynamics.

KEYWORDS

Decision making
Working memory
Reinforcement learning
Neural circuit
Deep behavioural phenotyping

RELATED DISEASES

Schizophrenia
Anti-NMDAr encephalitis

Publications

Original articles		Mean IF	14,70
1		Q1	100%
		D1	100%
		MA	100%
		OA	100%

Others		Mean IF	0
0		Q1	0%
		D1	0%
		MA	0%
		OA	0%

IF = Impact Factor
MA = Main authorship (last or corresponding author)
OA = Open Access
Others includes reviews, editorials, clinical guidelines, letters and case reports

Selected active grants

The Mouse Village: a fully automated behavioral system for continuous social and cognitive testing.
European Commission.
CE_HE_ERC_2022_POC2
PI: Jaime de la Rocha

CRCNS: Circuit mechanisms of priors and learning during decision making.
National Institutes of Health.
INT_NIH_PAR-22-002
PI: Jaime de la Rocha

Selected publications

Molano-Mazón M, Garcia-Duran A, Pastor-Ciurana J, ... , Lombardo D, de la Rocha J, Hyafil A. **Rapid, systematic updating of movement by accumulated decision evidence.** *Nat Commun.* 15(1):10583. D1

4.08

Inherited metabolic diseases and muscular disorders

Publications

Original articles	Mean IF	4,65
37	Q1	65%
	D1	24%
	MA	27%
	OA	70%
Others	Mean IF	4,42
6	Q1	50%
	D1	33%
	MA	33%
	OA	17%

IF = Impact Factor
MA = Main authorship (last or corresponding author)
OA = Open Access
Others includes reviews, editorials, clinical guidelines, letters and case reports

Directed PhD theses

2

- Eulàlia Segur
- Eva María Valiño

Selected active grants

Phenylketonuria: from childhood to adults through brain functional connectomics, cardiovascular changes, metabolomic and intestinal microbiota characteristics.
Fundació La Marató de TV3.
Minoritaries_20
PI: Josep Maria Grau, Glòria Garrabou

OMICs technology and organoids to identify novel biomarkers and therapeutics in personalized medicine for sporadic inclusion body myositis.
Instituto de Salud Carlos III (ISCIII).
FIS_PI21/00935
PI: Glòria Garrabou

Selected publications

Pinal-Fernandez I, Muñoz-Braceras S, Casal-Dominguez M, ... , Selva-O'Callaghan A, Milisenda JC, Lee Mamme A. **Pathological autoantibody internalisation in myositis**. *Ann Rheum Dis.* 83(11):1549-1560. D1

Nates JL, Pène F, Darmon M, ... , Gradel KO, Azoulay E, Bauer PR; Nine-I Investigators. **Septic shock in the immunocompromised cancer patient: a narrative review.** *Crit Care.* 28(1):285. D1

Hidalgo-Gutierrez A, Shintaku J, Ramon J, ... , Ribes A, Tort F, Hirano M. **Guanylate Kinase 1 Deficiency: A Novel and Potentially Treatable Mitochondrial DNA Depletion/Deletions Disease.** *Ann Neurol.* 96(6):1209-1224. Q1

Giménez-Palomo A, Guitart-Mampel M, Meseguer A, ... , Vieta E, Garrabou G, Pacchiarotti I. **Reduced mitochondrial respiratory capacity in patients with acute episodes of bipolar disorder: Could bipolar disorder be a state-dependent mitochondrial disease?** *Acta Psychiatr Scand.* 149(1):52-64. Q1

Barroso S, Guitart-Mampel M, García-García FJ, ... , Martínez E, Lozano E, Garrabou G. **Metabolic, Mitochondrial, and Inflammatory Effects of Efavirenz, Emtricitabine, and Tenofovir Disoproxil Fumarate in Asymptomatic Antiretroviral-Naïve People with HIV.** *Int J Mol Sci.* 25(15):8418. Q1

GROUP LEADER
Glòria Garrabou (UB)

RESEARCH INTERESTS

To characterize the etiology of inherited metabòlic diseases and muscular disorders, identify biomarkers, and assess potential therapeutic targets, we combine advanced multiomics techniques (genomics, transcriptomics, proteomics, metabolomics, lipidomics) with last-generation functional studies (pathology, biochemistry, cell and molecular biology) and patient-derived models of disease (fibroblasts, iPSCs, CRISPR/Cas9 gene edited lines, 3D organoids and organ-on-a-chips).

We also participate in registries and clinical assays to bring new findings into the bed-side.

In alcoholic cardiomyopathy, chronic fatigue syndrome or fibromyalgia (of growing prevalence after COVID) and septic shock (important cause of death in intensive care units) we assess risk factors and involved underlying mechanisms.

KEYWORDS
Muscle
Metabolism and mitochondria
Cardiomyopathy
Chronic fatigue syndrome
Septic shock

RELATED DISEASES
Myositis
Metabolic and mitochondrial diseases
Cardiomyopathies
Central sensibilization syndrome
Sepsis

4.09

Neurophysiology

GROUP LEADER

Xavier Gasull (UB)

RESEARCH INTERESTS

To understand the molecular and functional bases of neuronal excitability, neuron-glia crosstalk and communication between neurons in normal and pathological conditions.

We are interested in:

1. Neuronal excitability and mechanisms of pain and itch.
2. Targeting peripheral mechanisms of pain in arthritis.
3. Glutamatergic signaling and synaptic modulation.
4. NMDA receptor pharmacology and neurodevelopmental disorders.
5. Microglia-Neuron communication in neurodegeneration.
6. Synaptic function in channelopathies.

KEYWORDS

Pain
Itch
Ion channels
Glutamate receptors
Microglia

RELATED DISEASES

Chronic pain and itch
Neurodevelopmental disorders
Alzheimer's disease
Ataxia
Channelopaties

Publications

Original articles	Mean IF	21,70
3	Q1	100%
	D1	67%
	MA	33%
	OA	33%
Others	Mean IF	3,90
1	Q1	0%
	D1	0%
	MA	0%
	OA	100%

IF = Impact Factor
MA = Main authorship (last or corresponding author)
OA = Open Access
Others includes reviews, editorials, clinical guidelines, letters and case reports

Directed PhD theses

2

- Silvia Locubiche
- Anna Pujol

Selected active grants

Ionic mechanisms underlying brain excitability: background K+ channels and potential therapeutic targets for hyperexcitability-dependent brain diseases (IONEXC).
Ministerio de Ciencia e Innovación.
MICINN_PID2023-148439OB-I00
PI: Xavier Gasull

Persistent pain in rheumatoid arthritis: Role of ASIC3 channel (AR-P3IN).
Ministerio de Ciencia e Innovación.
MICINN_PID2023-148332OA-I00
PI: Gerard Callejo

Selected publications

Juliá-Palacios N, Olivella M, Bondarenko MS, ... , Santos-Gómez A, Altafaj X, García-Cazorla A. **L-serine treatment in patients with GRIN-related encephalopathy: a phase 2A, non-randomized study.** *Brain.* 147(5):1653-1666. D1

Sánchez-Fernández N, Gómez-Acero L, Castañé A, ... , Ferreira SG, Ciruela F, Aso E. **A combination of Δ9-tetrahydrocannabinol and cannabidiol modulates glutamate dynamics in the hippocampus of an animal model of Alzheimer's disease.** *Neurotherapeutics.* 21(5):e00439. D1

Illescas S, Diaz-Osorio Y, Serradell A, ... , Artuch R, García-Cazorla A, Oyarzábal A. **Metabolic characterization of neurogenetic disorders involving glutamatergic neurotransmission.** *J Inherit Metab Dis.* 47(3):551-569. Q1

Puigdellívol M, Brown GC. **Stopping the aged brain from eating itself.** *Aging (Albany NY).* 16(9):7508-7510. Q2

4.10

Clinical neurophysiology

GROUP LEADER
Alejandro Iranzo (HCB)

RESEARCH INTERESTS

We evaluated the neurophysiological study of neurological diseases such as sleep disorders, epilepsy, pain, and dysautonomia.

Patients are studied with electrophysiological techniques such as electroencephalogram, polysomnography, evoked potentials, electromyogram, and autonomic reflexes.

This has allowed us to discover anti-IgLON5 disease, to demonstrate that REM sleep disorder is a synucleinopathy, to provide surgical and pharmacological solutions in epilepsy, and to demonstrate the involvement of subcortical motor systems in movement and position.

KEYWORDS

Neurophysiology
Sleep disorder
Epilepsy
Neuropatic pain
Motor control
Dysautonomia
Amyotrophic lateral sclerosis

RELATED DISEASES

Anti-IgLON5 disease
REM sleep behavior disorder
Epilepsy
Neuromuscular disorders
Neuropatic pain
Neuropathic pain
Dysautonomia

Publications

Original articles	Mean IF	8,57
27	Q1	70%
	D1	44%
	MA	37%
	OA	63%
Others	Mean IF	9,88
14	Q1	64%
	D1	14%
	MA	29%
	OA	29%

IF = Impact Factor
MA = Main authorship (last or corresponding author)
OA = Open Access
Others includes reviews, editorials, clinical guidelines, letters and case reports

Directed PhD theses

1

- Amaia Muñoz

Selected active grants

Detección del trastorno de conducta durante el sueño REM en futbolistas profesionales retirados como marcador de una sinucleinopatía latente.
Instituto de Salud Carlos III (ISCIII).
FIS_PI23/00592
PI: Alejandro Iranzo

Detección del trastorno de conducta durante el sueño REM en jugadores de rugby profesionales retirados como marcador de una sinucleinopatía latente.
Sociedad Española del Sueño.
SES_BECA24_01
PI: Gerard Mayà, Alejandro Iranzo

Selected publications

Nakaki A, Gomez Y, Castro-Barquero S, ... , Crispi F, Gratacos E, Crovetto F. **The Mediterranean Diet in Pregnancy: Implications for Maternal Brain Morphometry in a Secondary Analysis of the IMPACT BCN Randomized Clinical Trial.** *Nutrients.* 16(11):1604. D1

Iranzo A, Cochen De Cock V, Fantini ML, Pérez-Carbonell L, Trotti LM. **Sleep and sleep disorders in people with Parkinson's disease.** *Lancet Neurol.* 23(9):925-937. D1

Mayà G, Iranzo A, Gaig C, ... , Santamaria J, Gelpi E, Aldecoa I. **Post-mortem neuropathology of idiopathic rapid eye movement sleep behaviour disorder: a case series.** *Lancet Neurol.* 23(12):1238-1251. D1

Martín-Izquierdo I, Serradell M, Nadal B, Madurga I, Iranzo A. **Head impacts in elite professional football: a growing concern.** *Lancet Neurol.* 23(11):1083-1084. D1

Gaig C, Grüter T, Heidbreder A, ... , Dalmau J, Ayzenberg I, Graus F. **Development of a Composite Score for the Clinical Assessment of Anti-IgLON5 Disease.** *Neurology.* 102(7):e208101. D1

4.11

Neuropsychology

GROUP LEADER

Carme Junqué (UB)

RESEARCH INTERESTS

The group's research is targeted at improving and solving problems related to what is known as 'Health, ageing and disease'.

In recent years, the group has applied multimodal approaches that have enabled team members to increase their knowledge regarding changes in the structure and functional connectivity of the brain in relation with diverse phases of ageing and neurodegenerative diseases.

Members of the group also investigate the psychobiological bases of pain.

KEYWORDS

MRI
Connectome
Cognition
Brain plasticity
Pain

RELATED DISEASES

Mild cognitive impairment
Dementia
Parkinson's disease
REM sleep behavior disorder
Fibromyalgia

Publications

Original articles	**Mean IF**	**6,68**
32	Q1	75%
	D1	44%
	MA	28%
	OA	88%
Others	**Mean IF**	**7,17**
6	Q1	67%
	D1	33%
	MA	50%
	OA	67%

IF = Impact Factor
MA = Main authorship (last or corresponding author)
OA = Open Access
Others includes reviews, editorials, clinical guidelines, letters and case reports

Directed PhD theses

4

- Marta Ligero
- Lídia Mulet
- Ruben Perellón
- Alba Roca

Selected active grants

Clinical Audit Implementation in Europe - a practical and multidisciplinary approach (CLAUD-IT).
European Commission.
CE_EU4H_AG_23-PJ-05
PI: Nuria Bargalló

Cognitive and MRI neuroimaging markers to characterise the progression of prodromic Parkinson's Disease.
Ministerio de Ciencia e Innovación y Universidades.
MCIU_ PID2023-146932NB-I00
PI: Bàrbara Segura

Selected publications

Pardo J, Montal V, Campabadal A, ... , Fortea J, Junqué C, Segura B. **Cortical Macro- and Microstructural Changes in Parkinson's Disease with Probable Rapid Eye Movement Sleep Behavior Disorder**. *Mov Disord.* 39(5):814-824. D1

Oltra J, Segura B, Strafella AP, ... , Theis H, Uribe C, Junque C**. A multi-site study on sex differences in cortical thickness in non-demented Parkinson's disease.** *NPJ Parkinsons Dis.* 10(1):69. D1

Cabello-Toscano M, Vaqué-Alcázar L, Bayes-Marin I, ... , Tormos JM, Pascual-Leone A, Bartrés-Faz D. **Functional brain connectivity prior to the COVID-19 outbreak predicts mental health trajectories during two years of pandèmic.** *Psychiatry Clin Neurosci.* 78(4):262-264. Q1

Pérez-Millan A, Borrego-Écija S, Falgàs N, ... , Lladó A, Sala-Llonch R, Raquel Sánchez-Valle R. **Cortical thickness modeling and variability in Alzheimer's disease and frontotemporal dementia.** *J Neurol.* 271(3):1428-1438. Q1

Pardo J, Capdevila-Lacasa C, Segura B, ... , Garrabou G, Grau-Junyent JM, Junqué C; Consortium PKU.cat. **Volumetric brain reductions in adult patients with phenylketonuria and their relationship with blood phenylalanine levels.** *J Neurodev Disord.* 16(1):33. Q1

4.12

Advanced imaging in neuroimmunological diseases (ImaginEM)

GROUP LEADER
Sara Llufriu (HCB-IDIBAPS)

Publications

Original articles	Mean IF	6,41
19	Q1	84%
	D1	53%
	MA	16%
	OA	68%
Others	Mean IF	7,28
4	Q1	10%
	D1	50%
	MA	25%
	OA	75%

IF = Impact Factor
MA = Main authorship (last or corresponding author)
OA = Open Access
Others includes reviews, editorials, clinical guidelines, letters and case reports

Directed PhD theses

1

- Salut Alba

Selected active grants

A multimodal approach in neuroimaging to understand the mechanisms of tissue damage in multiple sclerosis and generate predictive models (daMoS).
Instituto de Salud Carlos III (ISCIII).
FIS_PI21/01189
PI: Sara Llufriu

Asociación de los niveles de GFAP y NFL en suero con el daño neuroaxonal y la progresión en la esclerosis múltiple.
Asociación Esclerosis Múltiple España.
EME_REEM_Proyect_23
PI: Sara Llufriu

Selected publications

Alba-Arbalat S, Solana E, Lopez-Soley E, ... , Blanco Y, Sanchez-Dalmau B, Llufriu S. **Predictive value of retinal atrophy for cognitive decline across disease duration in multiple sclerosis.** *J Neurol Neurosurg Psychiatry.* 95(5):419-425. D1

Cabrera-Maqueda JM, Sepulveda M, Ruiz-García R, ... , Juan M, Saiz A, Blanco Y. **CD19-Directed CAR T-Cells in a Patient With Refractory MOGAD: Clinical and Immunologic Follow-Up for 1 Year.** *Neurol Neuroimmunol Neuroinflamm.* 11(5):e200292. D1

Villoslada P, Solana E, Alba-Arbalat S, ... , Blanco Y, Llufriu S, Sanchez-Dalmau BF. **Retinal Damage and Visual Network Reconfiguration Defines Visual Function Recovery in Optic Neuritis.** *Neurol Neuroimmunol Neuroinflamm.* 11(6):e200288. D1

Vivó F, Solana E, Calvi A, ... , Saiz A, Llufriu S, Martinez-Heras E. **Microscopic fractional anisotropy outperforms multiple sclerosis lesion assessment and clinical outcome associations over standard fractional anisotropy tensor.** *Hum Brain Mapp.* 45(8):e26706. Q1

RESEARCH INTERESTS

Our group's main goal is to develop and apply neuroimage biomarkers for understanding physical and cognitive disabilities in multiple sclerosis (MS) patients. We aim to uncover MS causes, assess brain damage's impact on cognition and networks, and explore factors influencing disease progression.

Using advanced techniques like MRI, optic coherence tomography, and serum biomarkers, we develop effective predictors. Currently, we lead a clinical trial focused on tolerogenic dendritic cells for active MS.

Additionally, we study neurological disorders associated with antibodies, contributing to their understanding and management.

KEYWORDS
Multiple sclerosis
Magnetic resonance imaging
Biomarkers
Neuroimmunology
Cognition

RELATED DISEASES
Multiple sclerosis
NMO spectrum disorder
MOG antibody disease
Autoimmune encephalitis

4.13

Clinical addictions

GROUP LEADER

Hugo López-Pelayo (HCB)

RESEARCH INTERESTS

The study of epidemiology, prevention, and the costs associated with addictions aims to facilitate the translation of scientific findings into policy.

Another focus is the exploration of novel assessment and therapeutic tools for addictive disorders, including the development of new biomarkers. The third research area pertains to the therapeutic approach for patients with organic complications.

Solutions leveraging new technologies have been investigated across these three main research lines, with the ultimate goal of establishing a program for the integration of these technologies into everyday clinical practice.

KEYWORDS

Alcohol
Cannabis
Digital heath
Motivational interviewing
Brief Interventions

RELATED DISEASES

Substance use disorder
Alcohol use disorder
Cannabis use disorder
Nicotine use disorder
Alcohol related cognitive impairment

Publications

Original articles	Mean IF	3,72
18	Q1	33%
	D1	11%
	MA	33%
	OA	78%
Others	Mean IF	7,21
9	Q1	78%
	D1	67%
	MA	44%
	OA	33%

IF = Impact Factor
MA = Main authorship (last or corresponding author)
OA = Open Access
Others includes reviews, editorials, clinical guidelines, letters and case reports

Selected active grants

Piloting European Action on Cancer Health Determinants: Integrated cancer prevention through lifestyle risk factors - Adapting and operationalising the BRIEF approach.
European Commission.
CE_EU4H_AG_22-PJ-12
PI: Hugo López-Pelayo

Workforce in Addictions – Valorisation in Europe (WAVE).
European Commission.
CE_JUST- 2020- AG-DRU
PI: Hugo López-Pelayo

Selected publications

Gratacós-Ginès J, Bruguera P, Pérez-Guasch M, ... , Ginès P, López-Pelayo H, Pose E. **Medications for alcohol use disorder promote abstinence in alcohol-associated cirrhosis: Results from a systematic review and meta-analysis.** *Hepatology.* 79(2):368-379. D1

Oliveras C, Bruguera P, Cordero-Torres I, ... , Gual A, López-Pelayo H, Balcells-Oliveró M. E**ffects of alcohol-related problems on the costs of frequent emergency department use: an economic analysis of a case-control study in Spain.** *Front Public Health.* 12:1322327. Q2

Oliveras C, Bruguera P, Cordero Torres I, ... , Gual A, López-Pelayo H, Balcells-Oliveró M. **Another Round: Influence of Alcohol-Related Conditions and Other Drug Use-Related Disorders in Emergency Department Frequent Use - A Single-Site Matched Case-Control Study in Spain.** *Eur Addict Res.* 30(5):275-287. Q2

Oliveras C, Guzman Cortez PR, Nuno L, ... , Gual A, Balcells-Oliveró M, López-Pelayo H. **High-Risk Cannabis Use: A Proposal of an Operational Definition through Delphi Methodology for Scientific Consensus.** *Eur Addict Res.* 30(5):288-301. Q2

Andreu M, Balcells-Olivero M, Alcaraz N, ... , Bueno L, Gual A, Barrio P. **Destination Matters More: Relapse following Hospital-Based Treatment of Substance Use Disorders With and Without Co-Occurring Disorders.** *J Dual Diagn.* 20(2):111-121. Q3

4.14

Parkinson disease and other neurodegenerative movement disorders: clinical and experimental research

Publications

Original articles	Mean IF	7,66
24	Q1	79%
	D1	54%
	MA	17%
	OA	83%
Others	Mean IF	15,53
7	Q1	29%
	D1	29%
	MA	86%
	OA	14%

IF = Impact Factor
MA = Main authorship (last or corresponding author)
OA = Open Access
Others includes reviews, editorials, clinical guidelines, letters and case reports

Directed PhD theses

2

- Paloma Bravo
- Alicia Garrido

Selected active grants

Trap-MEDD: Translational Platform for MSA: Elucidation of Disease-mechanisms and Drug discovery.
European Commission.
CE_FLAG-ERA_21
PI: Yaroslau Compta

INMUNE-PRE-PD: "Explorando el papel inmune de LRRK2 en Parkinson premotor".
Instituto de Salud Carlos III (ISCIII).
FIS_ PI23/00661
PI: Ruben Fernandez-Santiago

Selected publications

Ma Y, Farris CM, Weber S, ... , Svenningsson P, Mollenhauer B, Concha-Marambio L. **Sensitivity and specificity of a seed amplification assay for diagnosis of multiple system atrophy: a multicentre cohort study.** *Lancet Neurol.* 23(12):1225-1237. D1

Cortés A, Phung TK, de Mena L, ... , Martí MJ, Ezquerra M, Fernández-Santiago R. **In-depth mass-spectrometry reveals phospho-RAB12 as a blood biomarker of G2019S LRRK2-driven Parkinson's disease.** *Brain.* 148(6):2075-2092. D1

Pérez-Oliveira S, Castilla-Silgado J, Painous C, ... , Sánchez-Valle R, Molina-Porcel L, Álvarez V. **Huntingtin CAG repeats in neuropathologically confirmed tauopathies: Novel insights.** *Brain Pathol.* 34(4):e13250. D1

Baun AM, Iranzo A, Terkelsen MH, ... , Tolosa E, Fristed Eskildsen S, Pavese N. **Cuneus atrophy and Parkinsonian phenoconversion in cognitively unimpaired patients with isolated REM sleep behavior disorder.** *J Neurol.* 272(1):59. Q1

Torres V, Pérez-Montesino J, Fernández-Santiago R, ... , Rios J, Valldeoriola F, Ezquerra M. **DRD4 gene polymorphism and impulse control disorder induced by dopamine agonists in Parkinson's disease.** *Ann Clin Transl Neurol.* 11(8):2222-2229. Q1

GROUP LEADER
M. Josep Martí (HCB)

RESEARCH INTERESTS

The group conducts in-depth clinical studies, develops clinical trials and engages in imaging, genetic, genomic, and biomarker studies related to Parkinson's disease and other movement disorders, such as atypical parkinsonisms, Huntington's disease and dystonia.

In addition, it conducts research on the initial stage of Parkinson's disease and in subjects at risk of developing this condition, when its motor symptoms have not yet appeared and neuroprotective therapies are still possible.

Cells models allow us to obtain information about the basic molecular processes and elucidate the genetic associations of these diseases.

KEYWORDS

Parkinson
Biomarkers
Neurodegeneration

RELATED DISEASES

Dystonia
PSP
Huntington
MSA
Ataxia

4.15

Schizophrenia

GROUP LEADER

Eduard Parellada (HCB-UB)

RESEARCH INTERESTS

In clinical research, the group develops longitudinal monitoring studies of initial psychotic episodes and identifies the factors involved and the determinants of their evolution.

This work entails analysing the clinical, neurocognitive, neurobiological, pharmacogenetic, neuroimaging and environmental correlates that condition the therapeutic response and the risk of relapse. The group also researches into new cognitive rehabilitation and neurostimulation techniques such as DBS (Deep Brain Stimulation), ECT (Electroconvulsive Therapy) and clinical trials using innovative drugs.

In translational research, at the recently created *Laboratory for Basic and Translational Research in Schizophrenia*, human biological samples (skin biopsy-derived fibroblasts, CSF and so on) and experimental models (animal or cellular) of schizophrenia are used to study the pathogenesis and biomarkers, and identify new therapeutic targets.

KEYWORDS

Schizophrenia
First episode psychosis
Translational Research
Human biological samples
Experimental models

RELATED DISEASES

Psychosis

Publications

Original articles	Mean IF	5,71
47	Q1	91%
	D1	45%
	MA	43%
	OA	70%
Others	Mean IF	9,59
9	Q1	67%
	D1	33%
	MA	78%
	OA	22%

IF = Impact Factor
MA = Main authorship (last or corresponding author)
OA = Open Access
Others includes reviews, editorials, clinical guidelines, letters and case reports

Directed PhD theses

2

- Àlex Gonzalez
- Andrea Mallorquí

Selected active grants

FARMacogenética aplicada para predecir la respuesta al tratamiento del primer episodio psicótico (Proyecto FARMAPRED-PEP).
Instituto de Salud Carlos III (ISCIII).
FIS_PMP21/00085
PI: Sergi Mas

Marcadores glutamatérgicos y respuesta antipsicótica inicial en pacientes con primer episodio psicótico (PEP) y en un modelo animal de esquizofrenia.
Instituto de Salud Carlos III (ISCIII).
FIS_PI21/00552
PI: Eduard Parellada, Patricia Gassó

Selected publications

Morén C. **Put people at the heart of schizophrenia research**. *Nature.* 630(8017):531. D1

Llorca-Bofí V, Petersen LV, Mortensen PB, Benros ME. **White blood cell counts, ratios, and C-reactive protein among individuals with schizophrenia spectrum disorder and associations with long-term outcomes: a population-based study.** *Brain Behav Immun.* 122:18-26. D1

Forte MF, Oliva V, de Prisco M, ... , Amoretti S, Mezquida G, Garcia-Rizo C. **Obstetric complications and psychopathology in schizophrenia: A systematic review and meta-analysis.** *Neurosci Biobehav Rev.* 167:105913. D1

Garcia-Rizo C, Bitanihirwe BKY. **Deciphering the impact of metabolic anomalies in relation to severe mental illness.** *Eur Neuropsychopharmacol.* 87:16-17. D1

Olivares-Berjaga D, Martínez-Pinteño A, Rodríguez N. **Effects of the PAM of mGluR2, JNJ-46356479, on brain apoptotic protein levels in a mouse model of schizophrenia.** *Prog Neuropsychopharmacol Biol Psychiatry.* 131:110955. D1

4.16

Imaging of mood- and anxiety-related disorders (IMARD)

GROUP LEADER

Joaquim Radua (IDIBAPS)

Publications

Original articles	**Mean IF**	**5,18**
47	Q1	89%
	D1	51%
	MA	23%
	OA	81%
Others	**Mean IF**	**6,10**
1	Q1	100%
	D1	100%
	MA	0%
	OA	0%

IF = Impact Factor
MA = Main authorship (last or corresponding author)
OA = Open Access
Others includes reviews, editorials, clinical guidelines, letters and case reports

Selected active grants

Neural correlates of functional rehabilitation for older-age bipolar disorder.
Instituto de Salud Carlos III (ISCIII).
FIS_PI22/00261
PI: Joaquim Radua

INHALE: Hábitos y trastorno obsesivo-compulsivo:una perspectiva conductual y clínica.
Agencia Estatal de Investigación.
AEI_PE22
PI: Miquel Àngel Fullana

Selected publications

Radua J, de Prisco M, Oliva V, Fico G, Vieta E, Fusar-Poli P. **Impact of air pollution and climate change on mental health outcomes: an umbrella review of global evidence**. *World Psychiatry*. 23(2):244-256. D1

Radua J, Koutsouleris N. **Ten Simple Rules for Using Machine Learning in Mental Health Research.** *Biol Psychiatry.* 96(7):511-513. D1

Fortea L, Ortuño M, de Prisco M, ... , Fullana MA, Vieta E, Radua J. **Atlas of Gray Matter Volume Differences Across Psychiatric Conditions: A Systematic Review With a Novel Meta-Analysis That Considers Co-Occurring Disorders.** *Biol Psychiatry.* 98(1):76-90. D1

Hermida-Barros L, Primé-Tous M, García-Delgar B, ... , Radua J, Lázaro L, Fullana MA. **Family accommodation in obsessive-compulsive disorder: An updated systematic review and meta-analysis.** *Neurosci Biobehav Rev.* 161:105678. D1

Fortea L, Solanes A, Pomarol-Clotet E, ... , Vieta E, Fullana MA, Radua J. **Coping behaviors to reduce anxiety and depressive symptoms: A prospective repeated assessment study.** *Span J Psychiatry Ment Health.* 18(1):42-50. Q1

RESEARCH INTERESTS

Mood and anxiety-related disorders are among the leading causes of disability, yet available treatments only help about half of those affected.

To contribute to better prevention and care, we aim to identify their brain mechanisms and find environmental and brain markers that may help predict the risk of developing them or the response to specific treatments.

To achieve these goals, we use neuroimaging techniques (such as brain magnetic resonance imaging), artificial intelligence techniques, and evidence synthesis methods.

KEYWORDS

Brain imaging
Machine learning
Mental health
Evidence synthesis
Precision psychiatry

RELATED DISEASES

Anxiety disorders
Bipolar disorders
Depression
Obsessive-compulsive disorder
Psychosis

4.17

Alzheimer's disease and other cognitive disorders

GROUP LEADER

Raquel Sánchez-Valle (HCB)

RESEARCH INTERESTS

Neurodegenerative dementias are one of the main causes of disability and death worldwide. The cause of these diseases in most patients are still unknown. An accurate diagnosis in the early phases is key for the optimal management of the disease.

To study epidemiology, clinical features and diagnostic and prognostic biomarkers in:

- Preclinical and early clinical phases of genetically determined dementias.
- Early-onset Alzheimer's disease
- Alzheimer's disease
- Dementia with Lewy bodies
- Frontotemporal dementia and PPA
- Prion diseases

Other aspects:

- Development and validation of cognitive assessment tools
- Pathophysiological mechanisms
- Translational neuropathology
- Role of the locus coeruleus and sleep disturbances
- Application of artificial intelligence and trajectory modelling
- Nursing care studies
- Clinical trials

KEYWORDS

Alzheimer's disease
Neurodegenerative dementias
Familial dementias
Fluid biomarkers
Neuroimaging
Epigenetics

RELATED DISEASES

Alzheimer's disease
Frontotemporal dementia
Primary progressive aphasia
Dementia with Lewy bodies
Prion diseases

Publications

Original articles	**Mean IF**	**10,57**
44	Q1	89%
	D1	68%
	MA	27%
	OA	84%
Others	**Mean IF**	**8,06**
9	Q1	89%
	D1	67%
	MA	33%
	OA	100%

IF = Impact Factor
MA = Main authorship (last or corresponding author)
OA = Open Access
Others includes reviews, editorials, clinical guidelines, letters and case reports

Directed PhD theses

1

- Núria Montagut

Selected active grants

DIAN-TU: Next generation prevention trial.
National Institutes of Health, USA.
INT_NIH_PA-16-160_3
PI: Raquel Sanchez-Valle

PREDICTFTD: Accelerating the Validation of Predictive Liquid Biomarkers for Frontotemporal Dementia Diagnosi Subclassification.
European Commission.
CE_HE_CH_23_1s19_RIA
PI: Raquel Sanchez-Valle

Selected publications

Borrego-Écija S, Pérez-Millan A, Antonell A, ... , Deierborg T, Boza-Serrano A, Ránchez-Valle R. **Galectin-3 is upregulated in frontotemporal dementia patients with subtype specificity.** *Alzheimers Dement.* 20(3):1515-1526. D1

Falgàs N, Peña-González M, Val-Guardiola A, ... , Muñoz-Moreno E, Grinberg LT, Sánchez-Valle R. **Locus coeruleus integrity and neuropsychiatric symptoms in a cohort of early- and late-onset Alzheimer's disease.** *Alzheimers Dement.* 20(9):6351-6364. D1

Borrego-Ecija S, Juncà-Parella J, Vandebergh M, ... , Rademakers R, Rohrer JD, Sánchez-Valle R; Genetic Frontotemporal Initiative (GENFI). **Association of Initial Side of Brain Atrophy With Clinical Features and Disease Progression in Patients With GRN Frontotemporal Dementia.** *Neurology.* 103(11):e209944. D1

Pérez-Millan A, Borrego-Écija S, Falgàs N, ... , Lladó A, Sala-Llonch R, Sánchez-Valle R. **Cortical thickness modeling and variability in Alzheimer's disease and frontotemporal dementia.** *J Neurol.* 271(3):1428-1438. Q1

Sarto J, Esteller-Gauxax D, Tort-Merino A, ... , Sánchez-Valle R, Lladó A, Balasa M. **Impact of demographics and comorbid conditions on plasma biomarkers concentrations and their diagnostic accuracy in a memory clinic cohort.** *J Neurol.* 271(4):1973-1984. Q1

4.18

Systems neuroscience

GROUP LEADER

Mavi Sanchez-Vives (ICREA-IDIBAPS)

RESEARCH INTERESTS

The mechanistic underpinnings of brain states and the transitions between them in healthy and disease states; the investigation of the basis of conscious experience and cerebral cortex neuromodulation.

The group has also an interest in virtual reality as a tool for neurological research and therapeutic applications in pain and rehabilitation.

KEYWORDS

Slow oscillations
Brain rhythms
Consciousness
Computation
Virtual reality

RELATED DISEASES

Disorders of consciousness and epilepsy
Traumatic brain injury (TBI)
Stroke
Pain
Orthopedic and neurological rehabilitation

Publications

Original articles	Mean IF	4,43
9	Q1	67%
	D1	0%
	MA	44%
	OA	89%
Others	Mean IF	4,91
7	Q1	43%
	D1	14%
	MA	71%
	OA	86%

IF = Impact Factor
MA = Main authorship (last or corresponding author)
OA = Open Access
Others includes reviews, editorials, clinical guidelines, letters and case reports

Directed PhD theses

1 • Joana Rita Capela

Selected active grants

NEMESIS: NEurological MEchanismS of Injury, and Sleep-like cellular Dynamics.
European Commission.
CE_HE_ERC_2022_SyG
PI: Mavi Sanchez-Vives

META-BRAIN: MagnetoElectric and Ultrasonic Technology for Advanced BRAIN modulation.
European Commission.
CE_HE_PathOPEN_23
PI: Mavi Sanchez-Vives

Selected publications

Massimini M, Corbetta M, Sanchez-Vives MV, ... , Deco G, Rosanova M, Sarasso S. **Sleep-like cortical dynamics during wakefulness and their network effects following brain injury.** *Nat Commun.* 15(1):7207. D1

Camassa A, Barbero-Castillo A, Bosch M, ... , Villa R, Guimerà-Brunet A, Sanchez-Vives MV. **Chronic full-band recordings with graphene microtransistors as neural interfaces for discrimination of brain states**. *Nanoscale Horiz.* 9(4):589-597. Q1

Cancino-Fuentes N, Manasanch A, Covelo J, ... , Illa X, Guimerà-Brunet A, Sanchez-Vives MV. **Recording physiological and pathological cortical activity and exogenous electric fields using graphene microtransistor arrays in vitro.** *Nanoscale.* 16(2):664-677. Q1

Idesis S, Patow G, Allegra M, ... , Massimini M, Corbetta M, Deco G. **Whole-brain model replicates sleep-like slow-wave dynamics generated by stroke lesions.** *Neurobiol Dis.* 200:106613. Q1

Combalia A, Sanchez-Vives MV, Donegan T. **Immersive virtual reality in orthopaedics-a narrative review.** *Int Orthop.* 48(1):21-30. Q2

4.19

Multimodal neuroimaging in high risk and early psychosis

GROUP LEADER

Gisela Sugranyes (HCB-IDIBAPS)

RESEARCH INTERESTS

The main interest of our group is understanding the changes taking place in the brain before the onset of a psychotic disorder, in order to identify potential biomarkers with translational application.

To this end we longitudinally evaluate youth at high risk for the disease alongside patients with a recent onset of a disorder, in comparison with healthy participants and with human and animal models of disease.

We measure brain structure, function and levels of neurometabolites using magnetic resonance imaging over time, and assess their relationship with clinical and cognitive phenotype.

We also measure blood-based (genetic, epigenetic, inflammatory, hormonal) and environmental variables, in order to understand their contribution to the changes observed in the brain.

KEYWORDS

Psychosis
Brain imaging
Adolescence

RELATED DISEASES

Psychosis
Schizophrenia
Bipolar disorders
NMDA receptor encephalitis

Publications

Original articles	Mean IF	7,65
22	Q1	91%
	D1	55%
	MA	27%
	OA	73%
Others	Mean IF	5,10
3	Q1	100%
	D1	67%
	MA	67%
	OA	0%

IF = Impact Factor
MA = Main authorship (last or corresponding author)
OA = Open Access
Others includes reviews, editorials, clinical guidelines, letters and case reports

Selected active grants

Imaging glutamatergic transmission and its brain structural and functional correlates during the neurodevelopmental pathway leading to schizophrenia: from rodents to humans.
Fundació la Marató de TV3.
SalutMental_21
PI: Gisela Sugranyes

Running in the FAMILY - Understanding and predicting the intergenerational transmission of mental illness.
European Commission.
CE_HE_CH_21_1s21_RIA
PI: Gisela Sugranyes

Selected publications

Haas SS, Ge R, Agartz I, ... , Kahn RS, Corcoran CM, Frangou S; ENIGMA Clinical High Risk for Psychosis Working Group. **Normative Modeling of Brain Morphometry in Clinical High Risk for Psychosis.** *JAMA Psychiatry.* 81(1):77-88. D1

Fortea A, van Eijndhoven P, Calvet-Mirabent A, ... , Stephan-Otto C, Baeza I, Sugranyes G. **Age-related change in cortical thickness in adolescents at clinical high risk for psychosis: a longitudinal study.** *Eur Child Adolesc Psychiatry.* 33(6):1837-1846. D1

Masias-Bruns M, Ramirez-Mahaluf JP, Valli I, ... , Piella G, Castro-Fornieles J, Sugranyes G. **Altered Temporal Dynamics of Resting-State Functional Magnetic Resonance Imaging in Adolescent-Onset First-Episode Psychosis.** *Schizophr Bull.* 50(2):418-426. Q1

Camprodon-Boadas P, de Prisco M, Rabelo-da-Ponte FD, ... , Vieta E, de la Serna E, Amoretti S. **Cognitive reserve and cognition in mood disorders: A systematic review and meta-analysis.** *Psychiatry Res.* 339:116083. Q1

Coll-Vinent B, Sugranyes G. **Sex and gender need to be integrated into emergency medicine: recommendations for research and clinical practice.** *Eur J Emerg Med.* 31(6):373-375. Q1

4.20

Neurobiology

GROUP LEADER

Ramon Trullàs (IIBB-CSIC)

Publications

Original articles	**Mean IF**	**5,02**
5	Q1	60%
	D1	20%
	MA	40%
	OA	100%
Others	**Mean IF**	**6,00**
1	Q1	100%
	D1	0%
	MA	100%
	OA	100%

IF = Impact Factor
MA = Main authorship (last or corresponding author)
OA = Open Access
Others includes reviews, editorials, clinical guidelines, letters and case reports

Selected active grants

Validación de biomarcadores líquidos y de imagen para el diagnóstico de la demencia con cuerpos de Lewy prodrómica.
Instituto de Salud Carlos III (ISCIII).
PMP22/00100
PI: Ramon Trullàs

Common Mitochondrial DNA Deletions as a Peripheral Marker of Parkinson's Disease. PI Julia Fitzgerald.
Michael J. Fox Foundation for Parkinson. INT_MJFF-021147
PI: Ramon Trullàs

Selected publications

Puigròs M, Calderon A, Martín-Ruiz D, ... , Tolosa E, Iranzo A, Trullas R. **Mitochondrial DNA deletions in the cerebrospinal fluid of patients with idiopathic REM sleep behaviour disorder.** *EBioMedicine*. 102:105065. D1

Abadin X, de Dios C, Zubillaga M, ... , Trullas R, Colell A, Roca-Agujetas V. **Neuroinflammation in Age-Related Neurodegenerative Diseases: Role of Mitochondrial Oxidative Stress.** *Antioxidants (Basel).* 13(12):1440. Q1

García-García E, Carreras-Caballé M, Coll-Manzano A, ... , Alberch J, Masana M, Rodríguez MJ. **Preserved VPS13A distribution and expression in Huntington's disease: divergent mechanisms of action for similar movement disorders?** *Front Neurosci.* 18:1394478. Q2

Alves VC, Figueiro-Silva J, Trullas R, Ferrer I, Carro E. **Olfactory Receptor OR2K2 Expression in Human Choroid Plexus as a Potential Marker in Early Sporadic Alzheimer's Disease.** *Genes (Basel).* 15(3):385. Q2

RESEARCH INTERESTS

Our research starts from the hypothesis that a cellular energy deficit produced by a dysfunction of mitochondrial DNA turnover is an early causal factor in various neurodegenerative diseases.

To identify the primary molecular mechanisms of neurodegeneration, we investigate the release of mitochondrial DNA as a biomarker of the early stages of neurodegeneration and the relationship between neuronal function and mitochondrial DNA dynamics in genetic models of neurodegenerative diseases.

We also investigate mitochondria-nucleus communication pathways that are involved in the clearance of dysfunctional mitochondria and misfolded proteins.

KEYWORDS

Mitochondrial DNA
Mitophagy
Neurodegeneration
Neuroinflammation
Necroptosis

RELATED DISEASES

Alzheimer's disease
Parkinson's disease

4.21

Bipolar and depressive disorders

GROUP LEADER

Eduard Vieta (HCB)

RESEARCH INTERESTS

Our team is involved in clinical trials to evaluate the efficacy and safety of several pharmacological agents and novel psychological interventions for the treatment of affective disorders. In this regard, early intervention and Precision Psychiatry are critical *paradigms* for improving disease outcomes.

In addition, the research team has developed new clinical scales for the screening of affective disorders and the assessment of cognitive impairment and functioning.

During the last decade, our team have pioneered the development, evaluation, and implementation in clinical practice of diverse digital technologies.

KEYWORDS

Bipolar disorder
Depression
Neurocognition
Suicide prevention

RELATED DISEASES

Bipolar disorder
Depressive disorder
Addictions
Postnatal depression
Anxiety disorders

Publications

Original articles	Mean IF	5,97
110	Q1	79%
	D1	33%
	MA	37%
	OA	75%
Others	Mean IF	5,83
42	Q1	81%
	D1	55%
	MA	62%
	OA	31%

IF = Impact Factor
MA = Main authorship (last or corresponding author)
OA = Open Access
Others includes reviews, editorials, clinical guidelines, letters and case reports

Directed PhD theses

3

- Giovanna Fico
- Anna Gimenez
- Susana Gomes

Selected active grants

MoodMon: AI-driven patient monitoring tool for improved treatment of chronic affective disorders.
European Commission.
CE_EIT_Inn_Flag24
PI: Eduard Vieta, Diego Alberto Hidalgo

Psych-STRATA - A Stratified Treatment Algorithm in Psychiatry: A program on stratified pharmacogenomics in severe mental illness.
European Commission.
CE_HE_CH_21_1s21_RIA
PI: Eduard Vieta

Selected publications

Oliva V, Possidente C, de Prisco M, ... , Radua J, Vieta E, Serretti A. **Pharmacological treatments for psychotic depression: a systematic review and network meta-analysis.** *Lancet Psychiatry.* 11(3):210-220. D1

Garcia-Ruiz B, Jiménez E, Aranda S, ... , Pomarol-Clotet E, Vieta E, Vilella E. **Associations of altered leukocyte DDR1 promoter methylation and childhood trauma with bipolar disorder and suicidal behavior in euthymic patients.** *Mol Psychiatry.* 29(8):2478-2486. D1

de Prisco M, Tapoi C, Oliva V, ... , Macellaro M, Vieta E, Fico G. **Clinical features in co-occuring obsessive-compulsive disorder and bipolar disorder: A systematic review and meta-analysis.** *Eur Neuropsychopharmacol.* 80:14-24. D1

Clougher D, Forte MF, Mezquida G, ... , Cuesta MJ, Bernardo M, Amoretti S; PEPs group. **Emotional intelligence and neurocognition profiles in first-episode psychosis: A two-year follow-up study.** *Eur Neuropsychopharmacol.* 85:66-77. D1

Fares-Otero NE, Verdolini N, Melero H, ... , Arango C, Díaz-Caneja CM, Radua J. **Triangulating the associations of different types of childhood adversity and first-episode psychosis with cortical thickness across brain regions.** *Psychol Med.* 16:1-14. D1

5

CANCER

Annual scientific
report 2024

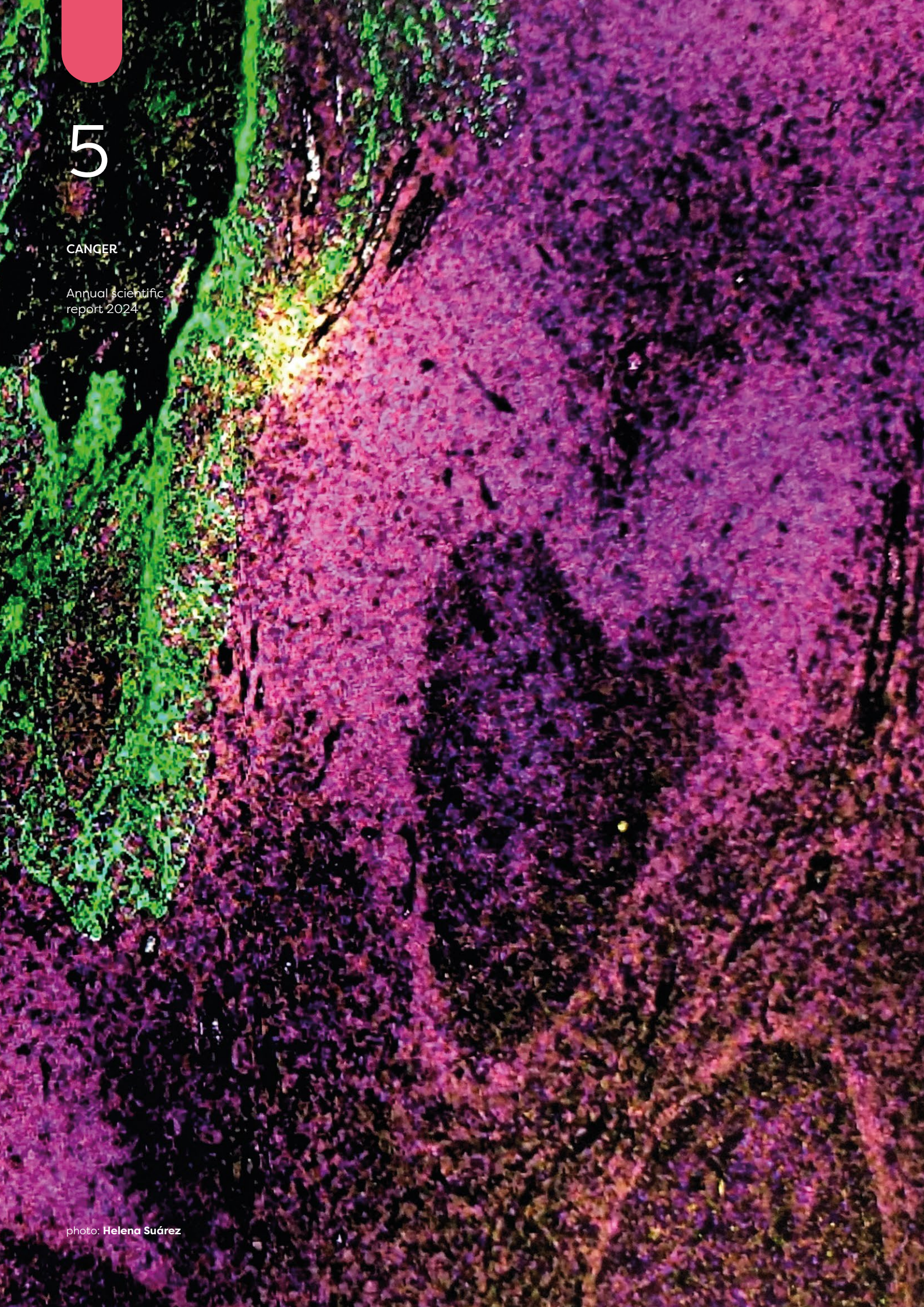


photo: **Helena Suárez**

AREA 5

CANCER

5.1 **Tumor microenvironment plasticity and heterogeneity (TMHet)**
Silvia Affò

5.2 **Signal transduction, intracellular compartments and cancer**
Neus Agell

5.3 **Genetics and urological tumors**
Antonio Alcaraz

5.4 **Functional characterization of oncogenic mechanisms in lymphomagenesis**
Virginia Amador

5.5 **Molecular pathology of lymphoid neoplasms**
Elías Campo

5.6 **Translational colorectal cancer genomics**
Jordi Camps

5.7 **Gastrointestinal and pancreatic oncology**
Antoni Castells

5.8 **Genetic predisposition to gastrointestinal cancer**
Sergi Castellví-Bel

5.9 **Experimental therapies in lymphoid neoplasms**
Dolors Colomer

5.10 **Molecular pathology of inflammatory conditions and solid tumours**
Miriam Cuatrecasas

5.11 **Myeloid neoplasms**
Jordi Esteve

5.12 **Myeloma, amyloidosis, macroglobulinemia and other gammopathies**
Carlos Fernández de Larrea

5.13 **Gene therapy and cancer**
Cristina Fillat

5.14 **Cellular immunotherapies for cancer**
Sònia Guedan

5.15 **Translational research in hepatic oncology**
Josep M. Llovet

5.16 **Lymphoid neoplasms**
Armando López Guillermo

5.17 **Biomedical epigenomics**
José Ignacio Martín-Subero

5.18 **Hepatocellular signaling and cancer**
Albert Morales

5.19 **Microenvironment in lymphoma pathogenesis and therapy**
Patricia Pérez-Galán

5.20 **Gene regulation in stem cells, cell plasticity, differentiation, and cancer**
Antonio Postigo

5.21 **Translational genomics and targeted therapies in solid tumours**
Aleix Prat

5.22 **Melanoma: imaging, genetics and immunology**
Susana Puig

5.23 **Hepatic oncology (BCLC)**
Maria Reig

5.24 **Molecular genetics of paediatric lymphomas**
Itziar Salaverria

5.25 **Hematopoietic progenitor cell transplantation**
Álvaro Urbano-Ispizua

5.01

Tumor microenvironment plasticity and heterogeneity (TMHet)

GROUP LEADER

Silvia Affò (IDIBAPS)

RESEARCH INTERESTS

Our research aims to investigate the functional role, plasticity, and heterogeneity of the tumor microenvironment (TME) in solid tumors characterized by exacerbated desmoplastic stroma, with an accumulation of cancer-associated fibroblasts (CAF).

To explore the dynamics of CAF transcriptomic and functional heterogeneity during carcinogenesis, and to evaluate their potential in combined therapies, with our research we aim to integrate single-cell and spatial transcriptomics with biocomputational analysis, *in-vitro and in-vivo* experimental models.

KEYWORDS

Tumor microenvironment
Cancer-associated fibroblasts
Tumor heterogeneity
Tumor plasticity
Hepatic stellate cells

RELATED DISEASES

Liver fibrosis
Liver tumors
Cholangiocarcinoma
Liver metastases
Desmoplastic tumors

Publications

Original articles	Mean IF	0
0	Q1	0%
	D1	0%
	MA	0%
	OA	0%
Others	Mean IF	7,90
2	Q1	50%
	D1	50%
	MA	50%
	OA	50%

IF = Impact Factor
MA = Main authorship (last or corresponding author)
OA = Open Access
Others includes reviews, editorials, clinical guidelines, letters and case reports

Selected active grants

Deciphering the dynamic-plasticity and heterogeneity of cancer-associated fibroblasts.
European Commission.
CE_HE_ERC_2022_StG
PI: Silvia Affò

Investigación de las interacciones entre células cancerosas heterogéneas y microambiente tumoral para el desarrollo de nuevas estrategias terapéuticas en el colangiocarcinoma.
Agencia Estatal de Investigación.
AEI_PE21
PI: Silvia Affò

Selected publications

Cantallops Vila P, Ravichandra A, Agirre Lizaso A, Perugorria MJ, Affo S. **Heterogeneity, crosstalk, and targeting of cancer-associated fibroblasts in cholangiocarcinoma.** *Hepatology*. 79(4):941-958. D1

Ros-Buxo M, Mauro E, Sauri T, ... , Sererols-Vinas L, Affo S, Forner A. **Integrating Molecular Insights into Biliary Tract Cancer Management: A Review of Personalized Therapeutic Strategies.** *Current Oncology.* 31(7):3615-3629. Q2

5.02

Signal transduction, intracellular compartments and cancer

GROUP LEADER
Neus Agell (UB)

Publications

Original articles	Mean IF	5,53
3	Q1	100%
	D1	0%
	MA	67%
	OA	100%
Others	Mean IF	0
0	Q1	0
	D1	0
	MA	0
	OA	0

IF = Impact Factor
MA = Main authorship (last or corresponding author)
OA = Open Access
Others includes reviews, editorials, clinical guidelines, letters and case reports

Directed PhD theses

1

- Baraa Abuasaker

Selected active grants

Papel de KRAS y su fosforilacion en la organizacion epitelial, Invasion y biogenesis de exosomas de celulas del cancer colorectal.
Agencia Estatal de Investigación.
AEI_PID2022-138728OB-I00
PI: Neus Agell

Study of novel biomarkers for CIN-targeted breast cancer therapy (CALIBRATE).
Asociación Española Contra el Cáncer (AECC)
PI: Caroline Mauvezin

Selected publications

Sanz-Villafruela J, Bermejo-Casadesus C, Zafon E, ... , Tebar F, Espino G, Massaguer A. **Insights into the anticancer photodynamic activity of Ir(III) and Ru(II) polypyridyl complexes bearing β-carboline ligands.** *European Journal of Medicinal Chemistry*. 276:116618. Q1

Pons C, Mauvezin C. **QATS: an ImageJ plugin for the quantification of toroidal nuclei in biological images.** *Bioinformatics.* 40(1):btae026-btae026. Q1

Lorite NP, Apostolova S, Guasch-Vallés M, ... , Taylor EM, Colomina N, Torres-Rosell J. **Crucial role of the NSE1 RING domain in Smc5/6 stability and FANCM-independent fork progression.** *Cellular and Molecular Life Sciences.* 81(1):251. Q1

RESEARCH INTERESTS

Our primary goal is to develop new strategies to prevent the onset, growth, and spread of tumor cells.

Additionally, we seek to o understand endolysosomal homeostasis and interactions in both health and disease contexts.

Specifically, our research focuses on understanding [1] DNA replication control mechanisms, [2] the functioning of Ras family proteins, [3] how mitotic autophagy controls genomic stability, [4] extracellular vesicle, including exosomes, contribution in the pathogenesis of cancer and other disorders, and [5] the cellular organelle interaction in lysosomal storage diseases.

KEYWORDS

RAS and RAC family of GTPases
Chromosomal instability
Cell cycle checkpoints
Exosomes
Cellular cholesterol regulation

RELATED DISEASES

Cancer
Parkinson's disease
Niemann Pick disease type C

5.03

Genetics and urological tumors

GROUP LEADER

Antonio Alcaraz (HCB)

RESEARCH INTERESTS

Current diagnostic techniques for urological cancers are invasive and/or non-sensitive enough.

Moreover, existing prognostic factors for these tumors are not able to accurately determine patients who will recur after local treatments and patients who are cured.

Our research group is focused on identifying non-invasive biomarkers with high diagnostic performance and accurate prognostic biomarkers for tumor monitoring and prediction of treatment response.

The stablishment of such biomarkers in clinical routine would be a great step forward in uro-oncological clinical practice.

KEYWORDS

Uro-oncology
Biomarkers
Genetics and molecular biology
Liquid biopsy
Translational research

RELATED DISEASES

Bladder cancer
Prostate cancer
Renal cancer
Upper urinary tract tumors

Publications

Original articles	Mean IF	3,91
18	Q1	67%
	D1	17%
	MA	56%
	OA	72%
Others	Mean IF	0
0	Q1	0%
	D1	0%
	MA	0%
	OA	0%

IF = Impact Factor
MA = Main authorship (last or corresponding author)
OA = Open Access
Others includes reviews, editorials, clinical guidelines, letters and case reports

Selected active grants

A multimodal AI-based toolbox and an interoperable health imaging repository for the empowerment (INCISIVE).
European Commission.
CE_H2020_SC1_20_1s13
PI: Antonio Alcaraz

Monitorización de la progresión tumoral y la respuesta terapéutica en pacientes con cáncer de vejiga músculo-invasivo mediante biopsia líquida.
Instituto de Salud Carlos III (ISCIII).
FIS_PI20/00409
PI: Lourdes Mengual, Laura Izquierdo

Selected publications

Padulles B, Carrasco R, Ingelmo-Torres M, ... , Mengual L, Izquierdo L, Alcaraz A. **Prognostic Value of Liquid-Biopsy-Based Biomarkers in Upper Tract Urothelial Carcinoma.** *International Journal of Molecular Sciences.* 25(7):3695. Q1

Carbonell E, Mercader C, Alfambra H, ..., Alcaraz A, Ribal MJ, Vilaseca A. **The Role of Bladder-Washing Cytology as an Adjunctive Method to Cystoscopy During Follow-Up for Low-Grade TaT1 Non-Muscle-Invasive Bladder Cancer.** *Cancers.* 16(21):3708. Q1

Montagud-Marrahi E, Cuadrado-Payan E, Campistol JM, ... , Marrero R, Fundora Y, Larque AB. **Ex vivo normothermic preservation of a kidney graft from uncontrolled donation after circulatory death over 73 hours.** *Frontiers in Bioengineering and Biotechnology.* 11:1330043. Q1

Amseian G, Figueras M, Mases J, ... , Alcaraz A, Izquierdo L, Paredes P. **cfDNA fragmentation patterns correlate with tumor burden measured via PSMA PET/CT volumetric parameters in patients with biochemical recurrence of prostate cancer.** *EJNMMI Research.* 14(1):124. Q1

Figueras M, Mengual L, Ingelmo-Torres M, ... , Ribal MJ, Izquierdo L, Alcaraz A. **Role of Liquid Biopsy in Progressive PSA Patients after Radical Prostatectomy.** *Diagnostics.* 14(20):2293. Q1

5.04

Functional characterization of oncogenic mechanisms in lymphomagenesis

GROUP LEADER

Virginia Amador (IDIBAPS)

Publications

Original articles	Mean IF	15,33
3	Q1	100%
	D1	67%
	MA	67%
	OA	100%
Others	Mean IF	0
0	Q1	0%
	D1	0%
	MA	0%
	OA	0%

IF = Impact Factor
MA = Main authorship (last or corresponding author)
OA = Open Access
Others includes reviews, editorials, clinical guidelines, letters and case reports

Selected active grants

New therapeutic strategies for aggressive mantle cell lymphoma: targeting cancer stem cells and immunecheckpoints.
Agencia Estatal de Investigación.
AEI_PE21
PI: Virginia Amador

Selected publications

Sureda-Gomez M, Iaccarino I, de Bolos A, ... , Siebert R, Amador V, Klapper W. **SOX11 expression is restricted to EBV-negative Burkitt lymphoma and is associated with molecular genetic features.** *Blood.* 144(2):187-200. D1

de Bolos A, Sureda-Gomez M, Carreras-Caballe M, ... , Campo E, Balsas P, Amador V. **SOX11/PRDX2 axis modulates redox homeostasis and chemoresistance in aggressive mantle cell lymphoma.** *Scientific Reports.* 14(1):7863. Q1

Morsy MHA, Lilienthal I, Lord M, ... , Campo E, Herold N, Sander B. **SOX11 is a novel binding partner and endogenous inhibitor of SAMHD1 ara-CTPase activity in mantle cell lymphoma.** *Blood.* 143(19):1953-1964. D1

RESEARCH INTERESTS

The objective of the group is to identify and characterize the functional role of new candidates and signaling pathways, in both cancerous and normal cells of the tumor microenvironment, responsible for the appearance, maintenance and aggressive behavior of lymphomas, for a better understanding of the pathogenesis and to find potential candidates for tailored therapies.

KEYWORDS

SOX11 Pioner transcription factor
Mantle cell lymphoma and Burkitt lymphoma
SMARCA4 and Chromatin remodeler complex
Tumor microenvironment-Immunotherapies
PROTAC-degraders

RELATED DISEASES

Lymphoid neoplasms
Mantle cell lymphoma
Burkitt lymphoma

5.05

Molecular pathology of lymphoid neoplasms

GROUP LEADER

Elías Campo (IDIBAPS-HCB-UB)

RESEARCH INTERESTS

Our research focuses on the pathological characterization of lymphoid neoplasms and the understanding of the molecular and genetic mechanisms underlying the pathogenesis of these tumors to determine their relevance in the diagnosis, prognosis and therapeutic intervention in these patients.

In the last years we have made seminal contributions in elucidating the genomic/epigenomic alterations in chronic lymphocytic leukemia, mantle cell lymphoma and other aggressive lymphomas.

We have identified new disease subtypes, novel biomarkers and therapeutic targets.

KEYWORDS

Lymphoid neoplasms
Molecular pathology
Genomic alterations

RELATED DISEASES

Mantle cell lymphoma
Chronic lymphocytic leukemia
Diffuse large B cell lymphoma
Lymphoid neoplasms

Publications

Original articles	**Mean IF**	**12,20**
23	Q1	91%
	D1	57%
	MA	22%
	OA	87%
Others	**Mean IF**	**21,00**
9	Q1	78%
	D1	44%
	MA	44%
	OA	67%

IF = Impact Factor
MA = Main authorship (last or corresponding author)
OA = Open Access
Others includes reviews, editorials, clinical guidelines, letters and case reports

Directed PhD theses

1

- Marta Grau

Selected active grants

CLLSYSTEMS: (Epi)Genomic and microenvironment interactions driving evolution in chronic lymphocytic leukemia. Targets for clinical intervention.
Fundació Bancaria "La Caixa".
HealthRes22
PI: Elías Campo

PREGENLINF: Medicina de precision genomica en neoplasias linfoides.
Instituto de Salud Carlos III (ISCIII).
FIS_PMP21/00015
PI: Elías Campo

Selected publications

Özoğul E, Montaner A, Pol M, ... , López C, Nadeu F, Campo E. **Large B-cell lymphomas with CCND1 rearrangement have different immunoglobulin gene breakpoints and genomic profile than mantle cell lymphoma.** *Blood Cancer Journal.* 14(1):166. D1

Rivas-Delgado A, López C, Clot G, ... , Giné E, López-Guillermo A, Beà S. **Testicular large B-cell lymphoma is genetically similar to PCNSL and distinct from nodal DLBCL.** *Hemasphere.* 8(10):e70024. D1

Carbo-Meix A, Guijarro F, Wang L, ... , Costa D, Nadeu F, Campo E. **BCL3 rearrangements in B-cell lymphoid neoplasms occur in two breakpoint clusters associated with different diseases.** *Haematologica.* 109(2):493-508. Q1

Campo E, Dierickx D, Dirnhofer S, ... , Piris MA, Salles G, Siebert R. **Lymphoma Classifications, How to Develop a Future Unified Taxonomy.** *Journal of Clinical Oncology.* 42(27):3177-3182. D1

Massoni-Badosa R, Aguilar-Fernández S, Nieto JC, ... , Campo E, Martin-Subero JI, Heyn H. **An atlas of cells in the human tonsil.** *Immunity.* 57(2):379-399.e18. D1

5.06

Translational colorectal cancer genomics

GROUP LEADER
Jordi Camps (IDIBAPS)

Publications

Original articles	Mean IF	4,60
1	Q1	100%
	D1	0%
	MA	0%
	OA	0%
Others	Mean IF	0
0	Q1	0%
	D1	0%
	MA	0%
	OA	0%

IF = Impact Factor
MA = Main authorship (last or corresponding author)
OA = Open Access
Others includes reviews, editorials, clinical guidelines, letters and case reports

Selected publications

Mateu-Bosch A, Segur-Bailach E, García-Villoria J, ... , Tort F, Ribes A, Fillat C. **Modeling Glutaric Aciduria Type I in human neuroblastoma cells recapitulates neuronal damage that can be rescued by gene replacement.** *Gene Therapy.* 31(1-2):12-18. Q1

Selected active grants

Factores genómicos determinantes para el pronóstico del cáncer colorrectal serrado originado por metaplasia.
Ministerio de Ciencia e Innovación y Universidades
MCIU_CNS2023-144590
PI: Jordi Camps

RESEARCH INTERESTS

Elucidating the role of genomic instability, which represents the molecular engine that fuels intratumor genetic heterogeneity in carcinomas, is critical for our understanding of the tumor initiation, progression, and treatment response.

Our group aims at (11) identifying the clinical applicability of genomic copy-number alterations and aneuploidy, (2) assessing intratumor heterogeneity as a novel biomarker in colorectal cancer, and (3) interrogating the mechanistic and functional consequences of whole-genome doubling and its impact on disease outcome.

KEYWORDS

Genomic instability
Intratumor heterogeneity
Aneuploidy
Copy-number alterations
Colorectal cancer

RELATED DISEASES

Colon cancer
Rectal cancer
Serrated polyposis
Gastrointestinal cancer

5.07

Gastrointestinal and pancreatic oncology

GROUP LEADER

Antoni Castells (HCB)

RESEARCH INTERESTS

Prevention of gastrointestinal and pancreatic neoplasms considers several approaches, depending on personal and/or family-related factors.

Our research group is interested in ascertaining the efficacy of diverse screening strategies, identifying biomarkers derived from tumor molecular alterations, and establishing the best approach for the detection of inherited diseases.

Moreover, we are also focused on defining the indications and outcomes of different endoscopic and surgical techniques for the diagnosis and treatment of these neoplasms.

KEYWORDS

Screening
Surveillance
Genetics
Endoscopy
Surgery

RELATED DISEASES

Colorectal cancer
Gastric cancer
Pancreatic cancer
Gastrointestinal polyposis

Publications

Original articles	Mean IF	8,50
32	Q1	69%
	D1	34%
	MA	22%
	OA	72%
Others	Mean IF	6,35
24	Q1	54%
	D1	46%
	MA	58%
	OA	46%

IF = Impact Factor
MA = Main authorship (last or corresponding author)
OA = Open Access
Others includes reviews, editorials, clinical guidelines, letters and case reports

Directed PhD theses

2

- Sherley Díaz
- Hugo Ikuo

Selected active grants

Randomized controlled trial of colonoscopy versus fecal immunochemical testing in colorectal cancer screening. The COLONPREV study.
Asociación Española Contra el Cáncer.
AECC_EstClinicos21
PI: Antoni Castells

Identification and development of novel colorectal cancer biomarkers via state-of-the-art liquid biopsy approaches (Colomark).
European Commission.
CE_HE_MSCA_21_DN
PI: Mertitxell Gironella

Selected publications

Ortiz O, Daca-Alvarez M, Rivero-Sanchez L, ... , Jover R, Balaguer F, Pellise M, TIMELY study group. A**n artificial intelligence-assisted system versus white light endoscopy alone for adenoma detection in individuals with Lynch syndrome (TIMELY): an international, multicentre, randomised controlled trial.** *Lancet Gastroenterology & Hepatology.* 9(9):802. D1

Ortiz O, Daca-Alvarez M, Rivero-Sanchez L, ... , Cuatrecasas M, Balaguer F, Pellise M. **Linked-color imaging versus high definition white-light endoscopy for evaluation of post-polypectomy scars of nonpedunculated lesions: LCI-Scar study.** *Endoscopy.* 56(4):283-290. D1

Gomez-Matas J, Duran-Sanchon S, Lozano JJ, ... , Naccarati A, Castells A, Gironella M. **SnoRNA profiling in colorectal cancer and assessment of non-invasive biomarker capacity by ddPCR in fecal samples.** *Iscience.* 27(3):109283. Q1

Thiele M, Kamath PS, Graupera I, ... , Serra-Burriel M, Lammert F, Gines P. **Screening for liver fibrosis: lessons from colorectal and lung cancer screening.** *Nature Reviews Gastroenterology & Hepatology.* 21(7):517-527. D1

Aelvoet AS, Pellise M, Miedema TN, ... , Latchford A, Hompes R, Dekker E, European FAP Consortium. **Development of Desmoid Tumors After Ileorectal Anastomosis Versus Ileal Pouch-Anal Anastomosis in Familial Adenomatous Polyposis.** *Clinical Gastroenterology and Hepatology.* 22(11):2319-2326. D1

5.08

Genetic predisposition to gastrointestinal cancer

GROUP LEADER
Sergi Castellví-Bel (IDIBAPS)

Publications

Original articles	**Mean IF**	**7,63**
17	Q1	76%
	D1	29%
	MA	24%
	OA	76%
Others	**Mean IF**	**6,61**
7	Q1	43%
	D1	29%
	MA	43%
	OA	29%

IF = Impact Factor
MA = Main authorship (last or corresponding author)
OA = Open Access
Others includes reviews, editorials, clinical guidelines, letters and case reports

Directed PhD theses

1

- Joan Llach

Selected active grants

Identificación de nuevos genes hereditarios e insultos somáticos en el cáncer colorrectal familiar con una base desconocida mediante la integración de datos multiómicos.
Instituto de Salud Carlos III (ISCIII).
FIS_PI23/00189
PI: Sergi Castellví Bel

An Artificially Intelligent Diagnostic Assistant for gastric inflammation (AIDA).
European Comission.
CE_HE_CH_22_1s21_RIA
PI: Leticia Moreira

Selected publications

Herrera-Pariente C, Bonjoch L, Muñoz J, ... , Bujanda L, Castellvi-Bel S, Moreira L. **CTNND1 is involved in germline predisposition to early-onset gastric cancer by affecting cell-to-cell interactions.** *Gastric Cancer.* 27(4):747-759. Q1

Llach J, Salces I, Guerra A, ... , Castells A, Balaguer F, Moreira L. **Endoscopic surveillance for familial intestinal gastric cancer in low-incidence areas: An effective strategy.** *International Journal of Cancer.* 154(1):124-132. Q1

Llach J, Luzko I, Earl J, ... , Balaguer F, Bujanda L, Moreira L. **Should We Offer Universal Germline Genetic Testing to All Patients with Pancreatic Cancer? A Multicenter Study.** *Cancers.* 16(22):3779. Q1

Huguet JM, Ferrer-Barcelo L, Suarez P, ... , Megraud F, O'Morain C, Gisbert JP. **Role of compliance in Helicobacter pylori eradication treatment: Results of the European Registry on H. pylori management.** *United European Gastroenterology Journal.* 12(6):691-704. Q1

Chen Z, Guo X, Tao R, ... , Peters U, Tomlinson I, Zheng W. **Fine-mapping analysis including over 254,000 East Asian and European descendants identifies 136 putative colorectal cancer susceptibility genes.** *Nature Communications.* 15(1):3557. D1

RESEARCH INTERESTS

We develop translational research in colon cancer, stomach cancer and pancreatic cancer.

We want to identify alterations in the human genome that are inherited from generation to generation and that predispose people to these tumors.

We use genetic association studies as well as massive sequencing and multiomic studies to decode the genome, and molecular and cell biology tools like gene editing and organoids to decipher how genes work.

We want to use these genetic alterations to improve the clinical management of patients and offer them optimal and personalized monitoring and treatment.

KEYWORDS
Germline predisposition
Next generation sequencing
Genetic association studies
Gene editing
Organoids

RELATED DISEASES
Colon cancer
Rectal cancer
Gastric cancer
Pancreatic cancer
Hereditary cancer

5.09

Experimental therapies in lymphoid neoplasms

GROUP LEADER

Dolors Colomer (HCB)

RESEARCH INTERESTS

To determine the functional impact of the omic alterations described in hematological malignancies.

Develop and validate models that recapitulate tumor heterogeneity and its impact on disease progression, therapy resistance, and susceptibility to new targeted therapies.

Propose and develop new therapeutic strategies in tumor cells isolated from patients, cell lines and animal models, taking into account the interaction between the tumor cell and its microenvironment and transfer this knowledge to clinical practice.

KEYWORDS

Targeted therapies
Microenvironment
PDX
3D cell culture

RELATED DISEASES

Hematological malignacies
Chronic lymphocytic leukemia
Richter transformation
Lymphoma
Acute leukemia

Publications

Original articles	Mean IF	8,77
12	Q1	75%
	D1	33%
	MA	17%
	OA	83%
Others	Mean IF	3,35
2	Q1	50%
	D1	0%
	MA	50%
	OA	100%

IF = Impact Factor
MA = Main authorship (last or corresponding author)
OA = Open Access
Others includes reviews, editorials, clinical guidelines, letters and case reports

Directed PhD theses

1 • Heribert Playà

Selected active grants

Impact of genetic variability and tumoral heterogeneity in target therapy in CLL.
Agencia Estatal de Investigación.
AEI_PE21
PI: Dolors Colomer

Development of a first-in-class biologic to treat acute myeloid leukemia.
Agencia Estatal de Investigación.
AEI_CPP21
PI: Dolors Colomer

Selected publications

Playa-Albinyana H, Arenas F, Royo R, ..., Campo E, Nadeu F, Colomer D. **Chronic lymphocytic leukemia patient-derived xenografts recapitulate clonal evolution to Richter transformation.** *Leukemia*. 38(3):557-569. D1

Massoni-Badosa R, Aguilar-Fernández S, Nieto JC, ... , Campo E, Martin-Subero JI, Heyn H. **An atlas of cells in the human tonsil.** *Immunity*. 57(2):379-399.e18. D1

Dobaño-López C, García-Valero J, Araujo-Ayala F, ... , Colomer D, Bezombes C, Pérez-Galán P. **Patient-derived follicular lymphoma spheroids recapitulate lymph node signaling and immune profile uncovering galectin-9 as a novel immunotherapeutic target.** *Blood Cancer Journal*. 14(1):75. D1

Carbo-Meix A, Guijarro F, Wang L, ... , Costa D, Nadeu F, Campo E. **BCL3 rearrangements in B-cell lymphoid neoplasms occur in two breakpoint clusters associated with different diseases.** *Haematologica*. 109(2):493-508. Q1

Charalampopoulou S, Chapiro E, Nadeu F, ... , Duran-Ferrer M, Nguyen-Khac F, Martin-Subero JI. **Epigenetic features support the diagnosis of B-cell prolymphocytic leukemia and identify 2 clinicobiological subtypes.** *Blood Advances*. 8(24):6297-6307. Q1

5.10

Molecular pathology of inflammatory conditions and solid tumors

GROUP LEADER
Miriam Cuatrecasas (HCB)

RESEARCH INTERESTS

The main research in solid and central nervous system tumors is the integration of both histopathology and molecular alterations in precursor lesions and malignant tumors.

The identification of the molecular pathways of carcinogenesis and of new biomarkers enables customized therapies. In the the field of neurodegenerative diseases our research is focused on the process of degeneration and markers of its early detection.

KEYWORDS

Cancer
Central nervous system
Neurodegenerative

RELATED DISEASES

Carcinoma
Central nervous system tumors
Neurodegenerative

Publications

Original articles	Mean IF	6,70
37	Q1	84%
	D1	35%
	MA	16%
	OA	65%
Others	Mean IF	5,05
13	Q1	62%
	D1	31%
	MA	8%
	OA	46%

IF = Impact Factor
MA = Main authorship (last or corresponding author)
OA = Open Access
Others includes reviews, editorials, clinical guidelines, letters and case reports

Directed PhD theses

3

- Sherley Díaz
- María Teresa Rodrigo
- Isabel Trias

Selected active grants

Mapping the progression to chronic kidney disease in glomerulopathies.
Instituto de Salud Carlos III (ISCIII).
FIS_PI23/00569
PI: Adriana Garcia-Herrera, Luis Fernando Quintana

Distribución espacial de alteraciones genómicas en "tumor buds" y grupos de células pobremente diferenciadas en el cáncer colorrectal y su implicación en la evasión inmune y la metástasis.
Instituto de Salud Carlos III (ISCIII).
FIS_PI20/00863
PI: Miriam Cuatrecasas, Jordi Camps

Selected publications

Maya G, Iranzo A, Gaig C, ... , Santamaria J, Gelpi E, Aldecoa I. **Post-mortem neuropathology of idiopathic rapid eye movement sleep behaviour disorder: a case series.** *Lancet Neurology.* 23(12):1238-1251. D1

Pinal-Fernandez I, Muñoz-Braceras S, Casal-Dominguez M, ... , Selva-O'Callaghan A, Milisenda JC, Mammen AL. **Pathological autoantibody internalisation in myositis.** *Annals of the Rheumatic Diseases.* 83(11):1549-1560. D1

Aldecoa I, Barroeta I, Carroll SL, ... , Ghosh S, Mufson EJ, Granholm AC. **Down Syndrome Biobank Consortium: A perspective**. *Alzheimers & Dementia.* 20(3):2262-2272. D1

Ortiz O, Daca-Alvarez M, Rivero-Sánchez L, ... , Cuatrecasas M, Balaguer F, Pellise M. **Linked-color imaging versus high definition white-light endoscopy for evaluation of post-polypectomy scars of nonpedunculated lesions: LCI-Scar study.** *Endoscopy.* 56(4):283-290. D1

Drachenberg CB, Buettner-Herold M, Ventura Aguiar P, ... , Vistoli F, Stratta R, Odorico J. **Banff 2022 pancreas transplantation multidisciplinary report: Refinement of guidelines for T cell-mediated rejection, antibody-mediated rejection and islet pathology. Assessment of duodenal cuff biopsies and noninvasive diagnostic methods.** *American Journal of Transplantation.* 24(3):362-379. D1

5.11

Myeloid neoplasms

GROUP LEADER

Jordi Esteve (HCB)

RESEARCH INTERESTS

Our group is devoted to clinical and traslational research of acute leukemias and myeloid neoplasms (AML, ALL, MDS, and MPNs).

Our research field comprises the study of their natural history and mechanisms of leukemogenesis, prognostic factors, and treatment outcome, including the design and evaluation of genetically oriented treatment protocols and early exploration of novel agents in clinical trials.

Current hot topics are the characterization of genomic landscape and mechanisms of clonal evolution, clinical impact of measurable residual disease assessment, and development of targeted therapy and CAR-T cell therapy in AML.

KEYWORDS

Prognostic factors
Genomic landscape
Measurable residual disease
Therapy
Allogeneic hematopoietic cell transplantation

RELATED DISEASES

Acute myeloid leukemia (AML)
Myelodysplastic syndromes (MDS)
Myeloproliferative neoplasms (MPN)
Chronic myeloid leukemia (CML)
Acute lymphoblastic leukemia (ALL)

Publications

Original articles	Mean IF	7,88
26	Q1	81%
	D1	38%
	MA	27%
	OA	69%
Others	Mean IF	8,96
5	Q1	80%
	D1	40%
	MA	60%
	OA	100%

IF = Impact Factor
MA = Main authorship (last or corresponding author)
OA = Open Access
Others includes reviews, editorials, clinical guidelines, letters and case reports

Directed PhD theses

1

- Marta Garrote

Selected active grants

Análisis de la enfermedad residual medible (MRD), los mecanismos de progresión y dianas terapéuticas en la leucemia mieloide aguda tratada con nuevos regímenes de baja intensidad.
Instituto de Salud Carlos III (ISCIII).
FIS_PI22/01660
PI: Jordi Esteve, Marina Diaz Beya

Carecterización molecular de los pacientes con trombocitemia esencial que desarrollan resistencia a la hidroxiurea. Correlación clínica y repercusión pronóstica.
Instituto de Salud Carlos III (ISCIII).
FIS_PI21/00231
PI: Alberto Álvarez Larran

Selected publications

Santaliestra M, Garrote M, Noya MS, ..., Arellano-Rodrigo E, Hernández-Boluda JC, Alvarez-Larrán A. **Prognostic value of response to first-line hydroxyurea according to IPSET stratification in essential thrombocythemia.** *Leukemia.* 38(12):2636-2643. D1

Castaño-Díez S, Pomares H, Esteban D, ... , Xicoy B, Esteve J, Diaz-Beyá M. **Characteristics and long-term outcome in a large series of chronic myelomonocytic leukaemia patients including 104 formerly referred to as oligomonocytic.** *British Journal of Haematology.* 204(3):892-897. Q1

Jiménez-Vicente C, Charry P, Castaño-Díez S, ... , Rovira M, Salas MQ, Esteve J. **Evaluation of European LeukemiaNet 2022 risk classification in patients undergoing allogeneic haematopoietic stem cell transplantation for acute myeloid leukaemia: Identification of a very poor prognosis genetic group.** *British Journal of Haematology.* 205(1):256-267. Q1

Ferrer-Marín F, Hernández-Boluda JC, Alvarez-Larrán A. **Essential thrombocythaemia: A contemporary approach with new drugs on the horizon.** *British Journal of Haematology.* 204(5):1605-1616. Q1

Halik A, Tilgner M, Silva P, ... , Bullinger L, Yoshida K, Damm F. **Genomic characterization of AML with aberrations of chromosome 7: a multinational cohort of 519 patients.** *Journal of Hematology & Oncology.* 17(1):70. D1

5.12

Myeloma, amyloidosis, macroglobulinemia and other gammopathies

GROUP LEADER

Carlos Fernández de Larrea (IDIBAPS-HCB)

Publications

Original articles	Mean IF	11,43
41	Q1	78%
	D1	37%
	MA	22%
	OA	66%
Others	Mean IF	11,58
6	Q1	43%
	D1	17%
	MA	9%
	OA	50%

IF = Impact Factor
MA = Main authorship (last or corresponding author)
OA = Open Access
Others includes reviews, editorials, clinical guidelines, letters and case reports

Directed PhD theses

3

- Ignacio Isola
- David Moreno
- Aina Oliver

Selected active grants

Novel Advanced Engineering Strategies to Optimize CAR-T Cell Function and Persistence in Multiple Myeloma.
Instituto de Salud Carlos III (ISCIII).
FIS_PI22/00647
PI: Carlos Fernández de Larrea

GEM-PLASMACAR: Phase II, multicenter, open-label, prospective, non-randomized study to evaluate the safety and efficacy of ARI0002h, a CAR-T cell against BCMA, for the initial treatment of patients with primary plasma cell leukemia.
Instituto de Salud Carlos III (ISCIII).
FIS_ICI23/00012
PI: Carlos Fernández de Larrea

Selected publications

Gagelmann N, Dima D, Merz M, ... , Stepensky P, Abdallah AO, Fernández de Larrea C. **Development and Validation of a Prediction Model of Outcome After B-Cell Maturation Antigen-Directed Chimeric Antigen Receptor T-Cell Therapy in Relapsed/Refractory Multiple Myeloma.** *Journal of Clinical Oncology.* 42(14):1665-1675. D1

Moreno DF, Jiménez C, Escalante F, ... , Ríos Rull P, Garcia-Sanz R, Fernández de Larrea C. **Prognostic risk and survival of asymptomatic IgM monoclonal gammopathy: Results from a Spanish Multicenter Registry.** *Hemasphere.* 8(11):e70029. D1

de Daniel A, Rodríguez-Lobato LG, Tovar N, ... , Bladé J, Rosiñol L, Fernández de Larrea C. **The evolving pattern of the monoclonal protein improves the IMWG 2/20/20 classification for patients with smoldering multiple myeloma.** *Hemasphere.* 8(5):e76. D1

Oliver-Caldes A, Español-Rego M, Zabaleta A, ... , Paiva B, Pascal M, Fernández de Larrea C. **Biomarkers of efficacy and safety of the academic BCMA-CART ARI0002h for the treatment of refractory multiple myeloma.** *Clinical Cancer Research.* 30(10):2085-2096. D1

Lozano E, Mena MP, Garrabou G, ... , Bladé J, Fernández de Larrea C, Rosiñol L. **Increased PVR Expression on Bone Marrow Macrophages May Promote Resistance to TIGIT Blockade in Multiple Myeloma.** *Clinical Cancer Research.* 30(17):3944-3955. D1

RESEARCH INTERESTS

Multiple myeloma is a malignant disease of the plasma cells, responsible for generating antibodies.

This tumor grows in the bone marrow and causes fractures, anaemia, renal insuficiency and elevation of calcium.

Despite the wide range of therapies that exist to treat it, myeloma is still an incurable pathology.

The main line of work consists of identifying innovative treatment options related to the patient immune system and the tumour micro-environment, including modified cells in the laboratory called CAR T-cells lymphocytes to target in a specific way these malignant plasma cells.

KEYWORDS

Multiple myeloma
CAR T-cells
Immunotherapy
Molecular biology
Monoclonal gammopathies

RELATED DISEASES

Multiple myeloma
Macroglobulinemia
Amyloidosis
Monoclonal gammopathy
Plasma cell leukemia

5.13

Gene therapy and cancer

GROUP LEADER

Cristina Fillat (IDIBAPS)

RESEARCH INTERESTS

Our group is interested in the comprehension of the physiopathology of pancreatic cancer focusing on the cross-talk between cancer and stromal cells from the tumor microenvironment.

We investigate the role of DYRK1A kinase and explore nanoparticles and oncolytic adenovirus therapies against pancreatic cancer.

We develop patient-derived organoids and generate mouse models to evaluate therapies. Members of the group conduct pancreatobiliary surgical innovation, integrating artificial intelligence.

Moreover, we explore gene-therapy based strategies for the treatment of glutaric aciduria type I.

KEYWORDS

Pancreatic cancer
Tumor organoids
Tumor microenvironment
Oncolytic virus
Gene therapy

RELATED DISEASES

Pancreatic cancer
Glutaric aciduria type I

Publications

Original articles	Mean IF	4,85
13	Q1	77%
	D1	23%
	MA	46%
	OA	77%
Others	Mean IF	5,70
2	Q1	50%
	D1	50%
	MA	50%
	OA	50%

IF = Impact Factor
MA = Main authorship (last or corresponding author)
OA = Open Access
Others includes reviews, editorials, clinical guidelines, letters and case reports

Directed PhD theses

3

- Marc Otero
- Silvia Pacual
- Eulàlia Segur

Selected active grants

Immunological incompatibility as a basis for cancer curing and vaccination (ULISES).
European Commission.
CE_H2020-FETOPN19-2
PI: Cristina Fillat

Fostering immunity against pancreatic tumors with oncolytic adenoviruses engineered to trigger immunogenic surrender and block immunosuppression.
Agencia Estatal de Investigación.
AEI_PID2023-146637OB-C22
PI: Cristina Fillat

Selected publications

Mateu-Bosch A, Segur-Bailach E, García-Villoria J, ... , Tort F, Ribes A, Fillat C. **Modeling Glutaric Aciduria Type I in human neuroblastoma cells recapitulates neuronal damage that can be rescued by gene replacement.** *Gene Therapy*. 31(1-2):12-18. Q1

Mateu-Bosch A, Segur-Bailach E, Muñoz-Moreno E, ... , Ribes A, García-Villoria J, Fillat C. **Systemic delivery of AAV-GCDH ameliorates HLD-induced phenotype in a glutaric aciduria type I mouse model.** *Molecular Therapy-Methods & Clinical Development.* 32(3):101276. Q2

Ausania F, Landi F, González-Abos C, ..., Coratti A, Morelli L, Giulianotti PC. **Robotic versus laparoscopic distal pancreatectomy for pancreatic adenocarcinoma in obese patients.** *International Journal of Medical Robotics and Computer Assisted Surgery.* 20(1):e2596-e2596. Q2

van Bodegraven EA, van Ramshorst TME, Bratlie SO, ... , Vilhav C, Abu Hilal M, Besselink MG, European Consortium on Minimally Invasive Pancreatic Surgery (E-MIPS). **Minimally invasive robot-assisted and laparoscopic distal pancreatectomy in a pan-European registry a retrospective cohort study.** *International Journal of Surgery.* 110(6):3554-3561. D1

Xu C, Pascual-Sabater S, Fillat C, Goel A. **The LAMB3-EGFR signaling pathway mediates synergistic Anti-Cancer effects of berberine and emodin in Pancreatic cancer.** *Biochemical Pharmacology.* 228:116509. D1

5.14

Cellular immunotherapies for cancer

GROUP LEADER

Sònia Guedan (IDIBAPS)

Publications

Original articles	**Mean IF**	**14,70**
1	Q1	100%
	D1	100%
	MA	100%
	OA	100%
Others	**Mean IF**	**5,10**
1	Q1	100%
	D1	0%
	MA	0%
	OA	100%

IF = Impact Factor
MA = Main authorship (last or corresponding author)
OA = Open Access
Others includes reviews, editorials, clinical guidelines, letters and case reports

Selected publications

Andreu-Saumell I, Rodriguez-Garcia A, Müehlgrabner V, ... , Urbano-Ispizua A, Huppa JB, Guedan S. **CAR affinity modulates the sensitivity of CAR-T cells to PD-1/PD-L1-mediated inhibition.** *Nature Communications.* 15(1):3552. D1

Brillembourg H, Martínez-Cibrián N, Bachiller M, ... , Ortiz-Maldonado V, Guedan S, Delgado J. **The role of chimeric antigen receptor T cells targeting more than one antigen in the treatment of B-cell malignancies.** *British Journal of Haematology.* 204(5):1649-1659. Q1

Directed PhD theses

3

- Irene Andreu
- Mireia Bachiller
- Paula Barbao

Selected active grants

Fine-tuning T cell networks of exhaustion by synthetic sensors (T-FITNESS).
European Commission.
CE_HE_PathCh_21_Eme
PI: Sònia Guedan

Edición génica de células CAR-T para el tratamiento de tumores sólidos (GenEdCAR-T).
Agencia Estatal de Investigación.
AEI_ConsolidInv23
PI: Sònia Guedan

RESEARCH INTERESTS

CAR T-cell therapy is highly effective for certain hematological cancers but its efficacy for solid tumors remains unproven.

Understanding the mechanisms of the decline of CAR T-cell functions and tumor scape is crucial to design more powerful and safe therapy.

Our lab uses diverse models and techniques to enhance CAR T-cells through genetic manipulation, such as adding secondary CAR receptors, refining CARs with supplementary functionalities or employing gene editing.

Collaborating with a multidisciplinary team, we are accelerating the translation of novel CAR T therapies for patient benefit.

KEYWORDS

Cell and gene therapy
Solid and hematological tumors
Exhaustion of CAR-T cells
Signal 3-based CARs
Armored CAR-T cells

RELATED DISEASES

HER2+ breast cancer
Non-hodgkin Lymphoma
T cell leukemia and lymphoma
Follicular lymphoma
Other solid tumors

5.15

Translational research in hepatic oncology

GROUP LEADER

Josep M. Llovet (ICREA-IDIBAPS)

RESEARCH INTERESTS

The Group is focused on the study of the pathogenesis and treatment of liver cancer, including hepatocellular carcinoma (HCC), hepatoblastoma and cholangiocarcinoma.

We have defined the molecular and immunological characterization of HCC and discovered new therapeutic targets.

Current scientific interests include defining biomarkers and AI-based markers of response and resistance to immunological therapies by using cutting edge technologies (scRNA-seq, spatial transcriptoma), understanding the pathogenesis of HCC in patients with metabolic dysfunction-associated steatotic liver disease (MASLD-HCC) and determining the role of microbiome in HCC development.

KEYWORDS

Liver cancer
Precision oncology
Molecular and genomic studies
Immunotherapy
Predictive biomarkers

RELATED DISEASES

Hepatocellular carcinoma
MASLD-HCC
Cholangiocarcinoma
Hepatoblastoma

Publications

Original articles 6

Mean IF	17,88
Q1	100%
D1	100%
MA	50%
OA	83%

Others 8

Mean IF	29,54
Q1	100%
D1	75%
MA	63%
OA	75%

IF = Impact Factor
MA = Main authorship (last or corresponding author)
OA = Open Access
Others includes reviews, editorials, clinical guidelines, letters and case reports

Directed PhD theses

1

- Jordi Abril

Selected active grants

THRIVE: Tumor-host interactions in liver cancer of childhood and adults.
European Commission.
CE_HE_CANCER23_RIA
PI: Josep M. Llovet

ASPIRE: Neoadjuvant-adjuvant immunotherapy to improve survival in hepatocellular carcinoma.
Associación Española Contra el Cáncer.
AECC_Reto70%_24
PI: Josep M. Llovet

Selected publications

Llovet JM, Pinyol R, Yarchoan M, ... , Pikarsky E, Kudo M, Finn RS. **Adjuvant and neoadjuvant immunotherapies in hepatocellular carcinoma.** *Nature Reviews Clinical Oncology.* 21(4):294-311. D1

O'Rourke CJ, Salati M, Rae C, ... , Dominici M, Andersen JB, Braconi C. **Molecular portraits of patients with intrahepatic cholangiocarcinoma who diverge as rapid progressors or long survivors on chemotherapy.** *Gut.* 73(3):496-508. D1

Cappuyns S, Corbett V, Yarchoan M, Finn RS, Llovet JM. **Critical Appraisal of Guideline Recommendations on Systemic Therapies for Advanced Hepatocellular Carcinoma A Review.** *Jama Oncology.* 10(3):395-404. D1

Cappuyns S, Piqué-Gili M, Esteban-Fabró R, ... , Villanueva A, Dekervel J, Llovet JM. **Single-cell RNA sequencing-derived signatures define response patterns to atezolizumab + bevacizumab in Advanced hepatocellular carcinoma.** *Journal of Hepatology.* S0168-8278(24):02771-5. D1

Banerjee S, Booth CM, Bruera E, ..., Ralph R, Weller M, Yi-Long W. **Two decades of advances in clinical oncology - lessons learned and future directions.** *Nature Reviews Clinical Oncology.* 21(11):771-780. D1

5.16

Lymphoid neoplasms

GROUP LEADER

Armando López Guillermo (HCB)

Publications

Original articles	Mean IF	12,94
31	Q1	74%
	D1	39%
	MA	19%
	OA	74%
Others	Mean IF	7,19
11	Q1	82%
	D1	45%
	MA	18%
	OA	64%

IF = Impact Factor
MA = Main authorship (last or corresponding author)
OA = Open Access
Others includes reviews, editorials, clinical guidelines, letters and case reports

Selected active grants

CARTD-BG-01: Ensayo fase I, piloto, abierto, multicéntrico, no aleatorizado para evaluar la seguridad y eficacia de las células ARI-0003 (CART19/ 269) en pacientes con linfoma B agresivo recaído/refractario.
Instituto de Salud Carlos III (ISCIII).
FIS_ICI22/00049
PI: Julio Delgado González

Caracterización genómica del linfoma nodal de la zona marginal. Estudio al diagnóstico, en la recaída y en la transformación histológica.
Instituto de Salud Carlos III (ISCIII).
FIS_PI23/01500
PI: Armando López Guillermo

Selected publications

Rivas-Delgado A, López C, Clot G, ... , Giné E, López-Guillermo A, Beà S. **Testicular large B-cell lymphoma is genetically similar to PCNSL and distinct from nodal DLBCL.** *Hemasphere.* 8(10):e70024. D1

Martínez-Cibrián N, Ortiz-Maldonado V, Español-Rego M, ... , Urbano-Ispizua A, Juan M, Delgado J. **The academic point-of-care anti-CD19 chimeric antigen receptor T-cell product varnimcabtagene autoleucel (ARI-0001 cells) shows efficacy and safety in the treatment of relapsed/refractory B-cell non-Hodgkin lymphoma.** *British Journal of Haematology.* 204(2):525-533. Q1

Delgado J. **InsT-ALLing CD7 chimeric antigen receptors before transplantation.** *British Journal of Haematology.* 204(6):2155-2156. Q1

Dreyling M, Doorduijn J, Giné E, ... , Unterhalt M, Ladetto M, Hoster E. **Ibrutinib combined with immunochemotherapy with or without autologous stem-cell transplantation versus immunochemotherapy and autologous stem-cell transplantation in previously untreated patients with mantle cell lymphoma (TRIANGLE): a three-arm, randomised, open-label, phase 3 superiority trial of the European Mantle Cell Lymphoma Network.** *Lancet.* 403(10441):2293-2306. D1

Locke FL, Filosto S, Chou J, ... , Bedognetti D, Miao H, Galon J. **Impact of tumor microenvironment on efficacy of anti-CD19 CAR T cell therapy or chemotherapy and transplant in large B cell lymphoma.** *Nature Medicine.* 30(2):507-518. D1

RESEARCH INTERESTS

Lymphoproliferative neoplasms (LN) are malignant diseases originated at differents stages of maturation of lymphoid cells.

Their classification is highly complex, currently recognizing more than 50 entities. Although nowadays many cases could be cured or may survive for a long time with immunochemotherapy, LN still lead to the death of a large number of patients.

The study of clinic-biological features of the disease, particularly genetic and molecular alterations and the development of new therapies including cellular therapies, are essential to improve the outcome of these patients.

KEYWORDS

Lymphoma
Chronic lymphocytic leukemia
Prognosis
Mutational profile, CNA
Immunotherapy and cellular therapies, including CAR-T

RELATED DISEASES

Hodgkin lymphoma
Non-hodgkin lymphoma
Chronic lymphocytic leukemia
Lymphoproliferative disorders

5.17

Biomedical epigenomics

GROUP LEADER

José Ignacio Martín-Subero (ICREA-IDIBAPS)

RESEARCH INTERESTS

Lymphoid neoplasms comprise a broad spectrum of diseases with heterogeneous clinico-biological features.

The Biomedical Epigenomics group uses innovative wet-lab and computational tools to study the causes and consequences of epigenetic alterations in leukemias and lymphomas.

The research activities of the group are leading to new insights into the cellular origin, development, evolution and clinical behavior of various mature B cell neoplasms, enabling to better estimate the clinical outcome of patients and identify new therapeutic targets.

KEYWORDS

Epigenomics
Chromatin
Bioinformatics
Epigenetic biomarkers
Single cell omics

RELATED DISEASES

Chronic lymphocytic leukemia
Mantle cell lymphoma
Multiple myeloma
Diffuse large B cell lymphoma

Publications

Original articles	Mean IF	16,23
12	Q1	100%
	D1	67%
	MA	25%
	OA	83%
Others	Mean IF	15,58
4	Q1	100%
	D1	75%
	MA	100%
	OA	50%

IF = Impact Factor
MA = Main authorship (last or corresponding author)
OA = Open Access
Others includes reviews, editorials, clinical guidelines, letters and case reports

Directed PhD theses

2

- Beatriz García
- Judith Mateos

Selected active grants

Single-cell genomics to comprehensively understand healthy B-cell maturation and transformation chronic lymphocytic leukemia.
European Commission.
CE_H2020-ERC-2018_Sy
PI: José Ignacio Martín-Subero

Exploring the biological and clinical impact of de novo chromatin activation in chronic lymphocytic leukemia.
Asociación Española Contra el Cáncer.
AECC_Proyectos23
PI: José Ignacio Martín-Subero

Selected publications

Duran-Ferrer M, Martin-Subero JI. **Epigenomic Characterization of Lymphoid Neoplasms.** *Annual Review of Pathology-Mechanisms of Disease.* 19(19):371-396. D1

Massoni-Badosa R, Aguilar-Fernandez S, Nieto JC, ... , Campo E, Martin-Subero JI, Heyn H. **An atlas of cells in the human tonsil.** *Immunity.* 57(2):379-399.e18. D1

Pérez RF, Jiménez-Martínez V, Martín-Subero JI. **Lymphoma lurks within aged B cells.** *Nature Aging.* 4(10):1343-1345. D1

Buehler MM, Kulis M, Duran-Ferrer M, ..., Bea S, Campo E, Martín-Subero JI. **Robust identification of conventional and leukemic nonnodal mantle cell lymphomas using epigenetic biomarkers.** *Hemasphere.* 8(1):e30. D1

Charalampopoulou S, Chapiro E, Nadeu F, ... , Duran-Ferrer M, Nguyen-Khac F, Martin-Subero JI. **Epigenetic features support the diagnosis of B-cell prolymphocytic leukemia and identify 2 clinicobiological subtypes.** *Blood Advances.* 8(24):6297-6307. Q1

5.18

Hepatocellular signaling and cancer

GROUP LEADER

Albert Morales (IIBB-CSIC)

Publications

Original articles	Mean IF	5,10
2	Q1	100%
	D1	0%
	MA	100%
	OA	100%
Others	Mean IF	5,15
2	Q1	100%
	D1	0%
	MA	50%
	OA	100%

IF = Impact Factor
MA = Main authorship (last or corresponding author)
OA = Open Access
Others includes reviews, editorials, clinical guidelines, letters and case reports

Selected active grants

Terapias dirigidas basadas en el perfil molecular: mitocondria y eje GAS6/-TAM en crosstalk cellular.
Agencia Estatal de Investigación.
AEI_PID2021-123564OB-I00
PI: Albert Morales

EuroPean training netwoRks to tArget DAMPs and NETs: novel apprOaches in pRecision sepsIs pAtieNt care (PRAETORIAN).
European Comission.
CE_HE_MSCA_22_DN
IP: Montserrat Marí

Selected publications

Grøndal SM, Tutusaus A, Boix L, ... , Lorens JB, Morales A, Mari M. **Dynamic changes in immune cell populations by AXL kinase targeting diminish liver inflammation and fibrosis in experimental MASH.** *Frontiers in Immunology.* 15:1400553. Q1

Tutusaus A, Sanduzzi-Zamparelli M, Boix L, ... , Marí M, Reig M, Morales A. **Induction of the Inflammasome Pathway by Tyrosine Kinase Inhibitors Provides an Actionable Therapeutic Target for Hepatocellular Carcinoma.** *Cancers.* 16(8):1491. Q1

Tutusaus A, Morales A, Garcia de Frutos P, Marí M. **GAS6/TAM Axis as Therapeutic Target in Liver Diseases.** *Seminars in Liver Disease.* 44(1):99-114. Q1

Abadin X, de Dios C, Zubillaga M, ... , Trullas R, Colell A, Roca-Agujetas V. **Neuroinflammation in Age-Related Neurodegenerative Diseases: Role of Mitochondrial Oxidative Stress.** *Antioxidants.* 13(12):1440. Q1

RESEARCH INTERESTS

The study of the cellular mechanisms triggered during chronic liver diseases, to design therapies and to prevent the development of liver cancer, is the main objective of our group's research.

Identifying biomarkers, particularly in serum, that anticipate the efficacy of treatment in patients with liver tumors, and proposing therapies directed at the tumor microenvironment, are other topics of our interest.

Furthermore, uncovering potential gender differences in prevalent chronic liver diseases and liver cancer progression will provide biomedical targets for future clinical treatments.

KEYWORDS

Cancer therapy
Liver microenvironment
Mitochondria
Neutrophil Extracellular Traps (NETs)
Gender perspective

RELATED DISEASES

Metabolic dysfunction-associated steatotic liver disease (MASLD)
Hepatocellular carcinoma (HCC)
Liver metastases
Sepsis

5.19

Microenvironment in lymphoma pathogenesis and therapy

GROUP LEADER

Patricia Pérez-Galán (IDIBAPS)

RESEARCH INTERESTS

The focus of the group is the characterization of the crosstalk between lymphoma cells and its immune microenvironment, to identify high-risk patients and manipulate these interactions to design novel-targeted and personalized immunotherapies.

To this purpose, we have established patient - derived models from B-cell Non-Hodgkin Lymphoma that recapitulate patient heterogeneity, microenviromental cues and in vivo therapy responses.

These models are used to screen/validate novel therapeutic approaches including advanced cell therapies (ie CAR-T) and immunotherapies (ie T-cell engagers, immune regulators).

KEYWORDS

Non-Hodgkin lymphoma
Microenvironment
Immunotherapy
Patient-derived models
Cell therapy

RELATED DISEASES

Follicular lymphoma
Mantle cell lymphoma
Diffuse large B cell lymphoma
Marginal Zone Lymphoma
Chronic lymphocytic leukemia

Publications

Original articles	Mean IF	12,90
1	Q1	100%
	D1	100%
	MA	100%
	OA	100%
Others	Mean IF	0
0	Q1	0%
	D1	0%
	MA	0%
	OA	0%

IF = Impact Factor
MA = Main authorship (last or corresponding author)
OA = Open Access
Others includes reviews, editorials, clinical guidelines, letters and case reports

Directed PhD theses

1

- Ferran Araujo

Selected active grants

Red transpirenaica de terapias avanzadas en linfoma no Hodgkin. (THERAVLINFO).
European Comission. CE_POCTEFA_23
PI: Patricia Pérez-Galán

Vascularized lymphoma on chip: amultifaceted tool for translational research. MyLymphoTool.
Fundació Bancaria "La Caixa".
HealthRes22
PI: Patricia Pérez-Galán

Selected publications

Dobaño-López C, Valero JG, Araujo-Ayala F, ... , Colomer D, Bezombes C, Pérez-Galán P. **Patient-derived follicular lymphoma spheroids recapitulate lymph node signaling and immune profile uncovering galectin-9 as a novel immunotherapeutic target.** *Blood Cancer Journal.* 14(1):75. D1

5.20

Gene regulation in stem cells, cell plasticity, differentiation, and cancer

GROUP LEADER

Antonio Postigo (ICREA-IDIBAPS)

Selected active grants

Macrophage-cancer cell relationship in tumor progression: Pathogenic role and mechanism in the mutational landscape, immune evasion, and therapeutic response.
Agencia Estatal de Investigación.
AEI_PE23
PI: Antonio Postigo

Psoriasis, a metabolic dysregulation of the innate immune system? Targeting ZEB1 in macrophages as a new therapeutic approach to psoriasis.
LEO Foundation. INT_LEO_19
PI: Antonio Postigo

RESEARCH INTERESTS

Our group studies the molecular mechanisms that regulate cell plasticity in health and disease.

Ongoing projects investigate gene regulation in inflammation, cancer initiation and progression, stem cell determination and differentiation, and tissue regeneration.

We use a wide range of technical approaches that include unique conditional transgenic mice, in vivo cancer models, and bulk and single-cell high-throughput techniques (e.g., RNAseq, single-cell RNAseq, single-cell metabolomics, proteomics).

As molecular models, we use the EMT plasticity factors ZEB1 and ZEB2.

KEYWORDS

Cancer
Inflammation
Cellular plasticity and differentiation
Immunometabolism
Stem cells and tissue regeneration

RELATED DISEASES

Ovarian cancer
Colorectal cancer
Multiple myeloma
Autoimmune chronic inflammation
Muscular dystrophies and atrophy

5.21

Translational genomics and targeted therapies in solid tumors

GROUP LEADER
Aleix Prat (HCB)

RESEARCH INTERESTS

The Translational Genomics and Targeted Therapies in Solid Tumors Group advances cancer care by refining subtype classification and validating tumor and immune biomarkers and therapeutic targets.

Our portfolio includes diagnostics HER2DX, DNADX; therapeutics ONA-255; and flagship trials PAMELA and CORALLEEN.

We perform genomics on tumor and blood samples from annotated cohorts to drive biomarker discovery and patient stratification.

We also develop biologics, leverage preclinical models to study response and resistance, and collaborate globally to translate our findings into the clinic.

KEYWORDS
Solid tumors
Genomics
Biomarkers
Targeted therapies
Immunotherapy

RELATED DISEASES
Breast cancer
Lung cancer
Urological cancer
Gastrointestinal cancer
Other solid tumors

Publications

Original articles	Mean IF	11,56
104	Q1	85%
	D1	38%
	MA	29%
	OA	78%
Others	Mean IF	8,26
3	Q1	50%
	D1	31%
	MA	54%
	OA	73%

IF = Impact Factor
MA = Main authorship (last or corresponding author)
OA = Open Access
Others includes reviews, editorials, clinical guidelines, letters and case reports

Directed PhD theses

3

- Paula Barbao
- Núria Chic
- Pablo Tolosa

Selected active grants

Diagnostic HER2DX- guided treatment for patients with early-stage HER2- positive breast cancer (DEFINITIVE).
European Comission.
CE_HE_CANCER23_RIA
PI: Aleix Prat

Desarrollo preclínico y clínico de un nuevo fármaco biológico para el tratamiento del cáncer de mama HR+/ HER2- negativo.
Agencia Estatal de Investigación.
AEI_CPP22
PI: Aleix Prat

Selected publications

Villacampa G, Navarro V, Matikas A, ... , Prat A, Oliveira M, Pascual T. **Neoadjuvant Immune Checkpoint Inhibitors Plus Chemotherapy in Early Breast Cancer.** *Jama Oncology.* 10(10):1331-1341. D1

Braso-Maristany F, Ferrero-Cafiero JM, Falato C, ..., Pascual T, Prat A, Oliveira M. **Patritumab deruxtecan in HER2-negative breast cancer: part B results of the window-of-opportunity SOLTI-1805 TOT-HER3 trial and biological determinants of early response.** *Nature Communications.* 15(1):5826. D1

Prat A, Solovieff N, Andre F, ... , Lteif A, Su F, Carey LA. **Intrinsic Subtype and Overall Survival of Patients with Advanced HR+/HER2- Breast Cancer Treated with Ribociclib and ET: Correlative Analysis of MONALEE-SA-2, -3, -7.** *Clinical Cancer Research.* 30(4):793- 802. D1

Llombart-Cussac A, Perez-Garcia J, Braso-Maristany F, ... , Mancino M, Prat A, Cortes J. **HER2DX Genomic Assay in HER2-Positive Early Breast Cancer Treated with Trastuzumab and Pertuzumab: A Correlative Analysis from the PHERGain Phase II Trial.** *Clinical Cancer Research.* 30(18):4123-4130. D1

Conte B, Braso-Maristany F, Rodriguez Hernandez A, ... , Parker JS, Perou CM, Prat A. **A 14-gene B-cell immune signature in early-stage triple-negative breast cancer (TNBC): a pooled analysis of seven studies.** *Ebiomedicine.* 102:105043. D1

5.22

Melanoma: imaging, genetics and immunology

GROUP LEADER
Susana Puig (HCB)

Publications

Original articles	Mean IF	8,23
44	Q1	86%
	D1	39%
	MA	36%
	OA	75%
Others	Mean IF	6,86
32	Q1	81%
	D1	56%
	MA	31%
	OA	75%

IF = Impact Factor
MA = Main authorship (last or corresponding author)
OA = Open Access
Others includes reviews, editorials, clinical guidelines, letters and case reports

Directed PhD theses

4

- Shriley Alarcón
- Ignasi Martí
- Maria Javiera Pérez
- María Riquelme

Selected active grants

Novel health care strategies for melanoma in children, adolescents and young adults.
European Commission.
CE_HE_CANCER21_RIA
PI: Susana Puig

Intelligent Total Body Scanner for Early Detection of Melanoma (iToBoS).
European Commission.
CE_H2020-SC1_20_2s04
PI: Josep Malvehy

Selected publications

Björk JR, Bolte LA, Thomas AM, ... , Segata N, Hospers GAP, Weersma RK. **Longitudinal gut microbiome changes in immune checkpoint blockade-treated advanced melanoma.** *Nature Medicine.* 30(3):785-796. D1

Buehrer E, Kicinski M, Mandala M, ... , Krepler C, Robert C, Eggermont AMM. **Adjuvant pembrolizumab versus placebo in resected stage III melanoma (EORTC 1325-MG/KEYNOTE-054): long-term, health-related quality-of-life results from a double-blind, randomised, controlled, phase 3 trial.** *Lancet Oncology.* 25(9):1202-1212. D1

Perez-Anker J, Soglia S, Lenoir C, ... , del Marmol V, Puig S, Malvehy J. **Criteria for melanocytic lesions in LC-OCT.** *Journal of the European Academy of Dermatology and Venereology.* 38(10):2005-2016. D1

Hernández-Pérez C, Combalia M, Podlipnik S, ... , Puig S, Vilaplana V, Malvehy J. **BCN20000: Dermoscopic Lesions in the Wild.** *Scientific Data.* 11(1):641. Q1

Perino F, Suarez R, Perez-Anker J, ... , Puig S, Peris K, Malvehy J. **Concordance of in vivo reflectance confocal microscopy and horizontal-sectioning histology in skin tumours.** *Journal of the European Academy of Dermatology and Venereology.* 38(1):124-135. D1

RESEARCH INTERESTS

Our research group specializes in dermoscopy, digital dermoscopy, confocal microscopy, new technologies, and artificial intelligence for skin lesion diagnosis and management.

We prioritize innovative treatment strategies for melanoma and other tumors, including immuno and targeted therapies. Our investigations encompass evaluating immune responses, studying genetic epidemiology, identifying biomarkers, and analyzing prognostic profiles in melanoma.

We also explore the mechanisms of carcinogenesis and photocarcinogenesis in skin cancer, as well as the study of congenital nevi.

KEYWORDS

Melanoma
Genetics
Dermoscopy
Confocal microscopy
Susceptibility

RELATED DISEASES

Melanoma
Giant congenital melanocytic nevi (GCMN)
Squamous cell carcinoma (SCC)
Basal cell carcinoma (BCC)
Xeroderma pigmentosum (XP)

5.23

Hepatic oncology (BCLC)

GROUP LEADER
Maria Reig (HCB)

RESEARCH INTERESTS

Research to improve liver cancer outcomes via:

1) Precision screening, staging and patient education for risk stratification, early detection and adherence (Directed by M. Reig).

2) Non-invasive radiological biomarkers for personalized prognosis (Directed by J. Rimola).

3) Predictive factors for treatments via computational biology, molecular/genetic markers, microbiota– immune interactions and vaccines. AI in radiology and pathology optimizes diagnosis, prognosis and clinical decisions.

These converge in BCLC.AI, integrating biological, clinical and imaging data to personalize care globally.

KEYWORDS
Liver cancer
Predictors of response
Animal models
Patients experience
BCLC.AI

RELATED DISEASES
Liver diseases
Hepatocellular carcinoma
Biliary tract cancer
Rare liver cancer
Primary liver cancer

Publications

Original articles	Mean IF	10,06
25	Q1	88%
	D1	48%
	MA	36%
	OA	68%
Others	Mean IF	12,20
20	Q1	80%
	D1	45%
	MA	65%
	OA	65%

IF = Impact Factor
MA = Main authorship (last or corresponding author)
OA = Open Access
Others includes reviews, editorials, clinical guidelines, letters and case reports

Directed PhD theses

4

- Gabriel Cárdenas
- Agnés Fernández
- Sergio Gabriel
- María Teresa Rodrigo

Selected active grants

Rational to modulate the Microbiome-induced Endoplasmic Reticulum stress as tool to avoid the immune evasion in Hepatocellular Carcinoma (RETO).
Asociación Española Contra el Cáncer.
AECC_GruposCoord23
PI: Maria Reig

A European Cancer Image Platform Linked to Biological and Health Data for Next-Generation Artificial Intelligence and Precision Medicine in Oncology EuCanImage.
European Commission.
CE_H2020_SC1_20_1s13
PI: Jordi Rimola, Aleix Prat

Selected publications

Fuster-Anglada C, Mauro E, Ferrer-Fàbrega J, ... , Reig M, Díaz A, Forner A. **Histological predictors of aggressive recurrence of hepatocellular carcinoma after liver resection.** *Journal of Hepatology*. 81(6):995-1004. D1

García-Criado A, Rimola J, Seijo S, ... , Reig M, García-Pagán JC, Bruix J. **MRI Using Gadoxetic Acid in the Work-Up of Liver Nodules Not Conclusively Benign in Budd-Chiari Syndrome: A Prospective Long-Term Follow-Up.** *Liver Cancer.* 13(2):203-214. D1

Sangro B, Chan SL, Kelley RK, ... , Kurland JF, Negro A, Abou-Alfa GK; HIMALAYA investigators. **Four-year overall survival update from the phase III HIMALAYA study of tremelimumab plus durvalumab in unresectable hepatocellular carcinoma.** *Annals of Oncology.* 35(5):448-457. D1

Wege H, Campani C, de Kleine R, ... , Sempoux C, Torzilli G, Zucman-Rossi J. **Rare primary liver cancers: An EASL position paper.** *Journal of Hepatology.* 81(4):704-725. D1

Merlos Rodrigo MA, Michalkova H, Jimenez Jimenez AM, ... , Martinez Chantar ML, Adam V, Heger Z. **Metallothionein-3 is a multifunctional driver that modulates the development of sorafenib-resistant phenotype in hepatocellular carcinoma cells.** *Biomarker Research.* 12(1):38. D1

5.24

Molecular genetics of paediatric lymphomas

GROUP LEADER

Itziar Salaverria (IDIBAPS)

Publications

Original articles	Mean IF	12,57
3	Q1	100%
	D1	100%
	MA	33%
	OA	100%
Others	Mean IF	7,40
1	Q1	100%
	D1	0%
	MA	0%
	OA	100%

IF = Impact Factor
MA = Main authorship (last or corresponding author)
OA = Open Access
Others includes reviews, editorials, clinical guidelines, letters and case reports

Selected active grants

New Genetic Signatures to advance in Pediatric B-cell Non-Hodgkin Lymphoma Precision Medicine (GenSigPedNHL).
Asociación Española Contra el Cáncer.
AECC_Proyectos21
PI: Itziar Salaverria

Mecanismos genéticos en el desarrollo del linfoma no-Hodgkin pediátrico en pacientes inmunocompetentes y con inmunodeficiencia primaria.
Instituto de Salud Carlos III (ISCIII).
FIS_PI21/00479
PI: Itziar Salaverria

Selected publications

Mato S, Castrejón-de-Anta N, Colmenero A, ... , Campo E, Balagué O, Salaverria I. **MYC-rearranged mature B-cell lymphomas in children and young adults are molecularly Burkitt Lymphoma.** *Blood Cancer Journal.* 14(1):171. D1

Özoğul E, Montaner A, Pol M, ... , López C, Nadeu F, Campo E. **Large B-cell lymphomas with CCND1 rearrangement have different immunoglobulin gene breakpoints and genomic profile than mantle cell lymphoma.** *Blood Cancer Journal.* 14(1):166. D1

Rivas-Delgado A, López C, Clot G, ... , Giné E, López-Guillermo A, Beà S. **Testicular large B-cell lymphoma is genetically similar to PCNSL and distinct from nodal DLBCL.** *Hemasphere.* 8(10):e70024. D1

Huibers M, Abla O, Andrés M, ... , Wöessmann W, Burkhardt B, Attarbaschi A. **Large B-cell lymphoma-IRF4+in children and young people: time to reduce chemotherapy in a rare malignant mature B-cell neoplasm?** *Blood Advances.* 8(6):1509. Q1

RESEARCH INTERESTS

Our corrent research interest is the study of the genetic and molecular profiles of the different Non-Hodgkin Lymphoma subtypes in the pediatric and young adult population by applying high-resolution techniques to identify genetic alterations and genes/pathways that may be useful biomarkers in the diagnosis and management of these patients.

KEYWORDS

Non-Hodgkin Lymphoma
Pediatric cancer
Biomarkers
Genetics

RELATED DISEASES

Non-Hodgkin lymphoma
Pediatric Non-Hodgkin lymphoma

5.25

Hematopoietic progenitor cell transplantation

GROUP LEADER

Álvaro Urbano-Ispizua (HCB)

RESEARCH INTERESTS

The group is a pioneer center in Europe conducting clinical trials with academic CAR-T cells. (ARI-001, a CD19-CAR-T and ARI-002, a BCMA-CAR-T).

We are now initiating a clinical trial with ARI-007, a CART targeting CD7 antigen, for T-ALL and AML CD7+.

The group is currently focused on: (a) understanding the obstacles that lead to CAR therapy failure in solid tumors and hematologic malignancies and (b) developing next-generation CAR-T cell therapies with enhanced therapeutic potential.

We have also a high interest in hemopoietic stem cell transplantation, especially in the role of endothelium damage in the manifestations of several complications associated to this procedure.

KEYWORDS

Allogeneic transplantation
Immunotherapy
Adoptive T cell transfer
Chimeric antigen receptor
Veno-oclussive disease

RELATED DISEASES

Hematology malignancies

Publications

Original articles	Mean IF	5,95
39	Q1	82%
	D1	21%
	MA	36%
	OA	49%
Others	Mean IF	12,79
8	Q1	75%
	D1	38%
	MA	25%
	OA	63%

IF = Impact Factor
MA = Main authorship (last or corresponding author)
OA = Open Access
Others includes reviews, editorials, clinical guidelines, letters and case reports

Directed PhD theses

1

- Alexandra Pedraza

Selected publications

Delgado J, Juan M, Calvo G, Urbano-Ispizua A. **The development of academic CAR T cells.** *Lancet Haematology.* 11(7):e484-e485. D1

Andreu-Saumell I, Rodriguez-Garcia A, Muehlgrabner V, ... , Urbano-Ispizua A, Huppa JB, Guedan S. **CAR affinity modulates the sensitivity of CAR-T cells to PD-1/PD-L1-mediated inhibition.** *Nature Communications.* 15(1):3552. D1

Salas MQ, Cascos E, López-García A, ..., Cedillo A, Ortí G, Jurado Chacón M. **Cardiac events after allo-HCT in patients with acute myeloid leukemia.** *Blood Advances.* 8(21):5497-5509. Q1

Oliver-Caldes A, Español-Rego M, Zabaleta A, ... , Paiva B, Pascal M, Fernández de Larrea C. **Biomarkers of efficacy and safety of the academic BCMA-CART ARI0002h for the treatment of refractory multiple myeloma.** *Clinical Cancer Research.* 30(10):2085-2096. D1

Urbano-Ispizua A, Shah NN, Kekre N. **Point-of-care CAR T manufacturing solutions: can 1 model fit all?** *Blood Advances.* 8(23):6133-6136. Q1

TRANSVERSAL RESEARCH GROUPS

Annual scientific report 2024

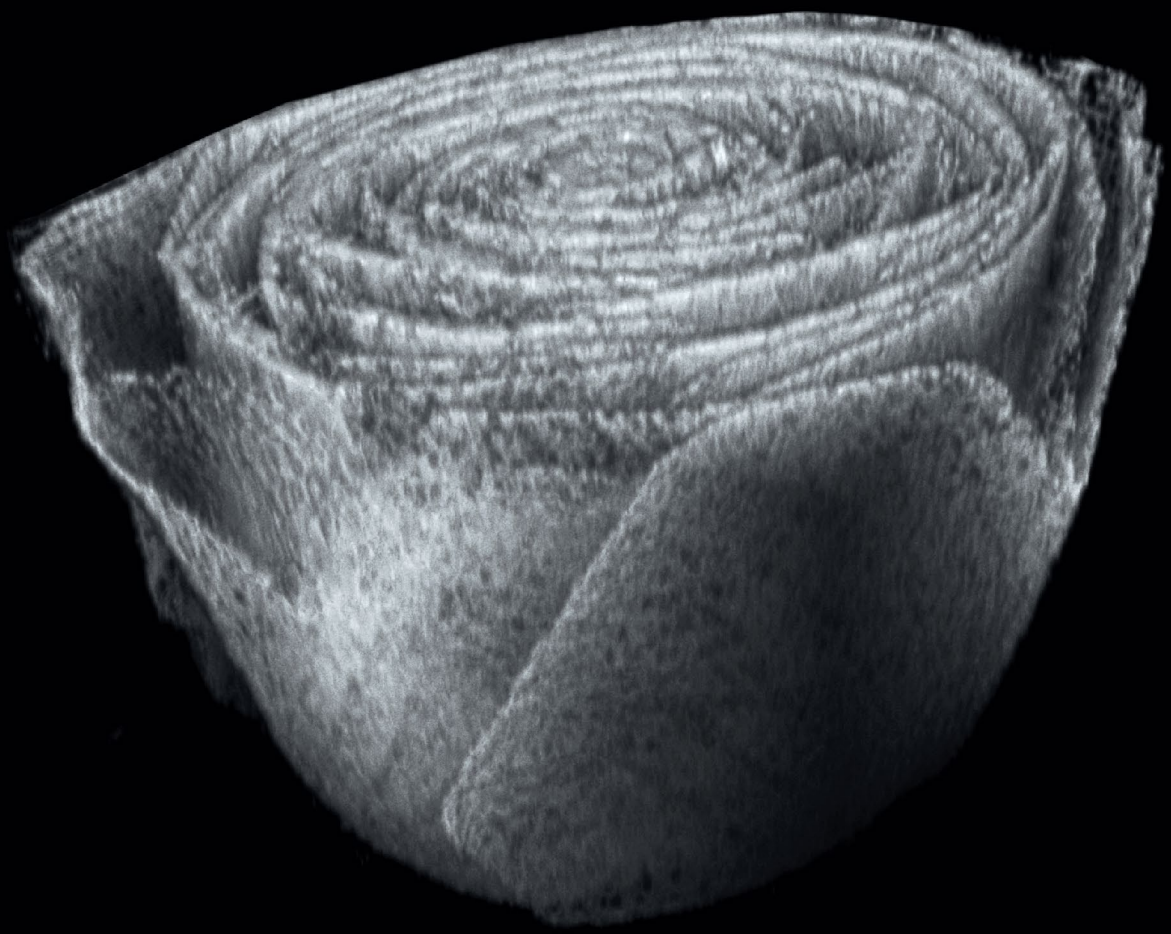


photo: **Marta Peña**

TRANSVERSAL RESEARCH GROUPS

T.1 **Clinical pharmacology**
Gonzalo Calvo-Rojas

T.2 **Multimodal imaging biomarkers**
David Fuster

T.3 **Primary healthcare transversal research group**
Antoni Sisó-Almirall

T.4 **Research in nursing**
Adelaida Zabalegui

T.01

Clinical pharmacology

GROUP LEADER
Gonzalo Calvo (HCB)

RESEARCH INTERESTS

Ethics in clinical research

Pharmacovigilance and pharmacoepidemiology

Advanced therapies

Regulatory affairs

Clinical trials: design, monitoring and methodology

Statistical design and analysis

Data management

Project management

KEYWORDS

Clinical trials, methodology & regulation

Ethics in clinical research

Pharmacovigilance & pharmacoepidemiology

Advanced therapies

Medical statistics

Publications

Original articles	**Mean IF**	**4,91**
15	Q1	60%
	D1	27%
	MA	27%
	OA	53%
Others	**Mean IF**	**6,56**
5	Q1	100%
	D1	40%
	MA	40%
	OA	60%

IF = Impact Factor
MA = Main authorship (last or corresponding author)
OA = Open Access
Others includes reviews, editorials, clinical guidelines, letters and case reports

Selected active grants

Seguimiento a largo plazo, colaborativo y en red, de productos de terapia avanzada de desarrollo académico. Estudio multicéntrico (proyecto Safety-CART).
Instituto de Salud Carlos III (ISCIII).
FIS_PI22/00959
PI: Gonzalo Calvo

Selected publications

Delgado J, Juan M, Calvo G, Urbano-Ispizua A. **The development of academic CAR T cells.** *Lancet Haematol.* 11(7):e484-e485. D1

Oliver-Caldes A, Español-Rego M, Zabaleta A, ... , Paiva B, Pascal M, Fernández de Larrea C. **Biomarkers of Efficacy and Safety of the Academic BCMA-CART ARI0002h for the Treatment of Refractory Multiple Myeloma.** *Clin Cancer Res.* 30(10):2085-2096. D1

Sáez-Peñataro J, Calvo G, Bascuas J, ... , Marcos MA, Egri N, Torres F. **Association between Reactogenicity and Immunogenicity in a Vaccinated Cohort with Two mRNA SARS-CoV-2 Vaccines at a High-Complexity Reference Hospital: A Post Hoc Analysis on Immunology Aspects of a Prospective Cohort Study.** *Vaccines (Basel).* 12(6):665. Q1

Olesti E, Nuevo Y, Bachiller M, ... , Varea S, Saez-Peñataro J, Calvo G. **Academic challenges on advanced therapy medicinal products' development: a regulatory perspective.** *Cytotherapy.* 26(3):221-230. Q1

Ríos J, Sapena V, Mariño Z, ... , Reig M, Torres F, Pontes C. **Incidence of Liver and Non-liver Cancers After Hepatitis C Virus Eradication: A Population-Based Cohort Study.** *Drugs Real World Outcomes.* 11(3):389-401. Q3

T.02

Multimodal imaging biomarkers

GROUP LEADER
David Fuster (HCB)

Publications

Original articles	**Mean IF**	**5,34**
29	Q1	69%
	D1	24%
	MA	8%
	OA	66%
Others	**Mean IF**	**6,25**
8	Q1	50%
	D1	38%
	MA	25%
	OA	38%

IF = Impact Factor
MA = Main authorship (last or corresponding author)
OA = Open Access
Others includes reviews, editorials, clinical guidelines, letters and case reports

Selected active grants

AI assisted PET/CT in the characterization of systemic inflammation in primary Sjögren's syndrome. Integration of Clinical, immunological, metabolic and transcriptomic data.
Instituto de Salud Carlos III (ISCIII).
FIS_PI23/01598
PI: David Fuster

Selected publications

Cabedo L, Sebastià C, Munmany M, ..., Rodriguez A, Paño B, Nicolau C. **O-RADS MRI scoring system: key points for correct application in inexperienced hands.** *Insights Imaging.* 15(1):107. Q1

Amseian G, Figueras M, Mases J, ... , Alcaraz A, Izquierdo L, Paredes P; Clinic Barcelona Nuclear Medicine (CBNM) Group. **cfDNA fragmentation patterns correlate with tumor burden measured via PSMA PET/CT volumetric parameters in patients with biochemical recurrence of prostate cancer.** *EJNMMI Res.* 14(1):124. Q1

Noorian F, Abellana R, Zhang Y, ... , Torne A, Agusti-Camprubi E, Rovirosa A. **Impact of Vaginal Dilator Use and 68 Gy EQD2(α/β=3) Dose Constraint on Vaginal Complications in External Beam Irradiation Followed by Brachytherapy in Post-Operative Endometrial Cancer.** *J Pers Med.* 14(8):838. Q1

Murias E, Puig J, Serna-Candel C, ... , Morales-Caba L, Comas-Cufí M, Vega P; On Behalf Of Rossetti Registry Investigators. **Enhancing the First-Pass Effect in Acute Stroke: The Impact of Stent Retriever Characteristics.** *J Clin Med.* 13(11):3123. Q1

Lopez-Rueda A, Puig J, Daunis-I-Estadella P, ... , Rayón JC, San Roman L, Blasco J; ROSSETTI Group. **Long and Large Stentrievers Improve Reperfusion Outcomes in Acute Intracranial Terminal Internal Carotid Artery Occlusion: Interim Results of the Rossetti Registry.** *Clin Neuroradiol.* 35(2):295-301. Q2

RESEARCH INTERESTS

Medical imaging is linked to innovation and new technologies. The aim of this interdisciplinary research group is to explore in depth the strategy of incorporating artificial intelligence in imaging techniques triyng to identify, validate and implement imaging biomarkers, radiomics or hybrid imaging for supporting decision- making.

The committed multidisciplinary vision of the group has made an impact on various areas, such as the generation of multimodal imaging data and records, theragnosis and virtual models of image fusion.

KEYWORDS

Artificial intelligence
Diagnostic imaging
Biomarkers
Radiomics
Technology

RELATED DISEASES

Oncology
Theragnosis
Mechanical thrombectomy
Interventional radiology
Radioguided surgery

T.03

Primary healthcare transversal research group

GROUP LEADER

Antoni Sisó-Almirall (CAPSBE)

RESEARCH INTERESTS

Healthcare continuity and management of chronic diseases

Management and use of healthcare services

Elderly: frailty - geriatrics - dependency - homecare

Use of medicines

Primary care and autoimmunity

Atherogenesis prevention, risk factors and cardiovascular diseases

Chronic pain

Mental health, smoking and other addictions

Respiratory diseases

Digestive and liver diseases

HIV infection - AIDS and other infectious diseases

Digital health and Generative Artificial Intelligence

Health community

COVID-19

KEYWORDS

Primary healthcare
Family physician
General practitioner
Health care innovation
Chronic diseases

Publications

Original articles	**Mean IF**	**2,66**
7	Q1	57%
	D1	0%
	MA	29%
	OA	71%
Others	**Mean IF**	**8,23**
3	Q1	33%
	D1	33%
	MA	100%
	OA	67%

IF = Impact Factor
MA = Main authorship (last or corresponding author)
OA = Open Access
Others includes reviews, editorials, clinical guidelines, letters and case reports

Directed PhD theses

1

- Sònia Moreno

Selected active grants

Impacte multidimensional immediat i diferit de la sindèmia SARS-COV-2 en la salut comunitària: Anàlisi i modelització en la població atesa a CAPSBE durant el període 2020-2024.
Generalitat de Catalunya.
SLT021/21/000066
PI: Dr. Antoni Sisó-Almirall

P4COPD: Prediction, Prevention, Personalized and Precision management of COPD in young adults. IP:
Instituto de Salud Carlos III (ISCIII).
IMPACT_22
PI: Dr. Antoni Sisó-Almirall

Selected publications

Ramos-Casals M, Sisó-Almirall A. **Immune-Related Adverse Events of Immune Checkpoint Inhibitors.** *Ann Intern Med.* 177(2):ITC17-ITC32. D1

Brito-Zerón P, Flores-Chávez A, González-de-Paz LI, ... , Starita-Fajardo G, Sánchez-Niño R, Ramos-Casals M; SarcoGEAS-SEMI Registry. **Temporal relationship between sarcoidosis and malignancies in a nationwide cohort of 1942 patients.** *Postgrad Med J.* 100(1190):898-907. Q1

Montero L, Fauró À, Gómis G, ... , Vázquez M, Roura-Rovira S, González-de Paz L. **A Systematic Evaluation for Oropharyngeal Dysphagia in Non-institutionalized Elderly Patients with Home Care-based in the Community.** *Dysphagia.* Q1

Frid S, Amat-Fernández C, Fuentes-Expósito MÁ, ... , Valachis A, Sisó-Almirall A, Grau-Corral I. **Mapping the Evidence on the Impact of mHealth Interventions on Patient-Reported Outcomes in Patients With Breast Cancer: A Systematic Review.** *JCO Clin Cancer Inform.* 8:e2400014. Q2

Herranz C, Gómez A, Hernández C, ... , Cano I, Piera-Jiménez J, Roca J. T**oward Sustainable Adoption of Integrated Care for Prevention of Unplanned Hospitalizations: A Qualitative Analysis.** *Int J Integr Care.* 24(2):28. Q2

T.04

Research in nursing

Publications

Original articles	**Mean IF**	**3,32**
5	Q1	40%
	D1	20%
	MA	40%
	OA	80%
Others	**Mean IF**	**2,40**
1	Q1	0%
	D1	0%
	MA	100%
	OA	100%

IF = Impact Factor
MA = Main authorship (last or corresponding author)
OA = Open Access
Others includes reviews, editorials, clinical guidelines, letters and case reports

Selected active grants

SoftEnable: Towards Soft Fixture-Based Manipulation Primitives Enabling Safe Robotic Manipulation in Hazardous Healthcare and Food Handling Applications.
European Commission.
CE_HE_C4_21_1s21_IA
PI: Adelaida Zabalegui

Selected publications

Sevilla-Guerra S, Zabalegui A, Comellas-Oliva M, ... , Martín-Baranera M, Rivera-Villalobos D, Ferrús-Estopà L. **How do healthcare professionals and managers view the role of the advanced practice nurse?** *Int Nurs Rev.* 71(2):335-351. D1

Martínez-Cibrián N, Ortiz-Maldonado V, Español-Rego M, ... , Urbano-Ispizua A, Juan M, Delgado J. **The academic point-of-care anti-CD19 chimeric antigen receptor T-cell product varnimcabtagene autoleucel (ARI-0001 cells) shows efficacy and safety in the treatment of relapsed/refractory B-cell non-Hodgkin lymphoma.** *Br J Haematol.* 204(2):525-533. Q1

Donaire A, Padilla N, Escrichs A, ... , Carreño M, Kringelbach M, Deco G. **Subject-based assessment of large-scale integration dynamics in epileptic brain networks: insights from the intrinsic ignition framework.** *Cereb Cortex.* 34(10):bhae419. Q2

Manzanares I, Kuramochi I, Olivera M, ... , Donaire A, Carreño MM, Conde-Blanco E. **Evaluation of self-stigma in patients with epilepsy: Validation of the self-stigma scale to Spanish (ESSS-S).** *Epilepsia Open.* 9(6):2384-2394. Q2

Pérez-Perdomo A, Zabalegui A. **Teaching Strategies for Developing Clinical Reasoning Skills in Nursing Students: A Systematic Review of Randomised Controlled Trials.** *Healthcare (Basel).* 12(1):90. Q2

GROUP LEADER
Adelaida Zabalegui (HCB)

RESEARCH INTERESTS
Research in nursing is essential for responding to the healing demands of the current healthcare system.

Its complexity in the hospital setting is derived from the associated increase in patient severity upon admission, the reduction in hospital stay, the incorporation of new technologies, the aging of the population, patient requests for information, social change, and the global crisis.

KEYWORDS
Older people
Chronic care/Long-term care
Dementia
Best practice
Advance nursing practice

RELATED DISEASES
Empowerment
Chronic & aging care
Innovation
Professional competencies
Advanced practice

Group leaders index

Annual scientific report 2024

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Notes

Notes

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