ANNUAL REPORT 23

IDI BAPS


IDIBAPS

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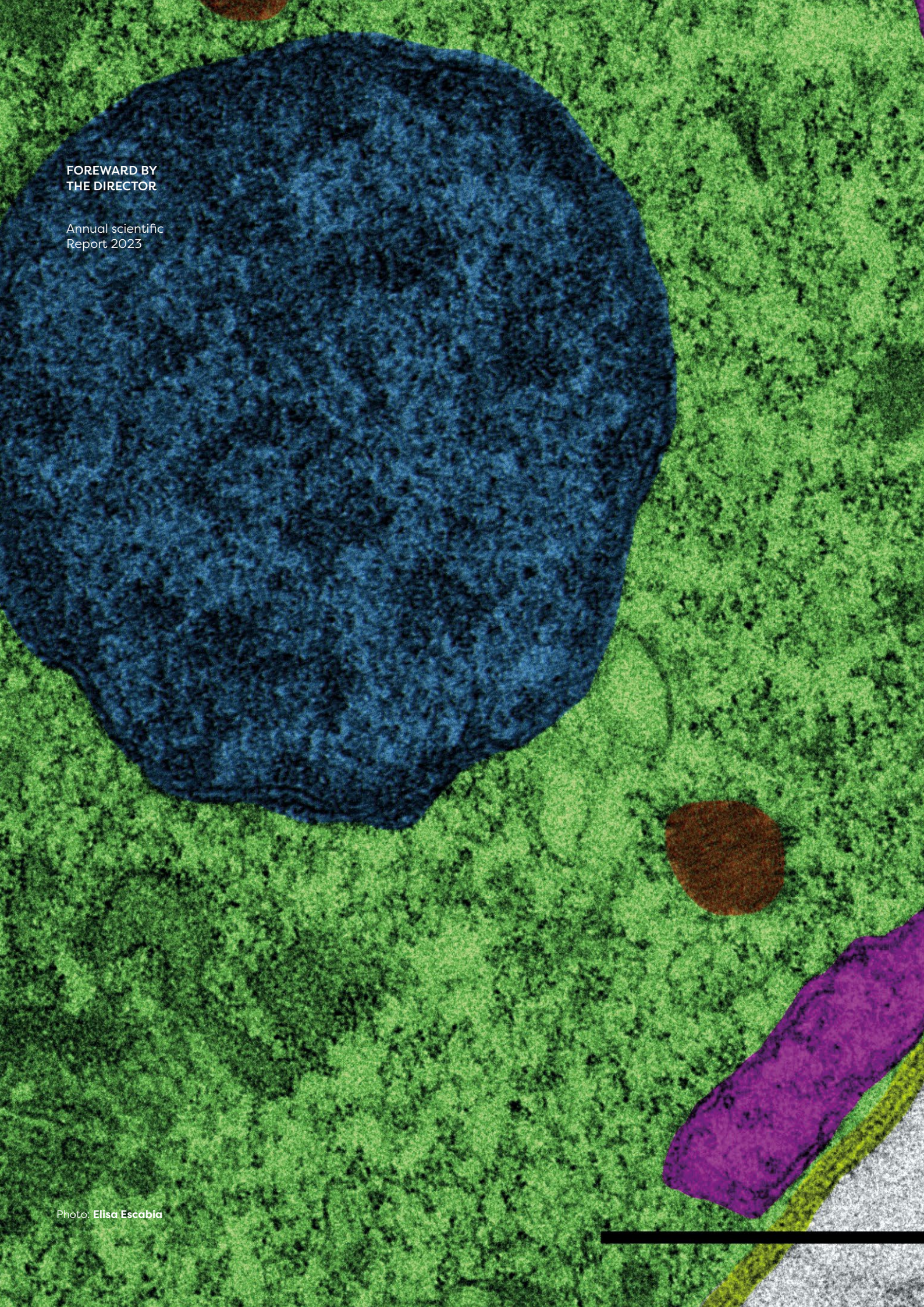
ANNUAL SCIENTIFIC REPORT 2023



FOREWARD BY THE DIRECTOR

Annual scientific Report 2023

Photo: **Elisa Escabia**

Foreward by the Director

Elías Campo
Director

As we reflect on 2023, IDIBAPS continues to stand at the forefront of biomedical research, renewing its commitment to scientific excellence, innovation, quality and rigorous research management, aligned with its mission to translate new discoveries into tangible benefits for patients. Our dedicated professionals, collaborative spirit, and cutting-edge core facilities have enabled us to make significant strides in understanding and combating some of the most pressing health challenges in our society.

This annual report reflects and highlights main key achievements.

Importantly, 2023 marked the inaugural meeting of our new Board of Trustees, following the merger of the Hospital Clínic Foundation for Biomedical Research (FCRB) with the August Pi i Sunyer Biomedical Research Institute (IDIBAPS), effective from January 1st. The board members acknowledged the institute's excellence over the past years, recognizing it as one of the largest biomedical research centres in Spain, in terms of critical mass, publications and funding. They committed their full support to further enhance IDIBAPS's impact on society and health.

As we continue our efforts to expand IDIBAPS research capabilities and foster new collaborations, this year we kicked off the first three IDIBAPS multidisciplinary research programmes, focused on common health challenges – specifically on solid tumours (with the support of La Caixa foundation), lymphoid neoplasms and autoimmune encephalitis, bringing together basic and clinical researchers, senior and junior leaders, while promoting women leadership. We expect these three programmes to catalyse novel common research lines, raise international funding and attract international talent with a highly positive impact on health and the institute itself. We have already launched a second internal call to promote new programmes in 2024 and therefore strengthen the initiative.

IDIBAPS scientific production continues growing with over 1.418 original research articles and 42 clinical guidelines that are shaping clinical practice, with an increasing percentage of open access publications – 73% overall - to reach a global audience and foster knowledge sharing. The report illustrates some featured publications, selected by our scientific community based on their relevance, and showcasing diverse translational and clinical approaches to tackle respiratory, liver and inflammatory bowel diseases, colorectal and breast cancer, neurodegeneration and encephalitis, among others.

Underscoring the quality of our scientific endeavours as well as the professional support of our research managers, IDIBAPS researchers secured close to 300 new national and international prestigious grants, including two new highly competitive European Research Council (ERC) awards, two collaborative coordinated projects under the Cancer Mission, one collaborative coordinated project under the European Innovation Council (EIC), and one large coordinated project with > 20 public and private partners on chronic liver diseases under the Innovative Health Initiative of Horizon Europe. We also celebrate the award of the institutional CERTERA grant by the national Health Institute Carlos III to advance our research and develop novel advanced therapies.

IDIBAPS continued to focus on the development and support of our PhD students, recognizing them as the future leaders of biomedical research. With the support of a new PhD committee, including representatives of our faculty and PhD students, we offered a range of training activities designed to enhance their academic and professional growth. We were finally able to relaunch the PhD day, organized by the PhD community for the PhD community, a lively event with flash talks, prizes and social activities, which we were deeply missing after the COVID-19 pandemic.

Collaboration is pivotal for IDIBAPS research and in 2023, we strengthened our partnership with the Barcelona “Esquerra” Primary Healthcare Consortium (CAPSBE) to strengthen research in primary healthcare. CAPSBE is a key actor within the Campus Clínic, an interdisciplinary campus committed to impact on health and society through interdisciplinary partnerships, including the Hospital Clínic of Barcelona and the Faculty of Medicine of the University of Barcelona. Beyond the Campus Clínic, IDIBAPS continues nurturing multiple national and international collaborations.

Research requires continuous investments in new cutting-edge technologies. Our committed Core Facilities incorporated new instruments and expertise, including spatial transcriptomics, full spectrum flow cytometry, digital pathology services and new magnetic resonance imaging protocols, to enable our researchers to tackle complex biomedical problems with state-of-the-art approaches. To strengthen our partnership with the technological services of the University of Barcelona, we also celebrated for the first time a joint open day for the whole research community, to show case the available technologies and expertise in the Campus Clínic.

IDIBAPS continues to foster innovation, in collaboration with other actors within the Campus Clínic, as exemplified by our achievements in filing 24 new patents and shaping novel collaborations with national and international industrial partners. To trigger entrepreneurship and innovation culture among our community, the IDIBAPS knowledge and technology transfer team organized a successful interactive workshop to learn how to bring innovative ideas and results to the market, in the framework of the Clínic Summer School.

In the framework of our HRS4R accreditation, we continued fostering actions towards gender equality as well as openness in research. We launched our new comprehensive Open Science policy, increasing transparency and openness of IDIBAPS research outputs and covering multiple aspects, from open access to publications, to FAIR research data management and research evaluation. Committed to environmental sustainability, we also organized the first “Think Green” day, raising awareness among our professionals about the impact of our research on the environment and promoting good practices to reduce energy consumption and waste, and promote recycling.

This year, Rosa Vilavella retired as IDIBAPS Managing Director. We have no words to express our gratitude to her committed dedication and professional management which have left a profound imprint in our institution. She created a style of collaboration with her solid team, paradoxically combining rigorous criteria and flexibility with her optimistic character and permanent smile. She will be greatly missed but her legacy is a strong pilar of our institution. We extend our best wishes to her as she embarks on this new chapter in her personal life. We warmly welcome and thank David Badia for accepting the challenge of this direction. With his extensive experience in research management and new ideas and initiatives, he will greatly contribute to the institute´s success.

To conclude, as another year comes to a close, the remarkable results we have achieved together—with our community, external collaborators, and the full support of our patrons—demonstrate that we are not only advancing science but also shaping the future of healthcare. We remain committed to this mission and look forward to continuing our impactful work in the years to come.

INTRODUCTION

Annual scientific
Report 2023

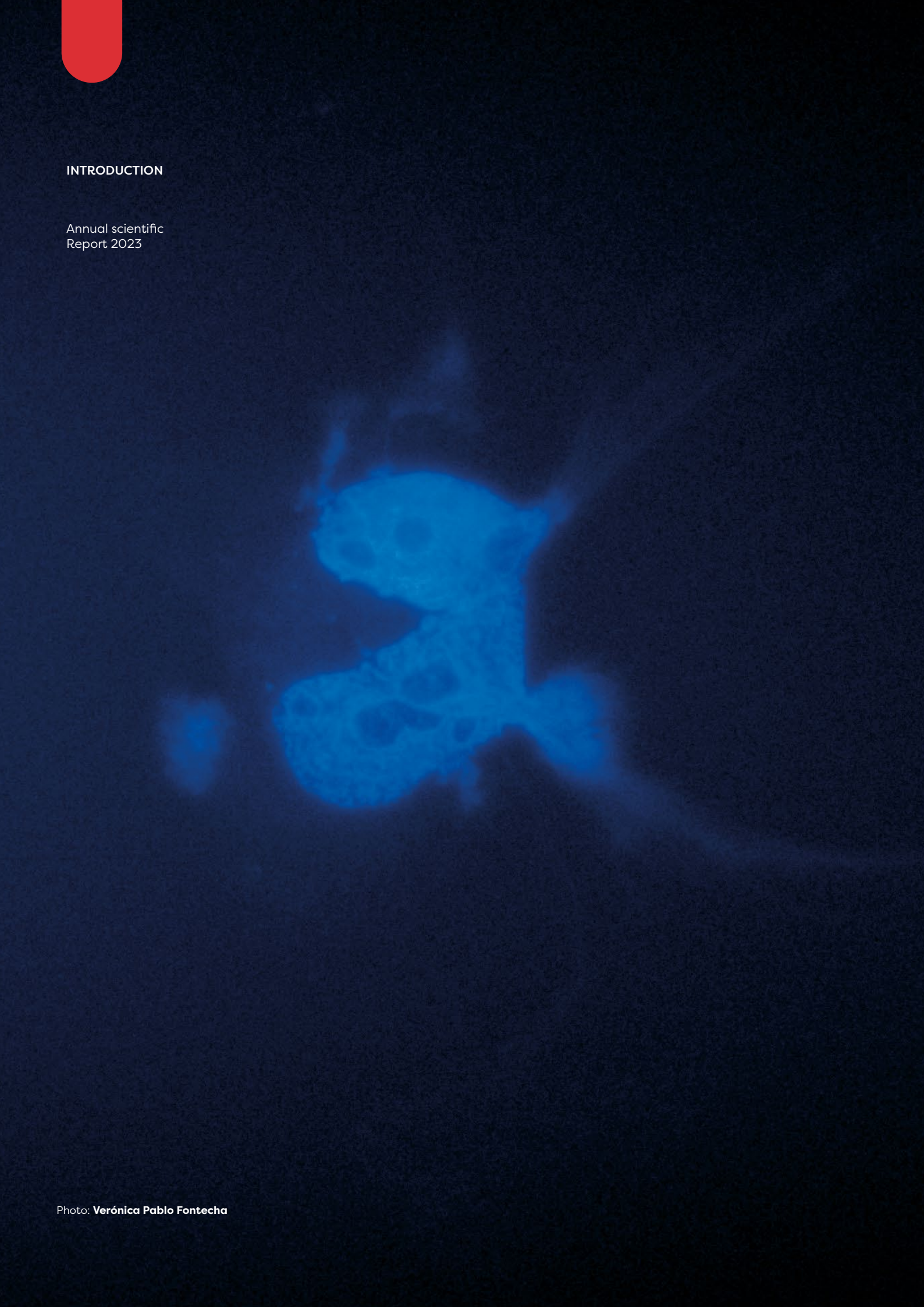


Photo: **Verónica Pablo Fontecha**

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 5 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
Oncology and haematology

Additionally, 3 interdisciplinary groups perform research in Primary Healthcare, Nursing, and Clinical Pharmacology.

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.

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

Rosa Vilavella (until August)
David Badia (since September)
Managing Director

Laura Lopera
Secretary

Juan Abolafia
Head of European and International Projects

Daniel Arbós
Head of Communication

Sergio Camacho
Head of Economic Planning and Management Control

Núria Castro
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)

Judit Martínez
Head of Project Management

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.

CHAIRMAN
Manel Balcells i Díaz
Health Minister,
Generalitat de Catalunya

VICE-CHAIRMAN
Joaquim Nadal i Farreras
Minister of Research and Universities,
Generalitat de Catalunya

2nd VICE-CHAIR
Josep Maria Campistol i Plana
CEO, Hospital Clínic Barcelona (HCB)

3rd VICE-CHAIR
Joan Guàrdia i Olmos
Rector, University of Barcelona (UB)

BOARD MEMBERS
Antoni Castells i Garangou
Medical Director, HCB

Montserrat Llavayol i Giralt
Deputy General Director for Research and Innovation in Health, Generalitat de Catalunya

Joan Gómez i Pallarès
General Director of Research. General Directorate for Research, Ministry of Research and Universities, Generalitat de Catalunya

Susana Puig i Sardà
Head of the Hospital Clínic Dermatology Service and IDIBAPS research group leader

Núria Mas i Canal
Economist specialising in the health sector, external representative

Jordi García i Fernández
Vice-rector for Research, UB

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

DELEGATE COMMITTEE

CHAIR
Joan Gómez i Pallarès
General Director of Research. General Directorate for Research, Ministry of Research and Universities, Generalitat de Catalunya

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

MEMBERS
Josep Maria Campistol i Plana
CEO, HCB

Antoni Castells i Garangou
Medical Director, HCB

Jordi García i Fernández
Vice-rector for Research, UB

MEMBERS WITH VOICE BUT NO VOTE
Josep Rodés i Cabau
Director of Research, HCB

Elías Campo i Güerri
IDIBAPS Director

Rosa Vilavella (until August)
David Badia (since September)
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
Jesús Ávila
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
IDIBAPS, Barcelona

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Instituto de Biomedicina de Sevilla (IBiS)

Carlos Macaya
Hospital Clínico San Carlos, Madrid

Óscar Marín
King's College London, UK

Federico Mayor
Centro de Biología Molecular Severo Ochoa, Madrid

Pura Muñoz
ICREA, Universitat Pompeu Fabra

Teresa Palomero
Columbia University, New York. USA

Angel Pellicer
NYU School of Medicine, New York, US

Francisco Sánchez-Madrid
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

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 (since October)
Multimodal neuroimaging in high risk and early psychosis group leader

Rosa Vilavella, 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
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 (since October)
Multimodal neuroimaging in high risk and early psychosis group leader

Michela Bertero
Director of Strategy
Rosa Vilavella, David Badia
Managing Director

SECRETARY
Gemma Llaverias
Head of Scientific Coordination

INSTITUTIONAL REPRESENTATIVES
Gisela Sugranyes (since June)
Elisenda Eixarch (since July)
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
Jordi Bruix, Coordinator (until September)
Francesc Balaguer, Representative

AREA 4
Anna Planas, Coordinator
Josep Dalmau, Representative

AREA 5
Dolors Colomer, Coordinator
Aleix Prat, Representative

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

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 spectrometry
1.5. Immunogenetics and immunotherapy of the immune and autoinflamatory responses
1.6. Immune receptors of the innate and adaptive system
1.7. AIDS and HIV infection
1.8. Emergencies: processes and pathologies
1.9. Endocarditis. Cardiovascular infections. Experimental model
1.10. Inflammatory joint diseases (IJDs)
1.11. Nosocomial infection

AREA 2.

RESPIRATORY, CARDIOVASCULAR AND RENAL PATHOBIOLOGY AND BIOENGINEERING

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

AREA 3.

LIVER, DIGESTIVE SYSTEM AND METABOLISM

3.1. Steatohepatitis and liver transplantation
3.2. Translational colorectal cancer genomics
3.3. Gastrointestinal and pancreatic oncology
3.4. Genetic predisposition to gastrointestinal cancer
3.5. Neuronal control of metabolism (NeuCoMe)
3.6. Inflammation and liver disease
3.7. Mitochondrial regulation of cell death and steatohepatitis
3.8. Translational control of liver disease and cancer
3.9. Gene therapy and cancer
3.10. Viral, genetic and immune-mediated liver diseases
3.11. Regulation of liver microcirculation in cirrhosis and hepatic vascular diseases
3.12. Chronic liver diseases: molecular mechanisms and clinical consequences
3.13. Liver vascular biology
3.14. Fetal and perinatal medicine
3.15. Metabolic bone disease
3.16. Endocrine disorders: crosstalk between molecular, metabolic and therapeutic determinants
3.17. Translational research in hepatic oncology
3.18. Gynecology, Human Reproduction and Women´s Health
3.19. Hepatocellular signaling and cancer
3.20. Translational research group in new therapeutic and diagnostic strategies in liver diseases
3.21. Pathogenesis and prevention of diabetes
3.22. Protective strategies against hepatic ischemia reperfusion injury
3.23. Hepatic oncology (BCLC)
3.24. Inflammatory bowel disease
3.25. Liver cell plasticity and tissue repair
3.26. Pathogenesis and treatment of autoimmunity
3.27. 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. Schizophrenia
4.4. Child and adolescent psychiatry and psychology
4.5. Cerebrovascular diseases
4.6. Theoretical neurobiology of cortical circuits
4.7. Pathogenesis of autoimmune neuronal disorders
4.8. Cortical circuit dynamics
4.9. Inherited metabolic diseases and muscular disorders
4.10. Neurophysiology
4.11. Clinical Neurophysiology
4.12. Neuropsychology
4.13. Advanced imaging in neuroimmunological diseases (ImaginEM)
4.14. Clinical addictions
4.15. Parkinson disease and other neurodegenerative movement disorders: clinical and experimental research
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.
ONCOLOGY AND HAEMATOLOGY

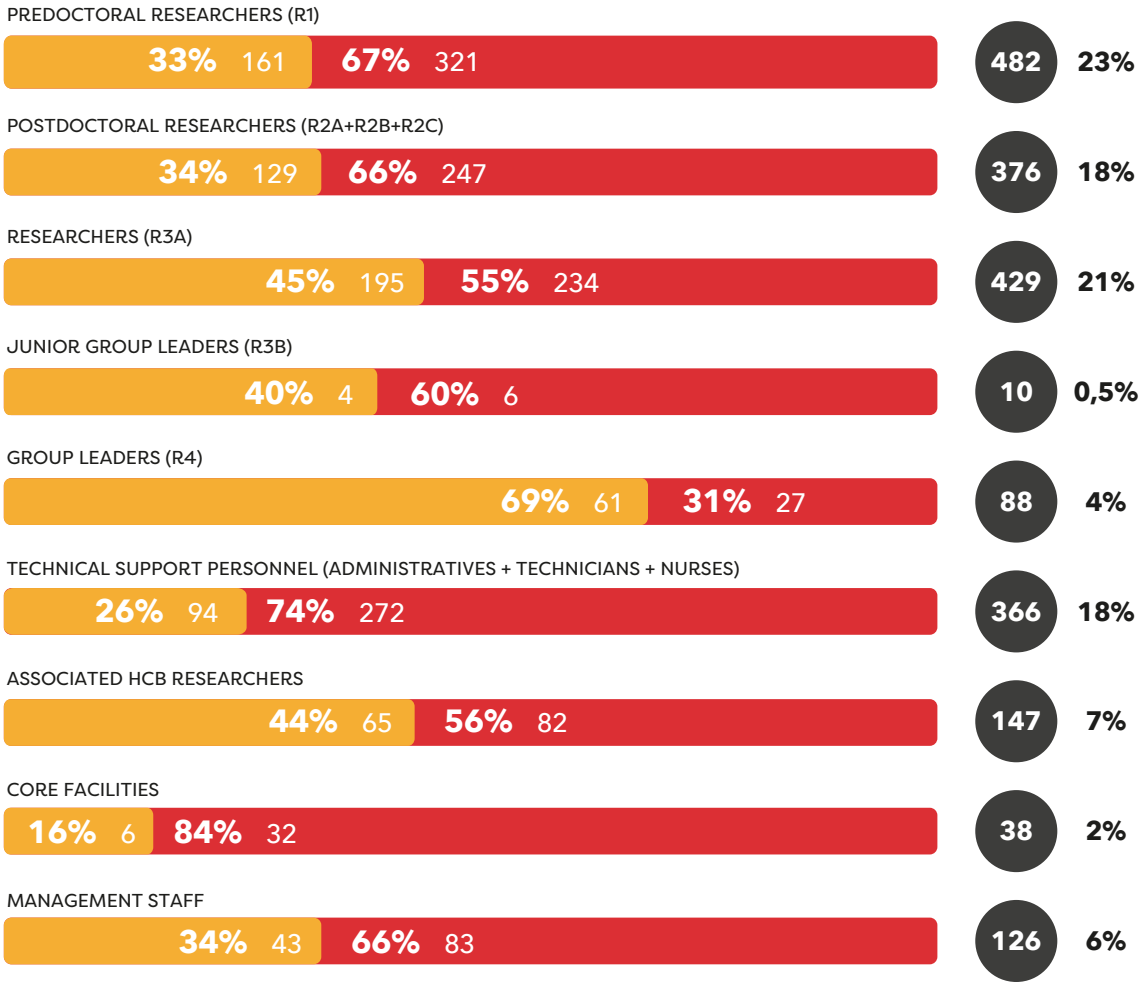
5.1. Signal transduction, intracellular compartments and cancer
5.2. Functional characterization of oncogenic mechanisms in lymphomagenesis
5.3. Molecular pathology of lymphoid neoplasms
5.4. Experimental therapies in lymphoid neoplasms
5.5. Molecular pathology of inflammatory conditions and solid tumours
5.6. Hemotherapy-hemostasis
5.7. Myeloid neoplasms
5.8. Myeloma, amyloidosis, macroglobulinemia and other gammapathies
5.9. Cellular immunotherapies for cancer
5.10. Lymphoid neoplasms
5.11. Biomedical epigenomics
5.12. Molecular biology of reproduction and development
5.13. Microenvironment in lymphoma pathogenesis and therapy
5.14. Lipid trafficking and disease
5.15. Diagnosis and therapy in oncology
5.16. Gene regulation in stem cells, cell plasticity, differentiation, and cancer
5.17. Translational genomics and targeted therapies in solid tumours
5.18. Melanoma imaging, genetics and immunology
5.19. Molecular genetics of paediatric lymphomas
5.20. Hematopoietic progenitor cell transplantation

TRANSVERSAL RESEARCH GROUPS

T.1. Clinical pharmacology
T.2. Primary healthcare transversal research group
T.3. Research in nursing

Staff


758
37%
Men
TOTAL
2,062
Women
1,304
63%


PREDOCTORAL RESEARCHERS (R1)
33% 161
67% 321
482
23%
POSTDOCTORAL RESEARCHERS (R2A+R2B+R2C)
34% 129
66% 247
376
18%
RESEARCHERS (R3A)
45% 195
55% 234
429
21%
JUNIOR GROUP LEADERS (R3B)
40% 4
60% 6
10
0,5%
GROUP LEADERS (R4)
69% 61
31% 27
88
4%
TECHNICAL SUPPORT PERSONNEL (ADMINISTRATIVES + TECHNICIANS + NURSES)
26% 94
74% 272
366
18%
ASSOCIATED HCB RESEARCHERS
44% 65
56% 82
147
7%
CORE FACILITIES
16% 6
84% 32
38
2%
MANAGEMENT STAFF
34% 43
66% 83
126
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 6 ICREA Research Professors and 2 ICREA Academy Professors:

Josep Dalmau
Pathogenesis of autoimmune neuronal disorders

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

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 develop 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

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

BITRECS, co-funded by the European Commission and La Caixa Foundation, is a research and training programme for postdoctoral fellows to boost the career as clinician scientists.

The programme trained 7 junior clinicians to develop their research career as clinician scientists, bridging biomedical research discoveries with clinical needs. During 2023, one fellow completed her project.

Isabel Valli

PROJECT
Neurodevelopmental influences in youth at high risk for psychosis: a multimodal diagnostic and prognostic model integrating genetic, environmental and neuroimaging data.

PRINCIPAL INVESTIGATOR
Gisela Sugranyes

EMERALD PROGRAMME

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. In 2023, IDIBAPS recruited 2 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 upon a competitive call evaluated by IDIBAPS SAB.

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 2023

Publication output and indicators

	OUTPUT	MEAN IF	%Q1	%D1	%MA	%OA
Original articles	1,418	9.6	66%	31%	45%	77%
Reviews	313	10.8	60%	28%	54%	68%
Editorials	95	12.1	67%	38%	81%	64%
Clinical guidelines	42	13.5	76%	50%	33%	93%
Others: Letters + Case reports	191	12.5	70%	37%	73%	48%
Consortium publications	63	20.7	90%	63%	3%	73%
TOTAL	2,122	10.6	66%	32%	49%	73%

FIGURE LEGEND

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

Mean IF
Mean impact factor (2022 Journal Citation Reports).

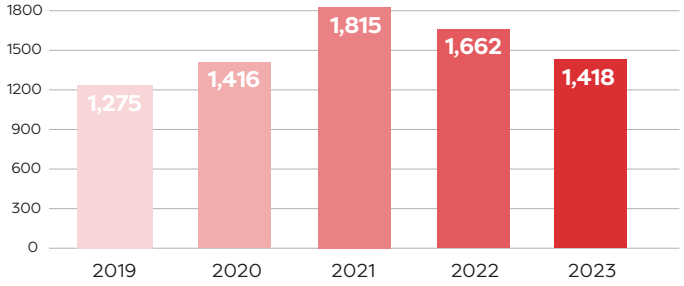
% Q1
% of publications published in journals ranked in the first quartile (top 25%) of their category as ordered by the 2022 Journal Citation Reports.

% D1
% of publications published in journals ranked in the first decile (top 10%) of their category as ordered by the 2022 Journal Citation Reports.

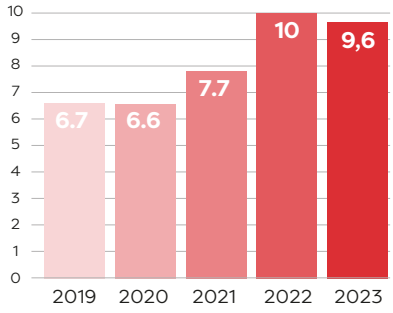
% MA
% of publications with main authorship (first, last or corresponding author is an IDIBAPS researcher).

% OA
% of publications in Open Access considering gold, green, hybrid and bronze route publications. Results have been obtained in July 2024 by means of the Unpaywall - Simple Query Tool.

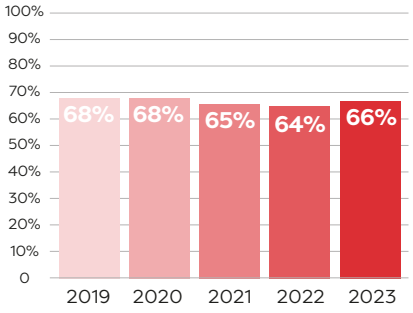
Evolution of the total number of original articles



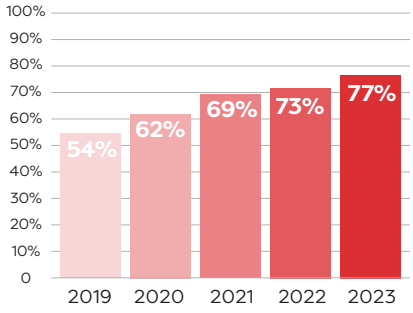
Evolution of the mean impact factor of original articles



Evolution of the %Q1 of original articles



Evolution of the %OA of original articles



Evolution of the total number of original articles per area

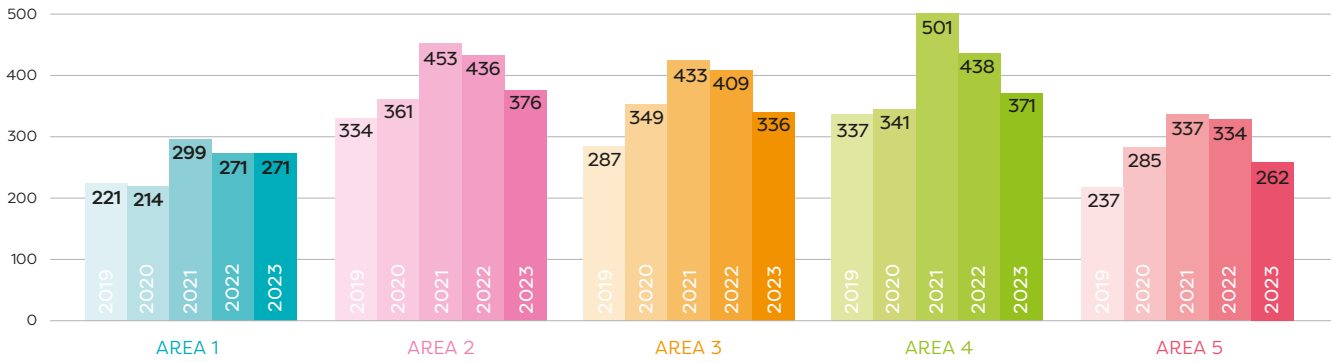


FIGURE LEGEND

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 2023.

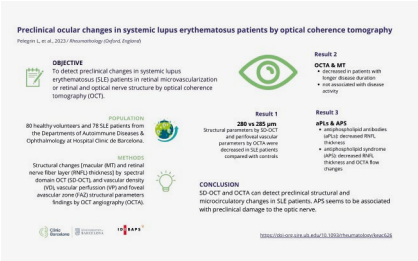
AREA 1

Preclinical ocular changes in systemic lupus erythematosus patients by optical coherence tomography.

Pelegrín L*, Morató M, Araújo O, Figueras-Roca M, Zarranz-Ventura J, Adán A, Cervera R, Casaroli-Marano RP, Budi V, Barrera-López L, Ríos J, Hernández-Rodríguez J, **Espinosa G**.

Rheumatology (Oxford), 2023

The aim of this cross-sectional, single-centre study was to detect preclinical changes in retinal microvascularization and retinal and optic nerve structure in systemic lupus erythematosus (SLE) patients by structural spectral-domain optical coherence tomography (SD-OCT) and perifoveal vascular findings by OCT angiography (OCTA). SD-OCT and OCTA can detect preclinical structural and microcirculatory changes in SLE, which were found to be mainly related to disease duration and damage, and with a concomitant antiphospholipid syndrome, by affecting the optic nerve and perifoveal microvasculature.



AREA 2

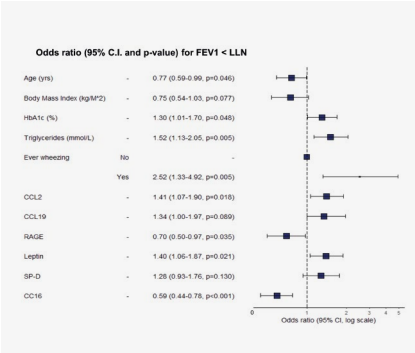
Circulating Biomarkers in Young Individuals with Low Peak FEV1.

Olvera N, Casas S, Vonk JM, Garcia T, Boezen HM, van den Berge M, Agusti A, **Faner R***.

Am J Respir Crit Care Med, 2023

About 10% of individuals in the general population do not achieve normal peak lung function in early adulthood (25-35 years) and suffer more comorbid diseases. Here we contrasted a panel of circulating biomarkers in 147 young individuals with low (n=147) or normal (n=153) lung function.

The former showed abnormal levels of CC16, CCL19, CCL2, SP-D and RAGE (all previously associated with COPD in older patients) as well as markers of systemic organ dysfunction (HbA1c and Leptin), suggesting shared mechanisms linking abnormal lung with other systemic organs development.



AREA 2

A long-lasting porcine model of ARDS caused by pneumonia and ventilator-induced lung injury.

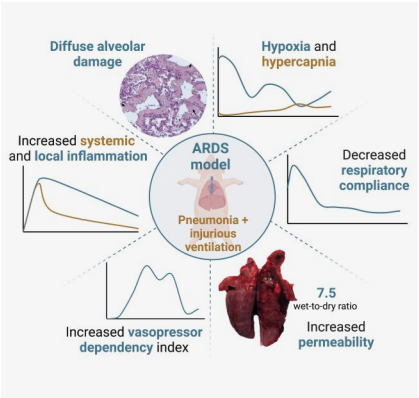
Barbeta E, Arrieta M, **Motos A***, Bobi J, Yang H, Yang M, Tanzella G, Di Ginnatale P, Nogas S, Vargas CR, Cabrera R, Battaglini D, Meli A, Kiarostami K, Vázquez N, Fernández-Barat L, Rigol M, Mellado-Artigas R, Frigola G, Camprubí-Rimblas M, Ferrer P, Martinez D, Artigas A, Ferrando C, Ferrer M, **Torres A***.

Crit. Care, 2023

Animal models of acute respiratory distress syndrome (ARDS) often fail to accurately mimic the features of the disorder in humans, hampering translational research.

We aimed to characterize a porcine model of ARDS induced by pneumonia—the most common risk factor—and injurious ventilation.

Our long-duration (i.e., 5 days) model was characterized by the development of severe oxygenation disorders and hypercapnia, a decrease in respiratory compliance, an increase in pulmonary permeability, the presence of cardiovascular dysfunction, pulmonary and systemic inflammation, and signs of diffuse alveolar damage.



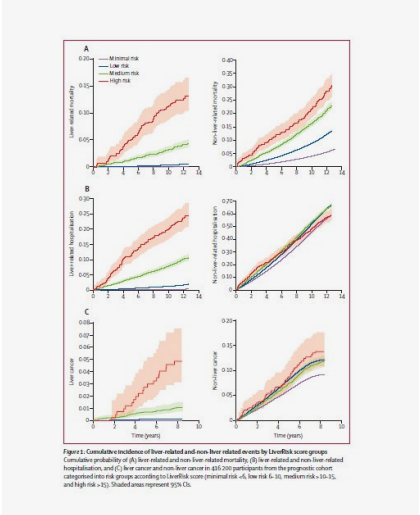
AREA 3

Development, validation, and prognostic evaluation of a risk score for long-term liver-related outcomes in the general population: a multicohort study.

"Serra-Burriel M, Juanola A, Serra-Burriel F, Thiele M, Graupera I, Pose E, Pera G, ..., Castera L, Krag A, Lammert F, Kamath PS, **Ginès P***; LiverScreen Consortium Investigators.

Lancet, 2023

We report on the LiverRisk score, which predicts accurately in an adult general population without known liver disease the degree of liver fibrosis, as estimated by liver stiffness measured by transient elastography. The LiverRisk score comprises six simple laboratory variables together with age and sex. The LiverRisk also accurately predicts long-term liver-related outcomes, including liver-related mortality, liver-related hospitalisation, and primary liver cancer, thus allowing stratification of individuals from the community according to risk of future liver disease outcomes.



AREA 3

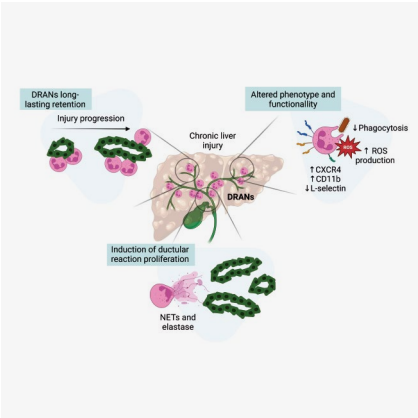
Ductular reaction-associated neutrophils promote biliary epithelium proliferation in chronic liver disease.

Ariño S, Aguilar-Bravo B, **Coll M***, Lee WY, Peiseler M, Paula Cantallops-Vilà, Sererols-Viñas L, Martínez-García de la Torre RA, Martínez-Sánchez C, Pedragosa J, Zanatto L, Gratacós-Ginès J, Pose E, Blaya D, Almodóvar X, Fernández-Fernández M, Ruiz-Blázquez P, Lozano JJ, Affo S, Planas AM, Ginès P, Moles A, Kubes P, **Sancho-Bru P***.

J. Hepatol, 2023

Ductular reaction is a maladaptive biliary regenerative response of the liver associated with poor outcome in advanced liver disease. In this study we describe a new population of neutrophils, that we named ductular reaction- associated neutrophils (DRANs).

DRANs are long lasting liver neutrophils with a unique phenotypic and functional profile, which promote ductular reaction. Overall, our study reveals the plasticity of neutrophils and identifies DRANs as a hallmark of advanced liver disease and a potential therapeutic target to mitigate defective wound-healing response.



AREA 3

Macrophage and neutrophil heterogeneity at single-cell spatial resolution in human inflammatory bowel disease.

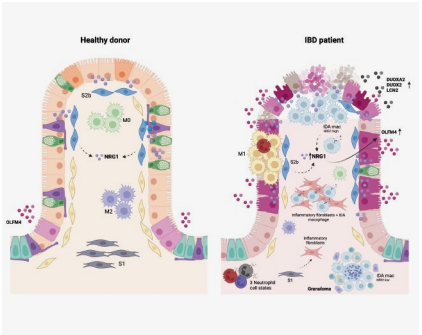
Garrido-Trigo A, Corraliza AM, Veny M, Dotti I, Melón-Ardanaz E, Rill A, Crowell HL, Corbí A, Gudiño V, Esteller M, Álvarez-Teubel I, Aguilar D, Masamunt MC, Killingbeck E, Kim Y, Leon M, Visvanathan S, Marchese D, Caratù G, Martin-Cardona A, Esteve M, Ordás I, Panés J, Ricart E, Mereu E, Heyn H, **Salas A***.

Nat Commun, 2023

We applied single-cell RNA sequencing (scRNA-seq) and spatial transcriptomics to study ulcerative colitis and Crohn's disease, exploring the transcriptional states and tissue localization of all intestinal cell types at an unprecedented resolution.

By integrating scRNA-seq data with spatial transcriptomics, we uncovered an unexpected heterogeneity within the macrophage and neutrophil compartments.

This study shows the potential of single-cell technologies to unravel the diversity and plasticity of intestinal macrophages and neutrophils, which we hypothesize contributes to disease heterogeneity.



AREA 3

RNF41 orchestrates macrophage-driven fibrosis resolution and hepatic regeneration.

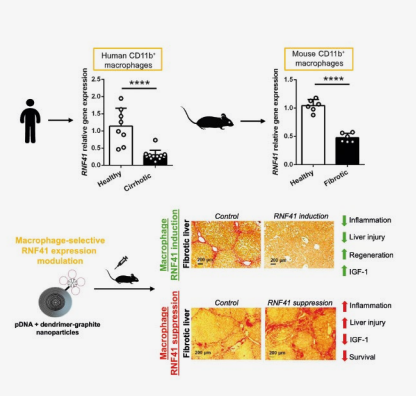
Moreno-Lanceta A, Medrano-Bosch M, Fundora Y, Perramón M, Aspas J, Parra-Robert M, Baena S, Fondevila C, Edelman ER, Jiménez W, **Melgar-Lesmes P***.

Sci Transl Med, 2023

RNF41 expression is reduced in CD11b+ macrophages recruited to the liver of fibrotic mice and cirrhotic patients regardless of cirrhosis etiology, likely due to prolonged inflammation.

Induced expression of RNF41 in liver macrophages using plasmids linked to dendrimer-graphite nanoparticles ameliorated liver fibrosis, reduced liver injury, and induced regeneration in the liver of fibrotic mice with or without hepatectomy.

This therapeutic effect was in part mediated by insulin-like growth factor 1. Suppression of macrophage RNF41 worsened liver inflammation, fibrosis, injury, and survival.



AREA 3

BMPR2 as a Novel Predisposition Gene for Hereditary Colorectal Polyposis.

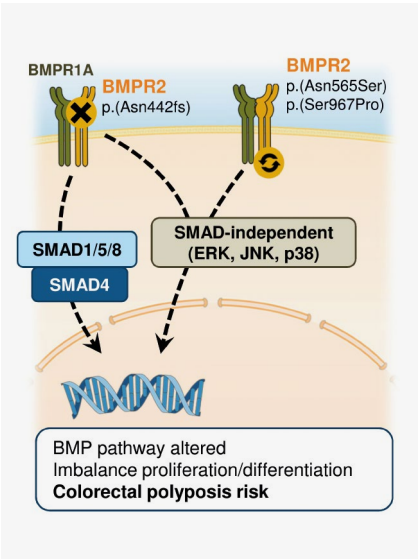
Bonjoch L, Fernandez-Rozadilla C, Alvarez-Barona M, Lopez-Novo A, Herrera-Pariente C, Amigo J, Bujanda L, Remedios D, Dacal A, Cubiella J, Balaguer F, Fernández-Bañares F, Carracedo A, Jover R, **Castellvi-Bel S***, Ruiz-Ponte C*.

Gastroenterology, 2023

This study identifies a new hereditary gene for colorectal cancer (CRC) and colonic polyposis. BMPR2 belongs to the bone morphogenetic protein (BMP) family, which plays a key role in CRC pathogenesis.

Pathogenic variants in BMP genes have been linked to juvenile polyposis and hereditary mixed polyposis syndromes. We used whole-exome sequencing and CRISPR-Cas9 modeling approaches to validate the impact of BMPR2 variants on cell growth inhibition.

We propose to include BMPR2 in prospective gene panels to better understand its implications and toward making it an actionable gene in the future.



AREA 4

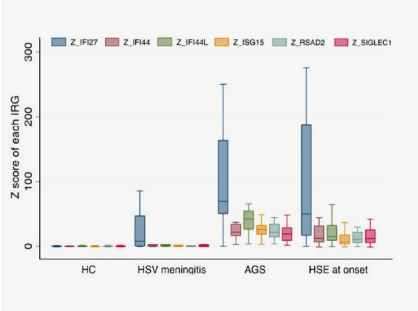
Neurologic complications in herpes simplex encephalitis: clinical, immunological and genetic studies.

Armangué T*, Olivé-Cirera G, Martínez-Hernandez E, Rodes M, Peris-Sempere V, Guasp M, Ruiz R, Palou E, González A, Marcos MA, Erro ME, Bataller L, Corral-Corral I, Planagumà J, Caballero E, Vlagea A, Chen J, Bastard P, Materna M, Marchal A, Abel L, Cobat A, Alsina L, Fortuny C, Saiz A, Mignot E, Vanderver A, Casanova JL, Zhang SY, **Dalmau J**.

Brain, 2023

Herpes simplex encephalitis (HSE) is the most frequent infectious encephalitis worldwide. Our group discovered that this infection can trigger autoimmune encephalitis in some patients.

In the current prospective multicenter study we investigated 200 patients with HSE and described the frequency of neuronal autoantibodies (43%); main synaptic antigens (NMDA receptors); the clinical manifestations, along with the identification of the risk factors for this viral-induced synaptopathy: absence of allele HLA*A02, and persistent activation of 6 interferon-related genes (interferon signature).



AREA 4

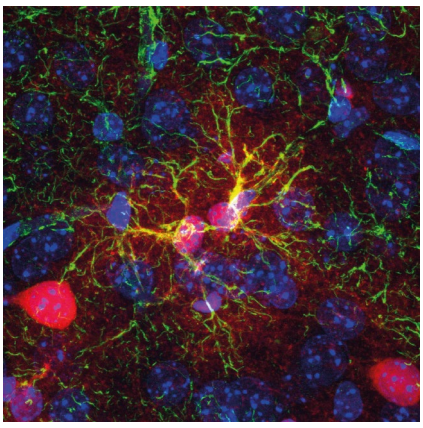
Ikzf1 as a novel regulator of microglial homeostasis in inflammation and neurodegeneration.

Ballasch I, García-García E, Vila C, Pérez-González A, Sancho-Balsells A, Fernández J, Soto D, Puigdellívol M, Gasull X, Alberch j, Rodríguez MJ, Canals JM, **Giralt A***.

Brain Behav Immun, 2023

In this paper, we have made a significant contribution by shifting the paradigm, demonstrating how an unexpected transcription factor, Ikaros, primarily enriched in circulating immune cells, plays a pivotal role as a homeostasis regulator in adult microglial cells.

Ikaros dynamically adjusts its function in response to the fluctuating states of microglia, either up-regulating or down-regulating depending on cellular requirements in both health (synaptic plasticity) and disease (inflammatory processes). Additionally, we have provided functional insights into how Ikaros modulates hippocampal-dependent memories.



AREA 4

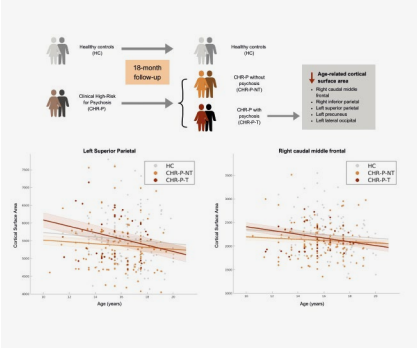
Longitudinal Changes in Cortical Surface Area Associated With Transition to Psychosis in Adolescents at Clinical High Risk for the Disease.

Fortea A, van Eijndhoven P, Ilzarbe D, Batalla A, Calvet-Mirabent A, de la Serna E, Puig O, Castro-Fornieles J, Dolz M, Tor J, Parrilla S, Via E, Stephan-Otto C, Baeza I, **Sugranyes G*** .

J Am Acad Child Adolesc Psychiatry, 2023

In this longitudinal study of 209 adolescents, youth at clinical high-risk for psychosis who developed the disorder presented greater age-related decrease in surface area of the fronto-parietal cortices relative to those who did not develop psychosis and controls.

This study documents, for the first time in youth, how changes in brain cortical structure parallel the emergence of psychotic symptoms. This piece was highlighted in Journal American Academy Child Adolescent Psychiatry (top cited journal in the field) Editor's Picks 2023 as one of the year's best examples of translational research.



AREA 4

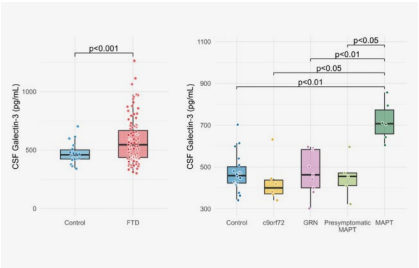
Galectin-3 is upregulated in frontotemporal dementia patients with subtype specificity.

Borrego-Écija S, Pérez-Millan A, Antonell A, Fort-Aznar L, Kaya-Tilki E, León-Halcón A, Lladó A, Molina-Porcel L, Balasa M, Juncà-Parella J, Vitorica J, Venero JL, Deierborg T, Boza-Serrano A*, **Sánchez-Valle R***.

Alzheimer's & Dementia Journal, 2023

The study discovers that the protein Galectin-3, a microglial activation regulator, is found at elevated levels in brain samples and cerebrospinal fluid of patients with frontotemporal dementia.

This finding paves the way for its use as a diagnostic biomarker for the disease and highlights the relation of Gal-3 with neuronal injury markers. Furthermore, the biomarker is particularly elevated in patients with mutations in the MAPT gene, suggesting its potential use as a screening marker for detecting MAPT gene mutation carriers.



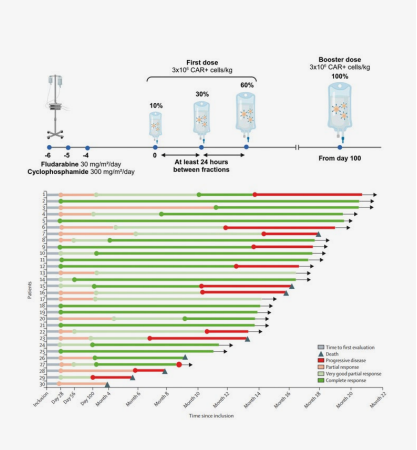
AREA 5

Fractionated initial infusion and booster dose of ARI0002h, a humanised, BCMA-directed CAR T-cell therapy, for patients with relapsed or refractory multiple myeloma (CARTBCMAHCB-01): a single arm, multicentre, academic pilot study.

Oliver-Caldés A, González-Calle V, Cabañas V, Español-Rego M, Rodríguez-Otero P, Reguera JL, López-Corral L, Martin-Antonio B, Zabaleta A, Inogés S, Varea S, Rosiñol L, López-Díaz de Cerio A, Tovar N, Jiménez R, López-Parra M, Rodríguez-Lobato LG, Sánchez-Salinas A, Olesti E, Calvo-Orteu M, Delgado J, Pérez-Simón JA, Paiva B, Prósper F, Sáez-Peñataro J, Juan M, Moraleda JM, Mateos MV, Pascal M, Urbano-Ispizua A, **Fernández de Larrea C***.

Lancet Oncology, 2023

Safety and activity of ARI0002h, a BCMA CAR T-cell developed in our center, was explored in 30 patients with relapsed multiple myeloma. Overall response was 100%, with 67% in complete response and a favorable toxicity profile. This research reports several novel findings for immunotherapy in myeloma, including a humanized fragment for antigen recognition, a fractionated administration scheme and a second CAR-T dose. This model also incorporates the concept of point-of-care, showing that a strategy based on 2 production sites and 5 treating hospitals is feasible in a public health system.



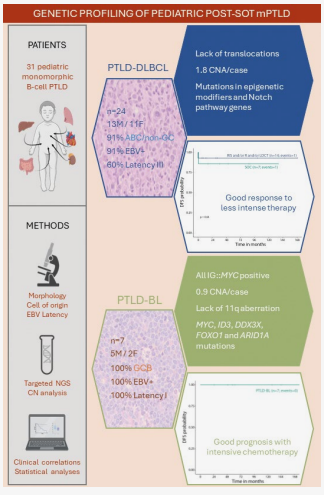
AREA 5

Decoding the molecular heterogeneity of pediatric monomorphic post-solid organ transplant lymphoproliferative disorders.

Salmerón-Villalobos J, Castrejón-de-Anta N, Guerra-García P, Ramis-Zaldivar JE, López-Guerra M, Mato S, Colomer D, Diaz-Crespo F, Menarguez J, Garrido-Pontnou M, Andrés M, García-Fernández E, Llavador M, Frigola G, García N, González-Farré B, Martín-Guerrero I, Garrido-Colino C, Astigarraga I, Fernández A, Verdú-Amorós J, González-Muñíz S, González B, Celis V, Campo E, Balagué O, **Salaverria I**.

Blood, 2023

We investigated the genetic features of pediatric monomorphic PTLD after solid organ transplant, including 24 DLBCL and 7 BL, by integrated molecular approach. Our results reveal low complexity of pediatric PTLD-DLBCL, good response to low-intensity treatment and shared pathogenesis between PTLD-BL and EBV+ IMC-BL. This national interdisciplinary work enhances our knowledge of PTLD classification and expected patterns of therapy response. It was published in the frontpage of Blood (D1), with a comment in the same issue (10.1182/-blood. 2023 020768) and received the Best SEHOP 2023 Paper Award.



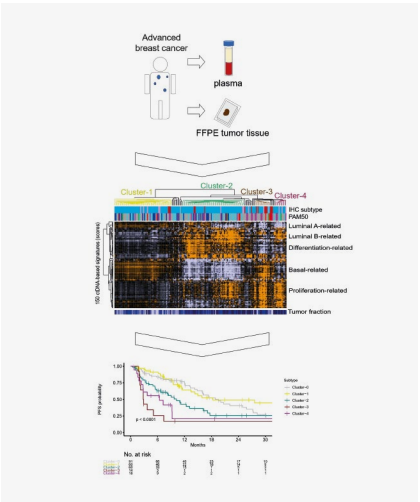
AREA 5

Circulating tumor DNA reveals complex biological features with clinical relevance in metastatic breast cancer.

Prat A*, Brasó-Maristany F, Martínez-Sáez O, Sanfeliu E, Xia Y, Bellet M, Galván P, Martínez D, Pascual T, Marín-Aguilera M, Rodríguez A, Chic N, Adamo B, Paré L, Vidal M, Margelí M, Ballana E, Gómez-Rey M, Oliveira M, Felip E, Matito J, Sánchez-Bayona R, Suñol A, Saura C, E Ciruelos, Tolosa P, Muñoz M, González-Farré B, Villagrasa P, Parker JS, Perou CM, Vivancos A.

Nature Communications, 2023

Liquid biopsy is promising in detecting genetic alterations, but its ability to capture complex tumor phenotypes is uncertain. Shallow WGS of plasma samples from 459 patients with metastatic breast cancer (BC), including those treated with endocrine therapy and CDK4/6 inhibitors, revealed ctDNA profiles that mirror biological features seen in tumor tissue. A ctDNA-based signature related to RB loss-of-heterozygosity and 4 DNA subtypes linked to poor response and survival. These finding have led to DNADX, a new diagnostic test currently being developed by the spin-off Reveal Genomics.



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 2023:

TOTAL NUMBER
42

76%
% International

33%
% 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 2023, IDIBAPS participated in 1453 clinical trials, including 15 academic independent trials, and the others industry-led trials. They initiated 237 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.

1,453

133 AREA 1
Biological aggression and response mechanisms

280 AREA 2
Respiratory, cardiovascular and renal pathobiology and bioengineering

124 AREA 3
Liver, digestive system and metabolism

140 AREA 4
Clinical and experimenta neuroscience

670 AREA 5
Oncology and haematology

106 Others

TECHNOLOGY TRANSFER AND INNOVATION

IDIBAPS manages 86 patent families and 18 proprietary software, including 65 active license agreements with several industry partners. During 2023, 24 new patent applications were filed: 14 priority patents, 6 PCTs, and 4 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, 12 of which are active companyies, based on discoveries and developments by HCB and IDIBAPS researchers.

24
New patents in 2023

14 Priority
6 PCTs
4 Entry in national phases

Funding

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

Funding sources

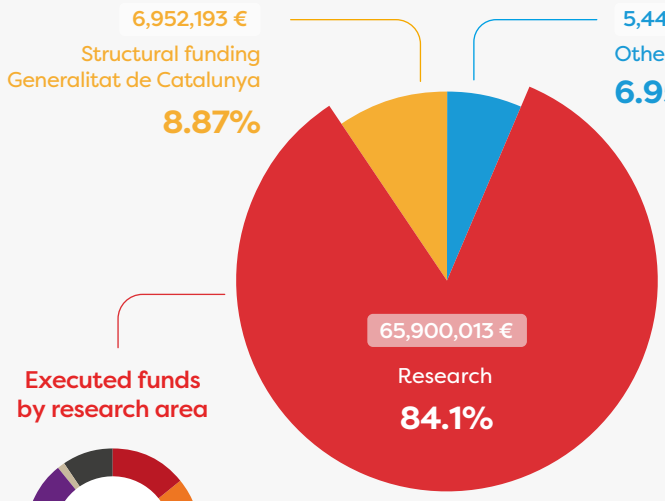
STRUCTURAL FUNDING	**6,952,193 €**	**8.87%**
Generalitat de Catalunya - Recerca i Universitats	5.744,722 €	82.6%
Generalitat de Catalunya - Salut	1.207,471 €	17.4%
ACTIVITIES R+D+I	**65,900,013 €**	**84.1%**
Competitive funding	27,972,374 €	42.4%
Contracts	27,273,398 €	41.3%
Services	2.940,610 €	4.4%
Donations	6,804,676 €	10.3%
Knowledge dissemination	908,955 €	1.3%
OTHER INCOME	**5,446,810 €**	**6.95%**
Rental income	1,170,699 €	21.4%
Other income	252,813 €	5.6%
Financial income	2,176,045 €	39.9%
Capital grant	1,847,253 €	33.9%

TOTAL
Funding sources

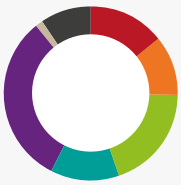
78,299,015 €

Total funding sources

78,299,015 €



Executed funds by research area



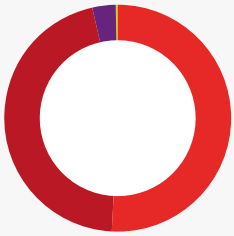
Area 1	6,812,631 €	10.3%
Area 2	8,459,652 €	12.8%
Area 3	13,104,244 €	19.8%
Area 4	9,143,093 €	13.8%
Area 5	22,427,397 €	34%
Transversal	716,923 €	1.1%
Other research	5,236,074 €	7.9%

Executed funds by source

National	48,184,626 €	73.1%
International	17,715,387 €	26.9%

Expenses

76,726,285 €



Assets	2,588,734 €	3.3%
Financial	7,114 €	0.01%
Personnel	39,114,904 €	50.9%
Current Expenses	35,015,533 €	45.6%

Institutional projects

New competitive projects

Total 294

216 Projects

78 Human resources grants

International 45

- **44** Projects
  - **29** European Commission. *Coordinated=4*
  - **4** National Institutes of Health. *New=2, Renewed=2*
  - **12** Other
- **1** Human resources grants
  - **0** European Commission
  - **1** Other

Spanish 160

- **99** Projects
- **61** Human resources grants

Catalan 89

- **73** Projects
- **16** Human resources grants

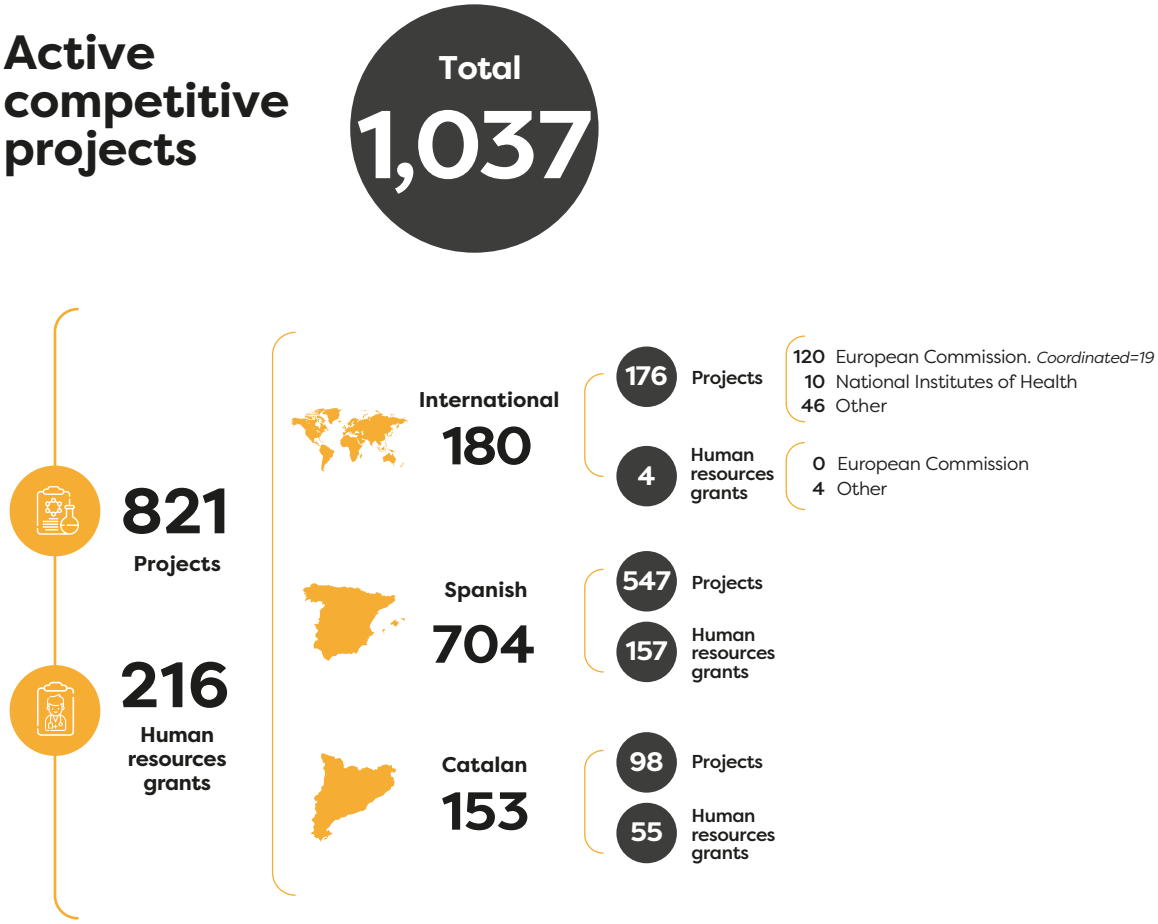
Staff of IDIBAPS research groups and other members of the Clínic Campus have actively participated in multiple International, Spanish and Catalan competitive calls.

As a result, 294 competitive projects were granted to IDIBAPS in 2023.

Of the 249 grants received in Catalonia and Spain, we highlight 76 grants funded by the ISCIII (of which 46 are Health R&D projects), 28 funded by the AEI (of which 9 are R&D projects), 8 funded by La Marató de TV3 (corresponding to the Cardiovascular call) and 4 funded by Fundació "La Caixa" (of which one is a research project).

45 new international competitive projects were obtained in 2023, some of them belonging to highly competitive and prestigious funding programmes such as: 2 projects funded by the European Research Council, 1 project belonging to the Marie Skłodowska-Curie Actions, 2 projects from the Cluster Health programme, 2 projects from the Mission Cancer (both leaded by our institution), 3 projects from the Innovative Health Initiative (1 of them leaded by our institution) and 2 projects funded by the European Innovation Council (Pathfinder Open funding programme (1 of them leaded by our institution)).

Active competitive projects



In 2023, there have been 1,037 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 equipments or facilities. Many of these competitive projects have been co-funded by the European Regional Development Fund (ERDF).

Of the 861 current grants in Catalonia and Spain, we highlight 371 grants funded by the ISCIII (of which 281 are Health R&D projects), 88 funded by the AEI (of which 54 are R&D projects), 139 funded by the government of Catalonia (of which 106 correspond to AGAUR and 42 to the Catalan Ministry of Health), 37 funded by La Marató de TV3, 23 funded by the AECC (of which 17 correspond to projects) and 19 funded by Fundació "La Caixa" (of which 10 are CaixaResearch Health projects).

180 international competitive projects were active in 2023, some of them belonging to highly competitive and prestigious funding programmes.

120 projects were funded by the European Commission including: 7 funded by the European Research Council (1 led by our institution), 8 projects belonging to the Marie Skłodowska-Curie Actions, 30 projects from the Cluster Health programme (2 led by our institution), 4 projects from the Mission Cancer (3 led by our institution), 10 projects funded by the Innovative Medicines Initiative, and 17 projects funded by the European Innovation Council (2 Future Emerging Technologies, 11 EIT Health and 4 Pathfinder Open). In total, 3 EIC projects are led by our institution. Other relevant projects include 10 funded by the National Institutes of Health.

Networks

IDIBAPS actively participates in múltiple and diverse national and international networks and alliances, focusing on science, technology, innovation as well as 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.

EBRAINS

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

EATRIS

European Infrastructure for Translational Medicine (EATRIS) to improve the productivity of translational research by providing high quality research services to public and private research entities.

EIT HEALTH

European Institute of Innovation and Technology, EIT Health to improve healthcare across Europe and focusing on promoting entrepreneurship and innovation in healthy living and active aging.

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.

EARA

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

ECRIN

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

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.

Eduard Vieta as Scientific director at CIBERSAM.

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

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

PLATAFORMA ISCIII
BIOBANCOS Y BIOMODELOS

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

OTHER NETWORKS

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

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

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

Catalan

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

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

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

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

Excellent biomedical research requires the use of highly specialized techniques, equipment and expertise. IDIBAPS runs five Core Facilities to provide all researchers with state-of-the-art technologies and high-quality technical expertise:

1 **Biobank**
2 **Flow cytometry and cell sorting**
3 **Functional Genomics**
4 **Magnetic Resonance Imaging**
5 **Medical Statistics**

During 2023, IDIBAPS Core Facilities started the implementation of AGENDO, a new software to professionalize their management and the interface with the users. In November 2023, IDIBAPS Core Facilities together with the Scientific and Technological Centers of the University of Barcelona (CCiTUB) organized the first Open Day, an open house event showcasing their scientific platforms.

NEW EQUIPMENT AND DEVELOPMENTS AT IDIBAPS CORE FACILITIES

• The **Biobank Core Facility** has incorporated a senior technician focused on DNA sample controls and a data manager responsible for optimizing databases. The sample catalog has expanded and diversified: the Neurological Tissue Bank has reached 2,300 donors; the Biological Fluids Bank now includes 45,000 donors; and the Tumor and Tissue Bank has access to > 1,800,000 donors from the Anatomy Department of Hospital Clínic. Moreover, the Biobank acquired a new high-resolution whole slide scanner, enhancing digital pathology services and generating ~3,000 imaging data sets; and a new technology for extracting nucleic acids from paraffin-embedded samples, ensuring fast and optimal results. The Biobank provided > 31,000 samples biological samples and associated data from donors who signed Biobank informed consent to 66 research projects (10% from international researchers).

• The **Flow Cytometry Core Facility** has acquired a CytoFLEX Flow Cytometer, with 3 active lasers and 13 channels for fluorescence detection, 96-well plate loader, Beadless Absolute Counting, and side scatter for small particle analysis. They now offer a new service: full spectrum flow cytometry, allowing the measurement of autofluorescence in any sample type and the possibility to analyse > 40 parameters. The Aurora full spectrum flow cytometer includes 5 lasers, 64 fluorescence channels and an autosampler option. This unique combination of innovative technologies takes flow cytometry to the next level of performance and flexibility from simple to high-complexity applications.

• The **Functional Genomics Core Facility** has expanded their services by incorporating a spatial transcriptomic platform (GeoMX Digital Spatial Profiler from Nanostring) for transcriptomic analysis of tissue sections (thanks to resources obtained from the Spanish Ministry of Science, Innovation and Universities). They also incorporated a senior technician dedicated to single-cell and spatial genomics.

• The **Magnetic Resonance Imaging (MRI) Core Facility** participated in the definition of the consensus protocol for resting-state functional imaging in rats (Nature Neuroscience: DOI: https://-doi.org/10.1038/s41593-023-01286-8). Moreover, this platform set-up an acquisition protocol to visualize mouse spine and a protocol to visualize and quantify liver tumors. They also implemented techniques to quantify imaging biomarkers for brain white matter damage and glymphatic system alterations (white matter hyperintensities and enlarged perivascular spaces) in collaboration with the University of Edinburgh. The MRI Platform also participated in the Spanish Strategic Network strengthening the Spanish node of the European digital research infrastructure on neuroscience, EBRAINS.

• The **Medical Statistics (MS) Core Facility** coordinated data management, methodology and statistical analysis of > 49 academic and private clinical trials (including 11 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 CART-BE-01, CART-BE-02, CART-PED, CART BCMA and ARTROCELL; related to COVID-19 vaccine HIPRA-HH-11; the European projects LIVERHOPE EFFEICACY and ORTHOUNION; medical device DIALIVE.

	Services				Research	
	New internal users	New external users	Total attended users	IDIBAPS groups attended	Publications	Acknowledged publications
1 Biobank	63	44	300	35	10	5
2 FC & CS	14	3	146	41	0	1
3 FG	25	14	40	39	10	7
4 MRI	19	12	101	27	16	6
5 MS	17	2	164	19	28	0

Training

International PhD Programme

IDIBAPS launched its International PhD Programme to support predoctoral researchers along their professional journey at the institute and beyond.

Doctoral theses

107 Doctoral theses defended in 2023

10 Theses with European mention

PhD Day 2023

PhD day 2023, organised by and for the IDIBAPS PhD community with institutional support.

37 Posters and thesis presentations

107 Attendees

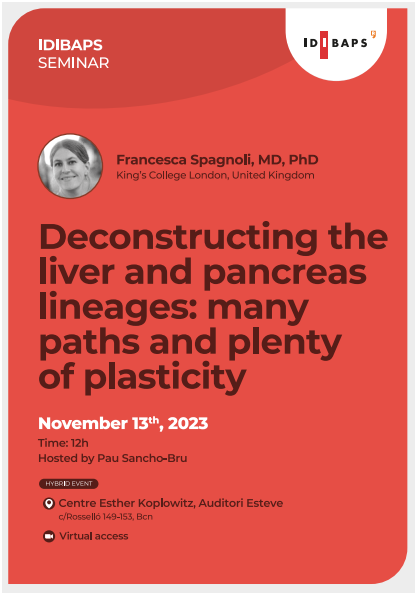
Seminars

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

1,492 Attendees

28 Total seminars

3	OGiP
7	IDIBAPS
3	In-House
2	Core Facilities
8	Liver
5	Toolbox talks



Sustainability

Courses

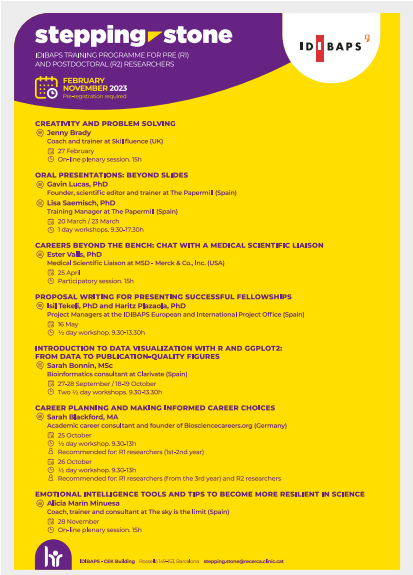
IDIBAPS implements a comprehensive training plan, including activities and courses to nurture talent and to support its professionals in developing the required knowledge and skills to succeed in their career.

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.

3 **Plenary sessions** | **94** Participants

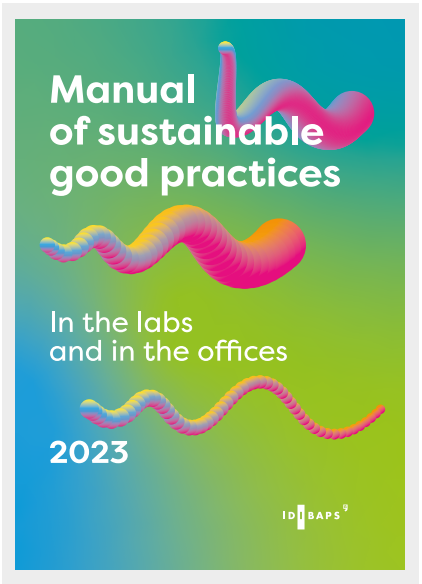
8 **Workshops** | **138** Participants



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 2023, IDIBAPS carried out multiple actions towards a more sustainable research institute:

- Campaign to set the ultra-freezer temperature to -70ºC.
- Replacement of single-use coats in culture rooms.
- Release and dissemination of the IDIBAPS sustainability manual.
- Over 60 people took part in the "Think Green" day, to raise awareness and promote more sustainable research.



Communication and public engagement

Media relations

28 Press releases

3,039 Media Appearances

Public relations

19 Organized events

Social media

Facebook likes
3,213*

X followers
16,962*

Linkedin followers
12,965 *

*at december 31th

Web

144 Published news

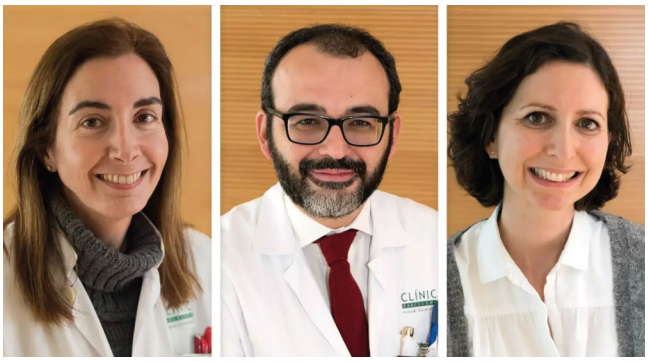
Public engagement

46 Activities

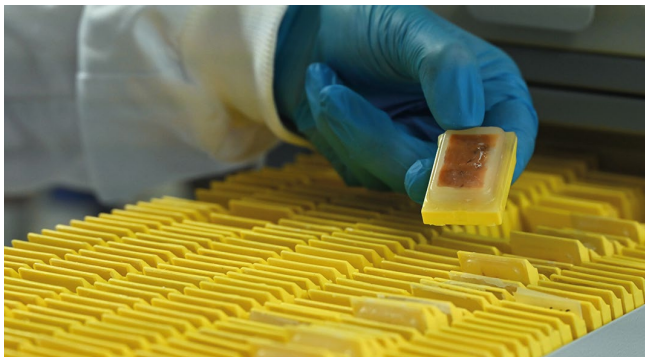
10,385 Audience

- **70** Primary school students *Assistants*
- **651** Secondary school students *Assistants*
- **7,887** Patients and patients' associations *Assistants*
- **1,777** General public *Assistants*

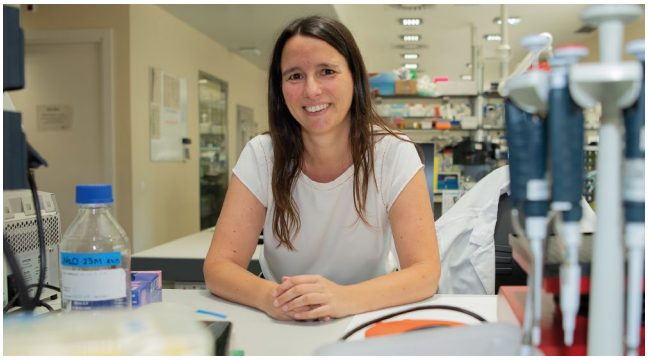
Institutional news



January
Isabel Blanco, Carlos Fernández de Larrea and Gisela Sugranyes, new senior group leaders.



April
The Neurological Tissue Bank reaches 2,300 donors.

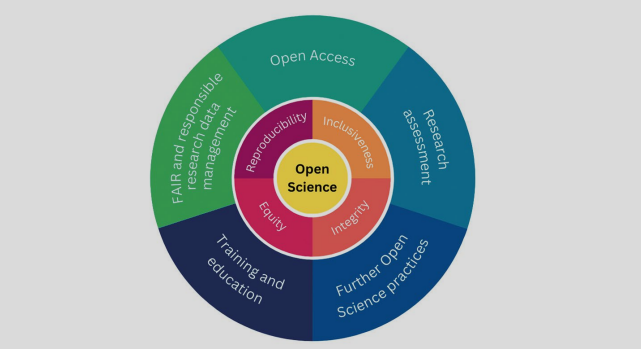


January
The research group 'Cellular immunotherapies for cancer' is created, led by Sònia Guedan.

May
The institution's Equality Plan is circulated.

March
Researcher Sílvia Affó receives an ERC Starting Grant.

May
Clínic Barcelona-IDIBAPS, the Suñol Foundation and the Glòria Soler Foundation collaborate in a project aimed at uniting art and science.

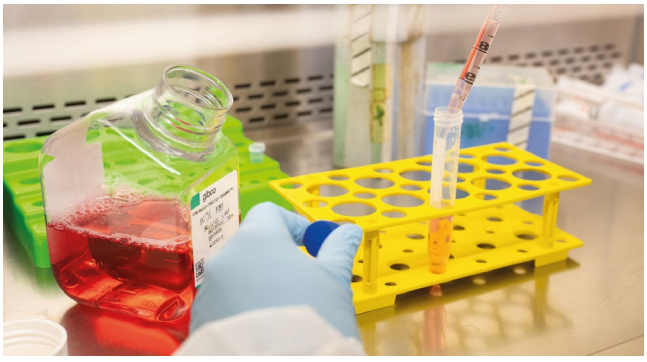


June
The first open science policy is approved.

July
A new collaboration agreement with the CAPSBE is signed.

June
The governing bodies of the institution are established.

October
Over 60 people participate in the “Think Green” Conference to promote more sustainable research. The institution’s sustainability manual is circulated.



July
Three multidisciplinary research programmes are created to encourage collaboration between IDIBAPS groups.

November
Seven researchers included among the most cited in the Clarivate Analytics ranking.

Awards and acknowledgements

May
Josep Dalmau receives the “Scientific Breakthrough 2023” Award from the American Brain Foundation.

June
Ramon Farré receives the “Research Innovation and Translation Achievement Award” from the American Thoracic Society.

May
The Lymphoma Research Foundation presents the Leadership Award to Elías Campo for his contribution to research in lymphomas.

July
Josep Dalmau receives the Camillo Golgi Award from the European Academy of Neurology.

June
Mariona Cid receives the Roger Demers Award from the Canadian Rheumatology Association.

September
José López Barneo, member of the IDIBAPS External Scientific Council, distinguished with the Ministry of Science and Innovation’s National Research Award.

1

BIOLOGICAL AGGRESSION AND RESPONSE MECHANISMS

Annual scientific
Report 2023

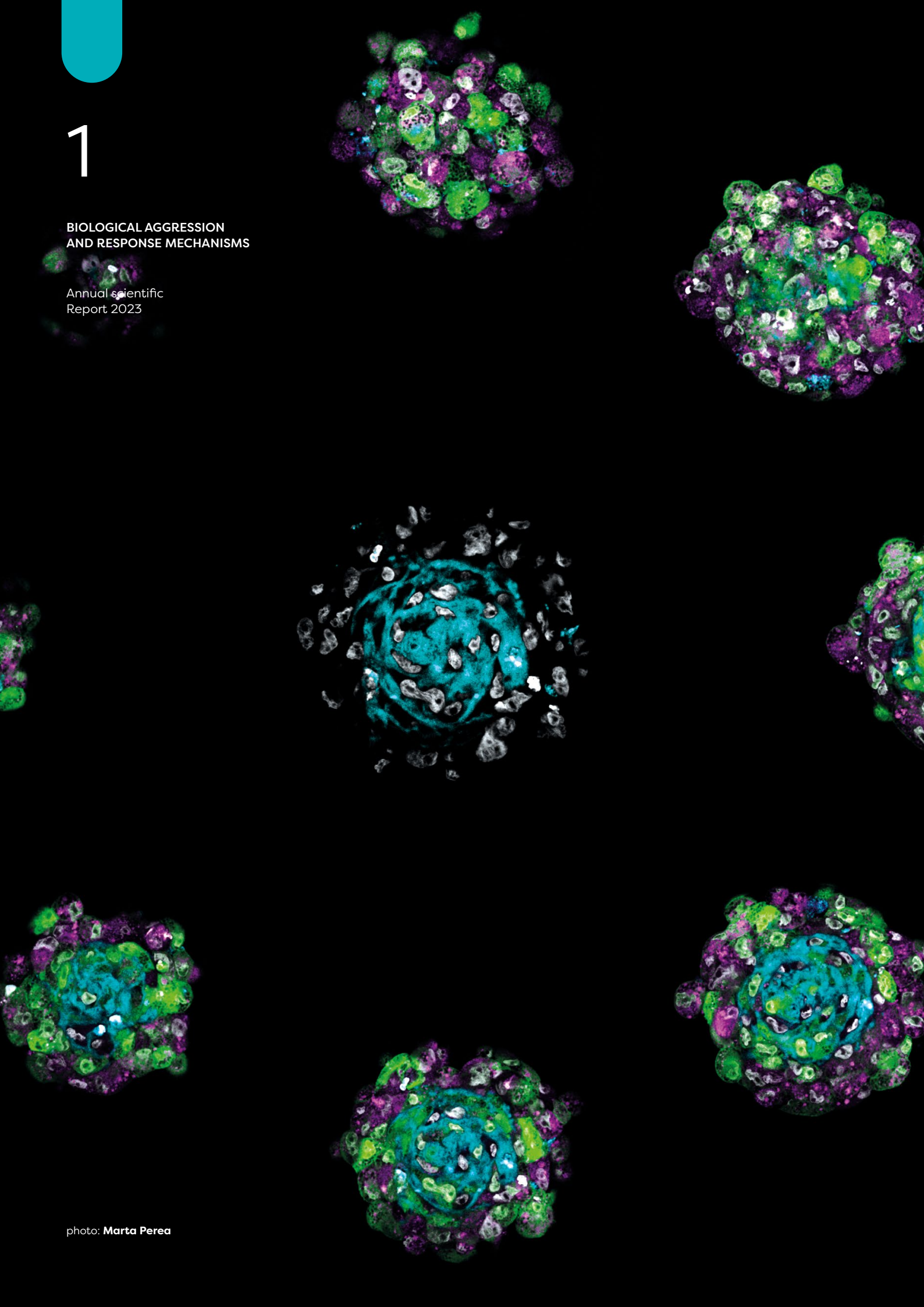


photo: **Marta Perea**

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

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

1.7 **AIDS and HIV infection**
Josep Mallolas

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

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

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

1.11 **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.

KEYWORDS
Ocular inflammation
Biomarkers
Imaging
Immune response

RELATED DISEASES
Uveitis
Age-related macular degeneration
Diabetic retinopathy
Glaucoma
Scleritis

Publications

Original articles	Mean IF	4,11
21	Q1	38%
	D1	5%
	MA	52%
	OA	62%
Others	Mean IF	4,76
8	Q1	38%
	D1	25%
	MA	38%
	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

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

Predicción de progresión de retinopatía diabética mediante inteligencia artificial aplicada a angiografía por tomografía de coherencia óptica.
Instituto de Salud Carlos III (ISCIII).
FIS_PI21/01384
PI: Javier Zarranz-Ventura

Selected publications

Molins B, Figueras-Roca M, Valero O, ... , Adán A, García-Vidal C, Soriano A. **C-reactive protein isoforms as prognostic markers of COVID-19 severity**. *Frontiers in Immunology*. 13:1105343. Q1

Opazo-Toro V, Fortuna V, Jiménez W, ... , Ventura-Abreu N, Brunet M, Milla E. **Genotype and Phenotype Influence the Personal Response to Prostaglandin Analogues and Beta-Blockers in Spanish Glaucoma and Ocular Hypertension Patients**. *International Journal of Molecular Sciences*. 24(3):2093. Q1

Sainz de la Maza M, Hernanz I, Moll-Udina A, ... , Martinez JA, Espinosa G, Llorenç V. **Presumed tuberculosis-related scleritis**. *British Journal of Ophthalmology*. 107(4):495-499. Q1

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(10):bjo-322297. Q1

Pazos M, Riera J, Moll-Udina A, ... , Martinez MJ, Sánchez-Dalmau B, Blanco JL. **Characteristics and Management of Ocular Involvement in Individuals with Mpox Disease**. *Ophthalmology*. 130(6):655-658. D1

1.02

Systemic autoimmune diseases

GROUP LEADER

Ricard Cervera (HCB)

Publications

Original articles	**Mean IF**	**6,33**
57	Q1	47%
	D1	9%
	MA	23%
	OA	68%
Others	**Mean IF**	**9,97**
10	Q1	40%
	D1	30%
	MA	60%
	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

3

- Giuseppe Barilaro
- Gilberto Pires da Rosa
- Priscila Giavedoni

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

Barilaro G, Esteves A, Della Rocca C, ..., Reverter JC, Cervera R, Espinosa G. **Predictive value of the Adjusted Global Anti-Phospholipid Syndrome Score on clinical recurrence in APS patients: A longitudinal study**. *Rheumatology*. 62(4):1576-1585. Q1

Pelegrín L, Morató M, Araújo O, ... , Ríos J, Hernández-Rodríguez J, Espinosa G. **Preclinical ocular changes in systemic lupus erythematosus patients by optical coherence tomography**. *Rheumatology*. 62(7):2475-2482. Q1

Mascaro JM, Rodriguez-Pinto I, Poza G, ... , Casals F, Yagüe J, Aróstegui J. **Spanish cohort of VEXAS syndrome: clinical manifestations, outcome of treatments and novel evidences about UBA1 mosaicism**. *Annals of the Rheumatic Diseases*. 82(12):1594-1605. D1

Barbhaiya M, Zuily S, Naden R, ... , Guillemin F, Costenbader K, Erkan D. **2023 ACR/EULAR antiphospholipid syndrome classification criteria**. *Arthritis & Rheumatology*. 82(10):1258-1270. Q1

Rojo R, Calvo Alén J, Prada A, ... , Cervera R, Sanchez Mateos P, Jurado Roger A. **Recommendations for the use of anti-dsDNA autoantibodies in the diagnosis and follow-up of systemic lupus erythematosus - A proposal from an expert panel**. *Autoimmunity Reviews*. 22(12):103479. 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
Systemic sclerosis

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

Mechanisms of vascular inflammation
Mechanisms of vascular remodeling
Development of functional models
Biomarker identification/ validation
Therapeutic targets and 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**	**7,76**
20	Q1	55%
	D1	15%
	MA	15%
	OA	85%
Others	**Mean IF**	**34,79**
8	Q1	100%
	D1	75%
	MA	13%
	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

Selected active grants

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

Health data linkage for clinical benefit (HELICAL).
European Commission.
CE_H2020-MSCA-ITN-18
PI: Maria Cinta Cid

Selected publications

Espígol-Frigolé G, Dejaco C, Mackie SL, Salvarani C, Matteson EL, Cid MC. **Polymyalgia rheumatica**. *Lancet.* 402(10411):1459-1472. D1

Samson M, Genet C, Corbera-Bellalta M, ... , Audia S, Bonnotte B, Cid MC. **Human monocyte-derived suppressive cells (HuMoSC) for cell therapy in giant cell arteritis**. *Frontiers in Immunology*. 14:1137794. Q1

Emmi G, Bettiol A, Gelain E, ... , Guillevin L, Jayne DRW, Vaglio A. **Evidence-Based Guideline for the diagnosis and management of eosinophilic granulomatosis with polyangiitis**. *Nature Reviews Rheumatology*. 19(6):378-393. D1

Mascaro JM, Rodriguez-Pinto I, Poza G, ... , Casals F, Yagüe J, Aróstegui J. **Spanish cohort of VEXAS syndrome: clinical manifestations, outcome of treatments and novel evidences about UBA1 mosaicism**. *Annals of the Rheumatic Diseases*. 82(12):1594-1605. D1

Ortiz-Fernández L, Carmona EG, Kerick M, ... , Sawalha AH, Martin J, Marquez A. **Identification of new risk loci shared across systemic vasculitides points towards potential target genes for drug repurposing**. *Annals of the Rheumatic Diseases*. 82(6):837-847. D1

1.04

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

Publications

Original articles	**Mean IF**	**13,10**
6	Q1	83%
	D1	50%
	MA	17%
	OA	83%
Others	**Mean IF**	**3,40**
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 publications

Carrascal M, Sánchez-Jiménez E, Fang J, ... , Ginebreda A, Barceló D, Abian J. **Sewage Protein Information Mining: Discovery of Large Biomolecules as Biomarkers of Population and Industrial Activities**. *Environmental Science & Technology*. 57(30):10929-10939. D1

Merlotti A, Sadacca B, Arribas YA, ... , Girard N, Waterfall JJ, Amigorena S. **Non-canonical splicing junctions between exons and transposable elements represent a source of immunogenic recurrent neo-antigens in patients with lung cancer**. *Science Immunology*. 8(80):eabm6359. D1

Selected active grants

Extracellular modifications of exosomes generated in inflammatory pathologies.
Ministerio de Ciencia e Innovación y Universidades. MCIU
PI: Daniel Closa

Regulación de la muerte cel·lular en los fibroblastos inducida por las cèl·lules alvelolares tipo II en la fibrosis pulmonar.
Ministerio de Ciencia e Innovación y Universidades. MCIU
PI: Anna Serrano Mollar

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

Immunogenetics and immunotherapy in autoinflammatory and immune responses

GROUP LEADER

Manel Juan (HCB)

RESEARCH INTERESTS

Our research interests are to develop new tools for diagnosis and treatment patients (from autoinflammatory disorders to cancer) including Cell Immunotherapy Products (CITPs), from basic research to approval for clinical use.

Our research is focused on 5 different branches:

1) Genetical evaluation of gene immuno-mediated diseases.
2) Development of new methods to improve new CITP.
3) Production of Cell-Vaccines for new clinical trials.
4) Production of CITPs based on natural specific T-cells.
5) Production or development of CITPs of specific proposal of genetically modified T-cells (and NKs).

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

Publications

Original articles	**Mean IF**	**11,29**
22	Q1	82%
	D1	41%
	MA	18%
	OA	86%
Others	**Mean IF**	**6,61**
8	Q1	88%
	D1	25%
	MA	25%
	OA	88%

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

- Natalia Egri
- Marta Español
- Berta Marzal
- Carolina L. Vera

Selected active grants

Cellular immunotherapy program, from research to assistance.
Fundació Bancaria "La Caixa"
PI: Manel Juan

Optimization in the production of lentiviral vectors for the production of CAR-T therapies or other cell therapies (LENTI-UP).
Ministerio de Ciencia, Innovación y Universidades (MCIU) & Generalitat de Catalunya. Planes Complementarios 2022
PI: Manel Juan

Selected publications

Mascaro JM, Rodriguez-Pinto I, Poza G, ... , Casals F, Yagüe J, Aróstegui J. **Spanish cohort of VEXAS syndrome: clinical manifestations, outcome of treatments and novel evidences about UBA1 mosaicism**. *Annals of the Rheumatic Diseases*. 82(12):1594-1605. D1

Betriu S, Juan M, Palou E, ... , Claas FHJ, Mulder A, Heidt S. **Chimeric HLA antibody receptor T cells for targeted therapy of antibody-mediated rejection in transplantation**. *HLA*. 102(4): 449-463. D1

Oliver-Caldes A, Gonzalez-Calle V, Cabanas V, ... , Pascal M, Urbano-Ispizua A, Fernandez de Larrea C. **Fractionated initial infusion and booster dose of ARI0002h, a humanised, BCMA-directed CART-cell therapy, for patients with relapsed or refractory multiple myeloma (CARTBCMA- HCB-01): a single-arm, multicentre, academic pilot study**. *Lancet Oncology*. 24(8):913-924. D1

Mulazzani E, Kong K, Aróstegui JI, ... , Wicks IP, Louis C, Masters SL. **G-CSF drives autoinflammation in APLAID**. *Nature Immunology*. 24(5):814-826. D1

Uribe-Herranz M, Beghi S, Ruella M, ... , Schuster SJ, Bhoj V, Facciabene A. **Modulation of the gut microbiota engages antigen cross-presentation to enhance antitumor effects of CAR T cell immunotherapy**. *Molecular Therapy*. 31(3):686-700. D1

1.06

Immune receptors of the innate and adaptive system

GROUP LEADER
Francisco Lozano (HCB-UB)

Publications

Original articles	**Mean IF**	**5,53**
3	Q1	33%
	D1	0%
	MA	0%
	OA	100%
Others	**Mean IF**	**6,75**
4	Q1	75%
	D1	50%
	MA	100%
	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 • Alejandra Eliza Leyton

Selected active grants

Development and preclinical optimization of new immunomodulatory therapies in infection and cancer based on scavenger-type lymphocyte receptors.
Agencia Estatal de Investigación.
AEI_PE22
PI: Francisco Lozano

New immunoevasion mechanisms used by herpesvirus.
Ministerio de Ciencia e Innovación y Universidades. MCIU_PID2020
PI: Ana Angulo

Selected publications

Bolaños J, Lorca-Arce D, Arnaldos-Perez C, Marti-Morente D, Serra-Pages C. **Identification of a new HLA-B allele, HLA-B*51:371**. *Hla*. 101(2):170-171. D1

Lorca-Arce D, Marti-Morente D, Arnaldos-Perez C, Bolaños J, Serra-Pages C. **Identification of a new HLA-DRB1 allele, HLA-DRB1*04:361**. *Hla*. 102(1):108-109. D1

Aragón-Serrano L, Carrillo-Serradell L, Planells-Romeo V, Velasco-de Andrés M, Lozano F, Isamat M. **CD6 and Its Interacting Partners: Newcomers to the Block of Cancer Immunotherapies**. *International Journal of Molecular Sciences*. 24(24):17510. Q1

Velasco-de Andrés M, Muñoz-Sánchez G, Carrillo-Serradell L, ... , Català C, Isamat M, Lozano F. **Chimeric antigen receptor (CAR)-based therapies beyond cancer**. *European Journal of Immunology*. 53(3):e2250184. Q2

de Pablo N, Meana C, Martínez-García J, ... , Angulo A, Balsinde J, Balboa MA. **Lipin-2 regulates the antiviral and anti-inflammatory responses to interferon**. *Embo Reports*. 24(12):e57238. Q1

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

1.07

AIDS and HIV infection

GROUP LEADER

Josep Mallolas (HCB)

RESEARCH INTERESTS

The HIV-AIDS unit serves 6.400 people with HIV, most of whom receive antiretroviral treatment.

The group also conducts a wide range of research activities, divided into two parts: firstly, clinical research focusing on antiretroviral efficacy and tolerance, resistance mechanisms, and opportunistic infections and coinfection.

Secondly, it performs basic research in Retrovirology and Viral Immunopathology, which includes the development of vaccines, HIV reservoir and senescence.

KEYWORDS

HIV Infection and coinfection
Antiretroviral treatment
Preventive strategies (and vaccines)
Chemsex
HIV reservoir and erradication

RELATED DISEASES

AIDS
HCV
HPV
STD
Opportunistic infections

Publications

Original articles	**Mean IF**	**12,75**
39	Q1	59%
	D1	31%
	MA	49%
	OA	77%
Others	**Mean IF**	**5,15**
10	Q1	50%
	D1	20%
	MA	60%
	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

- Lorena de la Mora
- Alexy Junior Inciarte

Selected active grants

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

Seguridad, tolerabilidad y eficacia de una estrategia de reducción de dosis basada en bictegravir/ emtricitabina/ tenofovir alafenamida en adultos infectados por el VIH con suspresión viral.
Instituto de Salud Carlos III (ISCIII).
FIS_PI20/00869
PI: Esteban Martínez

Selected publications

Toyos S, Berrocal L, González-Cordón A, ... , Miró JM, Mallolas J, Torres B. **Sex-based epidemiological and immunovirological characteristics of people living with HIV in current follow-up at a tertiary hospital: a comparative retrospective study, Catalonia, Spain, 1982 to 2020**. *Eurosurveillance*. 28(10):2200317. D1

Climent N, Ambrosioni J, González T, ... , Noguera-Julian M, Paredes R, Alcamí J. **Immunological and virological findings in a patient with exceptional post-treatment control: a case report**. *Lancet HIV*. 10(1):e42-e51. D1

de la Mora L, Pitart C, Morata L, ... , Blanco JL, Soriano A, Mallolas J. **Increasing of New CA-MRSA Infections Detected in people living with HIV Who Engage in Chemsex in Barcelona: An Ambispective Study**. *Infectious Diseases and Therapy*. 12(8):2179-2189. Q2

Inciarte A, Ugarte A, Martínez-Rebollar M, ... , Mallolas J, Inciarte A, Ambrosioni J. **Doravirine/Lamivudine/Tenofovir Disoproxil Fumarate for Nonoccupational HIV-1 Postexposure Prophylaxis: A Prospective Open-Label Trial (DORAVIPEP)**. *Open Forum Infectious Diseases*. 10(8):ofad374. Q2

Mitjà O, Alemany A, Marks M, ... , Galvan-Casas C, Walmsley S, Orkin CM, SHARE-NET writing group. **Mpox in people with advanced HIV infection: a global case series**. *Lancet*. 401(10380):S0140-8. D1

1.08

Emergencies: processes and pathologies

GROUP LEADER
Òscar Miró (HCB)

Publications

Original articles	**Mean IF**	**4,59**
55	Q1	51%
	D1	4%
	MA	51%
	OA	58%
Others	**Mean IF**	**9,55**
12	Q1	83%
	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

Selected active grants

Evaluación de la capacidad de la escala MEESSI-AHF para mejorar la toma de decisión y el pronóstico en pacientes diagnosticados de insuficiencia cardíaca aguda en urgencias: Estudio observacional, cuasiexperimental y ensayo clínico.
Instituto de Salud Carlos III (ISCIII).
FIS_PI18/00393
PI: Òscar Miró

Selected publications

Miró Ò, Ivars N, Lopez-Ayala P, ... , Peacock WF, Mueller C, Llorens P, ICA-SEMES group. **Effect of flu vaccination on severity and outcome of heart failure decompensations**. *Journal of Cardiac Failure*. 29(5):734-744. Q1

Martín A, Calvo D, Llamas P, ... , Arbelo E, Piñera P, Coll-Vinent B. **Emergency department management of atrial fibrillation: 2023 consensus from the Spanish Society of Emergency Medicine (SEMES), the Spanish Society of Cardiology (SEC), and the Spanish Society of Thrombosis and Hemostasis (SETH)**. *Emergencias: Revista de la Sociedad Española de Medicina de Urgencias y Emergencias*. 35(5):359-377. Q1

Fresco L, Osorio G, Marco DN, ... , Carbó M, Perea M, Ortega Romero MDM. **Mortality risk model validation in a prospective cohort of patients from the sixth wave of the COVID-19 pandemic in a hospital emergency department**. *Emergencias: Revista de la Sociedad Española de Medicina de Urgencias y Emergencias*. 35(1):15-24. Q1

González-del Castillo J, Miró O, Lima MV. **Targeted HIV testing in Spanish emergency departments**. *Lancet Hiv*. 10(9):e564. D1

Miró Ò, Conde-Martel A, Llorens P, ..., Montero-Pérez-Barquero M, Alquézar-Arbé A, Trullàs JC, EAHFE and the RICA research investigators. **The influence of comorbidities on the prognosis after an acute heart failure decompensation and differences according to ejection fraction: Results from the EAHFE and RICA registries**. *European Journal of Internal Medicine*. 111:97-104. Q1

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

1.09

Endocarditis. Cardiovascular infections. Experimental model

GROUP LEADER

Josep M. Miró (HCB)

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

Publications

Original articles	**Mean IF**	**8,77**
27	Q1	67%
	D1	15%
	MA	22%
	OA	74%
Others	**Mean IF**	**10,92**
17	Q1	82%
	D1	59%
	MA	53%
	OA	53%

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

- José Fernando García-Goez
- Marta Hernández-Meneses

Selected active grants

Estudio *in vitro* y en el modelo de endocarditis experimental de la eficacia de nuevas combinaciones orales y parenterales de antibióticos para el tratamiento domiciliario de la endocarditis infecciosa.
Instituto de Salud Carlos III (ISCIII).
FIS_PI20/00830
PI: Josep M. Miró, Cristina Garcia de la Mària

Tratamiento antimicrobiano oral vs. parenteral ambulatorio para la endocarditis infecciosa (Ensayo clínico OraPAT-EI GAMES).
Instituto de Salud Carlos III (ISCIII).
FIS_PI19/00861
PI: Guillermo Cuervo

Selected publications

Fowler VG, Durack DT, Selton-Suty C, ... , van der Meer JTM, van der Vaart TW, Miro JM. **The 2023 Duke-ISCVID Criteria for Infective Endocarditis: Updating the Modified Duke Criteria**. *Clinical Infectious Diseases.* 77(4):-ciad271-526. D1

Escrihuela-Vidal F, Berbel D, Fernández-Hidalgo N, ... , Plata A, Cuervo G, Carratalà J, GAMES investigators. **Impact of intermediate susceptibility to penicillin on antimicrobial treatment and outcomes of endocarditis caused by viridans and gallolyticus group streptococci**. *Clinical Infectious Diseases.* 77(9):1273-1281. D1

Hernandez-Meneses M, Perissinotti A, Páez-Martínez S, ... , Tolosana JM, Fuster P, Miró JM, Hospital Clínic of Barcelona Infective Endocarditis Team Investigators. **Reappraisal of [18F]FDG-PET/CT for diagnosis and management of cardiac implantable electronic device infections**. *Revista Española de Cardiología.* S1885-5857 (23) :00101-9-979. Q1

Tattevin P, Muñoz P, Moreno A, ... , Fariñas MC, Mestres CA, Miro JM. **Heart transplantation as salvage treatment of intractable infective endocarditis**. *Infectious Diseases.* 55(5):370-374. Q1

Delgado V, Marsan N, de Waha S, ... , Sionis A, Zühlke LJ, Borger MA, ESC Scientific Document Group. **2023 ESC Guidelines for the management of endocarditis**. *European Heart Journal.* 44(39):3948-4042. D1

1.10

Inflammatory joint diseases (IJDs)

GROUP LEADER

Raimon Sanmartí (HCB)

Publications

Original articles	Mean IF	10,37
12	Q1	50%
	D1	25%
	MA	8%
	OA	83%
Others	Mean IF	6,84
9	Q1	56%
	D1	11%
	MA	67%
	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

Selected active grants

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

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

Selected publications

Rivellese F, Nerviani A, Giorli G, ... , Sasieni P, Barton A, Pitzalis C. **Stratification of biological therapies by pathobiology in biologic-naive patients with rheumatoid arthritis (STRAP and STRAP-EU): two parallel, open-label, biopsy-driven, randomised trials**. *The Lancet. Rheumatology*. 5(11):e648-e659. D1

Cortés M, Brischetto A, Martinez-Campanario MC, ... , Castro P, Cañete JD, Postigo A. **Inflammatory macrophages reprogram to immunosuppression by reducing mitochondrial translation**. *Nature Communications*. 14(1):7471. D1

Mauro D, Srinath A, Guggino G, ... , Horwood NJ, Haroon N, Ciccia F. **Prostaglandin E2/EP4 axis is upregulated in Spondyloarthritis and contributes to radiographic progression**. *Clinical Immunology*. 251:109332. Q1

Rodriguez-Martinez L, García-Moreno C, Perez-Pampin E, ... , Sanmartí R, Haro I, González A. **Assessment of anti-malondialdehyde-acetaldehyde antibody frequencies in rheumatoid arthritis with new data from two independent cohorts, meta-analysis, and meta-regression**. *Arthritis Research & Therapy*. 25(1):192. Q2

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.

KEYWORDS

Arthritis
Remission
Personalized
Synovial
Biomarkers

RELATED DISEASES

Rheumatoid arthritis
Palindromic rheumatism
Spondyloarthritis
Pre-rheumatoid arthritis
Psoriatic arthritis

1.11

Nosocomial infection

GROUP LEADER

Alex Soriano (HCB)

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 bacteremia.

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
Pneumonia

Publications

Original articles	Mean IF	11,99
53	Q1	62%
	D1	26%
	MA	32%
	OA	81%
Others	Mean IF	5,30
12	Q1	42%
	D1	17%
	MA	58%
	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

2

- Alexy Junior Inciarte
- Fernanda Meira

Selected active grants

Impact on the prognosis of patients with COVID-19 of a computerized monitoring center for early and personalized treatment.
Instituto de Salud Carlos III (ISCIII).
PI21/01640
PI: Carolina Garcia-Vidal

Efficacy of early PET-CT in the detection of septic metastases in patients with high-risk S. aureus bacteremia.
Instituto de Salud Carlos III (ISCIII).
FIS_PI19/01116
PI: Alex Soriano

Selected publications

Alonso-Navarro R, Cuesta G, Santos M, ... , Garcia-Vidal C, Marcos MA, Soriano A. **Qualitative Subgenomic RNA to Monitor the Response to Remdesivir in Hospitalized Patients with COVID-19: impact on the length of hospital stay and mortality**. *Clinical Infectious Diseases.* 76(1):32-38. D1

Monzó-Gallo P, Chumbita M, Lopera C, ... , Puerta-Alcalde P, Marco F, Garcia-Vidal C, FUNGIclinic group. **Real-life epidemiology and current outcomes of hospitalized adults with invasive fungal infections**. *Medical Mycology.* 61(3):myad021. D1

Herrera S, Torralbo B, Herranz S, ... , Soriano A, del Río A, Martinez JA. **Carriage of multidrug-resistant Gram-negative bacilli: duration and risk factors**. *European Journal of Clinical Microbiology & Infectious Diseases.* 42(5) :631-638. Q2

Chumbita M, Puerta-Alcalde P, Yáñez L, ... , Peyrony O, Soriano A, Garcia-Vidal C. **High Rate of Inappropriate Antibiotics in Patients with Hematologic Malignancies and Pseudomonas aeruginosa Bacteremia following International Guideline Recommendations**. *Microbiology Spectrum.* 11(4):e0067423. Q2

Thompson GR, Soriano A, Cornely OA, ... , Das AF, Sandison T, Pappas PG, ReSTORE trial investigators. **Rezafungin versus caspofungin for treatment of candidaemia and invasive candidiasis (ReSTORE): a multicentre, double-blind, double-dummy, randomised phase 3 trial**. *Lancet.* 401(10370):49-59. D1

2

RESPIRATORY, CARDIOVASCULAR AND RENAL PATHOBIOLOGY AND BIOENGINEERING

Annual scientific
Report 2023

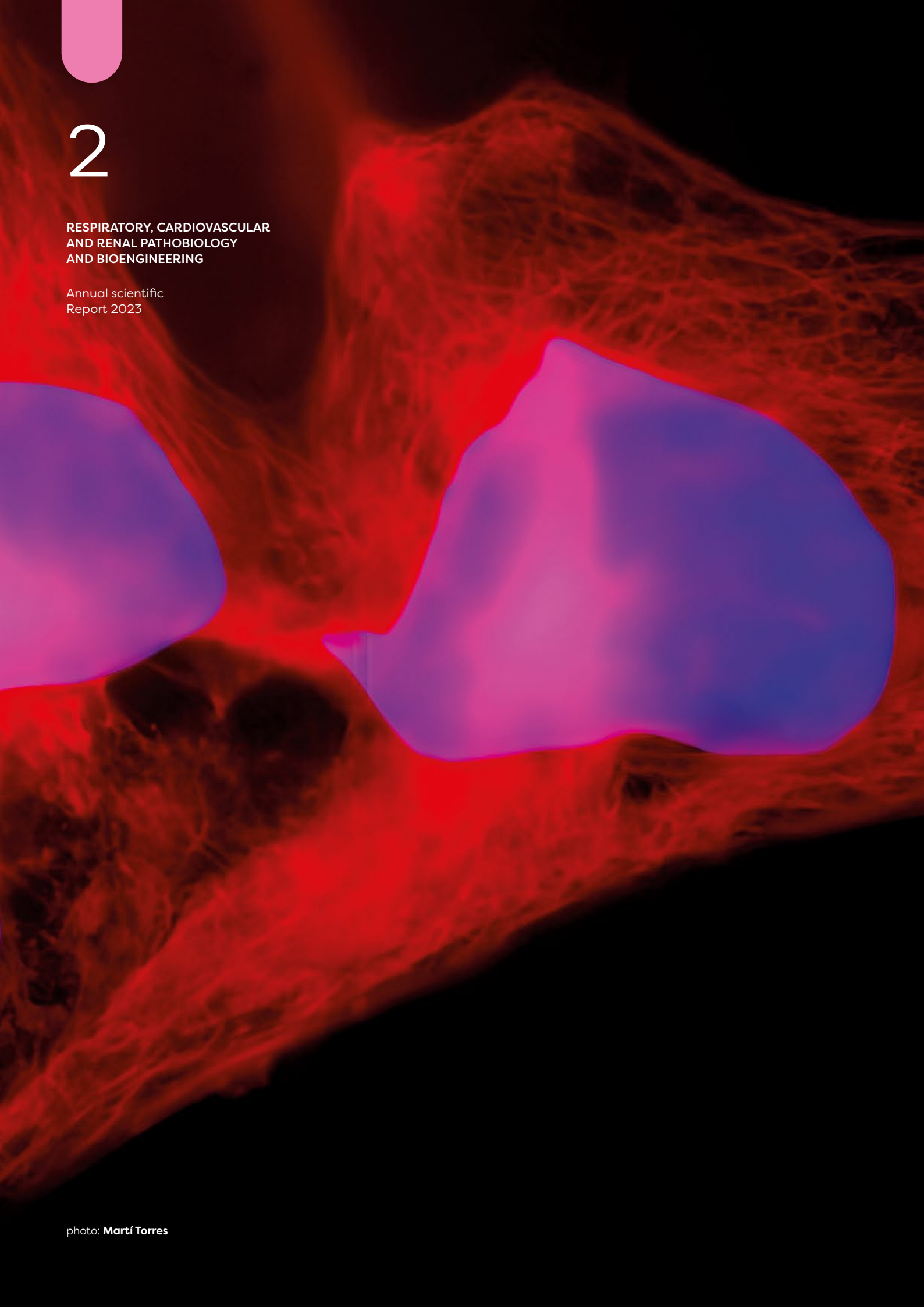


photo: **Martí Torres**

AREA 2

RESPIRATORY, CARDIOVASCULAR AND RENAL PATHOBIOLOGY AND BIOENGINEERING

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

2.2 **Genetics and urological tumours**
Antonio Alcaraz

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

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

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

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

2.7 **Vascular cell biology**
Gustavo Egea

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

2.9 **Respiratory biophysics and bioengineering**
Ramon Farré

2.10 **Arrhythmias and physical activity**
Eduard Guasch

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

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

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

2.14 **Cardiac imaging**
Marta Sitges

2.15 **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).

KEYWORDS

Respiratory diseases
Lung health
Lung immunity
Genomics
Networks

RELATED DISEASES

COPD
Interstitial lung diseases
Bronchiectasis
Lung cancer

Publications

Original articles	Mean IF	12,70
31	Q1	61%
	D1	19%
	MA	19%
	OA	58%
Others	Mean IF	23,43
32	Q1	69%
	D1	50%
	MA	59%
	OA	72%

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

- Carlos Javier Deniz
- Bing Han
- Fernanda Hernández

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
PI: Àlvar Agustí

Selected publications

Olvera N, Casas S, Vonk JM, ... , van den Berge M, Agusti A, Faner R. **Circulating Biomarkers in Young Individuals With Low Peak FEV1**. *American Journal of Respiratory and Critical Care Medicine.* 207(3):354-358. D1

Agustí A, Celli BR, Criner GJ, ... , López Varela MV, Wedzicha JA, Vogelmeier CF. **Global Initiative for Chronic Obstructive Lung Disease 2023 Report: GOLD Executive Summary**. *American Journal of Respiratory and Critical Care Medicine.* 207(7):819-837. D1

Dharmage SC, Bui DS, Walters EH, ... , Abramson MJ, Lodge CJ, Perret JL. **Lifetime spirometry patterns of obstruction and restriction, and their risk factors and outcomes: a prospective cohort study**. *Lancet Respiratory Medicine.* 11(3):273-282. D1

Wang G, Hallberg J, Faner R, ... , Kull I, Koppelman GH, Agusti A, Melén E. **Plasticity of Individual Lung Function States from Childhood to Adulthood**. *American Journal of Respiratory and Critical Care Medicine.* 207(4):406-415. D1

Maus M, López-Polo V, Mateo L, ... , Albaiceta G, Cruzado JM, Serrano M. **Iron accumulation drives fibrosis, senescence and the senescence-associated secretory phenotype**. *Nature Metabolism.* 5(12):2111-2130. D1

2.02

Genetics and urological tumors

GROUP LEADER

Antonio Alcaraz (HCB)

Publications

Original articles	Mean IF	9,23
16	Q1	50%
	D1	38%
	MA	25%
	OA	81%
Others	Mean IF	18,33
3	Q1	100%
	D1	100%
	MA	33%
	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

- Raquel Carrasco
- Rafael Salvador

Selected active grants

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

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

Selected publications

Canfield SE, Omar MI, Ribal MJ, EAU Guidelines Office Board. **Making the GRADE: Providing Clinical Practice Guidance to the European Association of Urology**. *European Urology*. S0302-2838 (23):02644-1. D1

Carrasco R, Ingelmo-Torres M, Trullas R, ... , Alcaraz A, Mengual L, Izquierdo L. **Tumor-Agnostic Circulating Tumor DNA Testing for Monitoring Muscle-Invasive Bladder Cancer.** *International Journal of Molecular Sciences.* 24(23):16578. Q1

Carrasco R, Ingelmo-Torres M, Oriola J... , Alcaraz A, Izquierdo L, Mengual L. **Assessment of aggressive bladder cancer mutations in plasma cell-free DNA**. *Frontiers in Oncology*. 13:1270962. Q2

Herrera S, Carbonell I, Cofan F, ... , Alcaraz A, Musquera M, Bodro M. **Impact of robotic-assisted kidney transplantation on post-transplant infections: a case-control study**. *World Journal of Urology*. 41(10):2847-2853. Q2

Gil-Jimenez A, van Dorp J, Contreras-Sanz A, ... , van Rhijn BWG, Black PC, van der Heijden MS. **Assessment of Predictive Genomic Biomarkers for Response to Cisplatin-based Neoadjuvant Chemotherapy in Bladder Cancer**. *European Urology*. 83(4):313-317. D1

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

2.03

Physiopathological mechanisms of respiratory diseases

GROUP LEADER

Joan Albert Barberà (HCB)

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

Publications

Original articles	Mean IF	7,59
37	Q1	57%
	D1	30%
	MA	32%
	OA	89%
Others	Mean IF	10,21
14	Q1	64%
	D1	36%
	MA	36%
	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

Directed PhD theses

2

- Carmen Herranz
- Ricard Mellado

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

Piccari L, Blanco I, Torralba Y, ... , Burgos F, Rodríguez-Roisín R, Barberà JA. **Mechanisms of hypoxaemia in severe pulmonary hypertension associated with COPD**. *European Respiratory Journal.* 62(1):2300463. D1

Risco R, González-Colom R, Montané-Muntané M, ... , Laxe S, Roca J, Martínez-Pallí G, Hospital Clínic de Barcelona Prehabilitation Group. **Actionable Factors Fostering Health Value Generation and Scalability of Prehabilitation: A Prospective Cohort Study**. *Annals of Surgery.* 278(2): e217-e225. D1

González-Colom R, Herranz C, Vela E,..., Piera-Jiménez J, Roca J, Cano I. **Prevention of Unplanned Hospital Admissions in Multimorbid Patients Using Computational Modeling: Observational Retrospective Cohort Study**. *Journal of Medical Internet Research.* 25:e40846. D1

Garcia AR, Blanco I, Ramon L, ... , Pastor-Pérez F, Escribano-Subías P, Barberà JA. **Predictors of the response to phosphodiesterase-5 inhibitors in pulmonary arterial hypertension: an analysis of the Spanish registry**. *Respiratory Research.* 24(1):223. Q1

Peinado VI, Guitart M, Blanco I, ... , Paul T, Barberà JA, Barreiro E. **Atrophy signaling pathways in respiratory and limb muscles of guinea pigs exposed to chronic cigarette smoke: role of soluble guanylate cyclase stimulation**. *American Journal of Physiology-Lung Cellular and Molecular Physiology*. 324(5):L677-L693. Q1

2.04

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

GROUP LEADER
Isabel Blanco (HCB-IDIBAPS)

Publications

Original articles	Mean IF	6,03
25	Q1	60%
	D1	8%
	MA	40%
	OA	68%
Others	Mean IF	5,26
11	Q1	36%
	D1	18%
	MA	18%
	OA	82%

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

Piccari L, Blanco I, Torralba Y, ... , Burgos F, Rodríguez-Roisín R, Barberà JA. **Mechanisms of hypoxaemia in severe pulmonary hypertension associated with COPD**. *European Respiratory Journal*. 62(1):2300463. D1

Vellvé K, Sepúlveda-Martínez Á, Rodríguez-López M, ... , Gratacós E, Crispi F, Blanco I. **Lung function in young adults born small for gestational age at term**. *Respirology*. 28(2):183-186. Q1

Blanco I, Marquina M, Tura-Ceide O, ... , Perez-Vizcaino F, Peinado VI, Barberà JA. **Survivin inhibition with YM155 ameliorates experimental pulmonary arterial hypertension**. *Frontiers in Pharmacology*. 14:1145994. Q1

García-Álvarez A, Blanco I, García-Lunar I, ... , Fuster V, Barberá JA, Ibañez B, SPHERE-HF Investigators. **β3-adrenergic agonist treatment in chronic pulmonary hypertension associated with heart failure (SPHERE-HF): a double blind, placebo-controlled, randomized clinical trial**. *European Journal of Heart Failure*. 25(3):373-385. D1

Alsina-Restoy X, Torres-Castro R, Caballería E, ... , Francesqui J, Hernandez-Gonzalez F, Sellarés J. **Is Carob Flour Helpful in Reducing Diarrhoea Associated With Nintedanib?** *Archivos de Bronconeumologia*. 59(5):341-343. Q1

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

2.05

Familial cardiomyopathies and sudden death syndrome

GROUP LEADER

Josep Brugada (HCB)

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

Publications

Original articles	Mean IF	5,22
12	Q1	75%
	D1	0%
	MA	0%
	OA	92%
Others	Mean IF	13,89
9	Q1	78%
	D1	33%
	MA	11%
	OA	89%

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

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

Impact of low- emision zone (LEZ) regulation in the city of Barcelona incidence of cardiac arrhtyhmias in patients with heart disease.
Ajuntament de Barcelona
PI: Elena Arbelo

Selected publications

Arbelo E, Protonotarios A, Gimeno JR, ... , Van Tintelen JP, Ware JS, Kaski JP. **2023 ESC Guidelines for the management of cardiomyopathies Developed by the task force on the management of cardiomyopathies of the European Society of Cardiology (ESC)**. *European Heart Journal.* 44(37):3503-3626. D1

Saglietto A, Gaita F, Blomstrom-Lundqvist C, ... , Kautzner J, De Ferrari GM, Anselmino M. **AFA-Recur: an ESC EORP AFA-LT registry machine-learning web calculator predicting atrial fibrillation recurrence after ablation**. *Europace*. 25(1):92-100. Q1

Laredo M, Tovia-Brodie O, Milman A, ... , Gandjbakhch E, Hauer R, Belhassen B. **Electrocardiographic findings in patients with arrhythmogenic cardiomyopathy and right bundle branch block ventricular tachycardia**. *Europace*. 25(3):1025-1034. Q1

Cesar S, Campuzano O, Cruzalegui J, ... , Brugada J, Nascimento A, Sarquella-Brugada G. **Characterization of cardiac involvement in children with LMNA-related muscular dystrophy**. *Frontiers in Cell and Developmental Biology*. 11:1142937. Q1

Martinez-Barrios E, Sarquella-Brugada G, Perez-Serra A, ... , Brugada J, Brugada R, Campuzano O. **Reevaluation of ambiguous genetic variants in sudden unexplained deaths of a young cohort**. *International Journal of Legal Medicine*. 137(2):345-351. Q2

2.06

Nephrology and transplantation (LENIT)

GROUP LEADER

Fritz Diekmann (HCB)

Publications

Original articles	Mean IF	4,75
25	Q1	52%
	D1	20%
	MA	56%
	OA	80%
Others	Mean IF	4,56
14	Q1	43%
	D1	7%
	MA	64%
	OA	93%

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

- Priscila Calle

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

Betriu S, Rovira J, Arana C, ... , Campistol JM, Palou E, Diekmann F. **Chimeric HLA antibody receptor T cells for targeted therapy of antibody-mediated rejection in transplantation**. *Hla.* 102(4):449-463. D1

Cucchiari D, Cuadrado-Payan E, Gonzalez-Roca E, ... , Bayes B, Puig JA, Diekmann F. **Early Kinetics of Donor-Derived Cell-Free DNA After Transplantation Predicts Renal Graft Recovery and Long-Term Function**. *Nephrology Dialysis Transplantation.* 39(1):114-121. Q1

Villarreal JZ, Pérez-Anker J, Puig S, ... , Martinez-Pozo A, Quintana LF, García-Herrera A. **Ex vivo confocal microscopy detects basic patterns of acute and chronic lesions using fresh kidney samples**. *Clinical Kidney Journal.* 16(6):1005-1013. Q1

Cuadrado-Payán E, Rodríguez-Espinosa D, Broseta JJ, Guillén-Olmos E, Maduell F. **Safety profile and clinical results of Remdesivir in Hemodialysis patients infected with SARS-CoV-2**. *Journal of Nephrology.* 36(1):171-172. Q2

Boswell L, Ventura-Aguiar P, Alejaldre A, ... , Diekmann F, Esmatjes E, Amor AJ. **Diabetic Neuropathy Is Independently Associated With Worse Graft Outcomes and Incident Cardiovascular Disease After Pancreas Transplantation: A Retrospective Cohort Study in Type 1 Diabetes**. *Transplantation.* 107(2):475-484. D1

RESEARCH INTERESTS

We perform translational research on pathophysiology of kidney diseases and optimization of renal replacement therapy (RT) as well as pancreas transplantation, but we also focus on regenerative treatment to avoid or optimize RT.

Chronic kidney failure and diabetes are major health problems and lead to important expenses for health care budgets. In addition, transplant organs are a scarce resource and not available in suffi¬cient numbers.

Thus, improvements in this field will lead to higher quality of life and life expectancy as well as better and more sustainable utilization of resources.

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

2.07

Vascular cell biology

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

Publications

Original articles: **2**

Mean IF	5,60
Q1	100%
D1	0%
MA	100%
OA	100%

Others: **0**

Mean IF	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

- Noura Abdalla
- Isaac Rodríguez-Rovira

Selected active grants

Patogénesis del aneurisma aórtico y estrés oxidativo en el síndrome de Marfan.
Agencia Estatal de Investigación.
AEI_PI20
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_PI21
PI: Victoria Campuzano

Selected publications

Rodríguez-Rovira I, López-Sainz A, Palomo-Buitrago ME, ... , Jiménez-Altayó F, Campuzano V, Egea G. **Hyperuricaemia Does Not Interfere with Aortopathy in a Murine Model of Marfan Syndrome**. *International Journal of Molecular Sciences*. 24(14):11293. Q1

Abdalla N, Tobías-Baraja E, Gonzalez A, Garrabou G, Egea G, Campuzano V. **Dysfunctional Mitochondria in the Cardiac Fibers of a Williams-Beuren Syndrome Mouse Model**. *International Journal of Molecular Sciences*. 24(12):10071. Q1

2.08

Cardiovascular risk, nutrition and aging

GROUP LEADER
Ramon Estruch (HCB)

Publications

Original articles	Mean IF	6,75
58	Q1	71%
	D1	29%
	MA	17%
	OA	84%
Others	Mean IF	9,46
18	Q1	50%
	D1	17%
	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

Selected active grants

Food phytochemicals are important for cardiometabolic health.
Instituto de Salud Carlos III (ISCIII).
FIS_AC19/00100
PI: Ramón Estruch

Effect of an intensive weight loss intervention with hypocaloric Mediterranean diet, physical activity and behavioural treatment on cardiovascular primary prevention: PREDIMED-Plus trial.
Instituto de Salud Carlos III (ISCIII).
FIS_PI19/01226
PI: Ramón Estruch

Selected publications

Estruch R, Lamuela-Raventós RM. **Cardiovascular benefits of fermented foods and beverages: still up for debate**. *Nature Reviews Cardiology.* 20(12):789-790. D1

Estruch R, Lamuela-Raventós RM, Ros E. **To eat or not to eat red meat? Artificial intelligence should help us to find the answer**. *European Heart Journal.* 44(28):2636-2638. D1

Domínguez-López I, Casas R, Chiva-Blanch G, ... , Ros E, Lamuela-Raventós RM, Estruch R. **Serum vitamin B12 concentration is associated with improved memory in older individuals with higher adherence to the Mediterranean diet**. Clinical Nutrition. 42(12):2562-2568. Q1

Castro-Barquero S, Casas R, Rimm EB, ... , Fitó M, García-Arellano A, Estruch R. **Loss of Visceral Fat is Associated with a Reduction in Inflammatory Status in Patients with Metabolic Syndrome**. *Molecular Nutrition & Food Research.* 67(4):e2200264. Q1

Razquin C, Ruiz-Canela M, Wernitz A, ... , Salas-Salvadó J, Schulze MB, Martinez-Gonzalez MA. **Effects of Supplemented Mediterranean Diets on Plasma-Phospholipid Fatty Acid Profiles and Risk of Cardiovascular Disease after 1 Year of Intervention in the PREDIMED Trial**. *Clinical Chemistry.* 69(3):283-294. D1

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

2.09

Respiratory biophysics and bioengineering

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

Publications

Original articles	Mean IF	9,97
7	Q1	86%
	D1	29%
	MA	29%
	OA	71%
Others	Mean IF	12,10
4	Q1	100%
	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

2

- María Leonor Barreto
- Ivan Vollmer

Selected active grants

Condicionamiento biofísico de células madre/estromales mesenquimales para la terapia del síndrome de distrés respiratorio agudo.
Ministerio de Ciencia e Innovación y Universidades. MCIU_PID2020
PI: Ramon Farré

Hidrogeles de matriz extracelular pulmonar para preacondicionamiento e instilación de células madre mesenquimales en el tratamiento de enfermedades respiratorias severas.
Ministerio de Ciencia e Innovación y Universidades. MCIU_PID2019
PI: Isaac Almendros

Selected publications

Durgan DJ, Farré R. **Gut check: assessing the role of the gut microbiota in the adverse cardiovascular effects of obstructive sleep apnoea**. *European Respiratory Journal*. 61(1):2201974. D1

Farré R, Artigas A, Torres A, Albaiceta GM, Dinh-Xuan AT, Gozal D. **A Simple Procedure to Measure the Tidal Volume Delivered by Mechanical Ventilators: A Tool for Bedside Verification and Quality Control**. *Archivos de Bronconeumologia*. 59(1):61-62. Q1

Jurado A, Ulldemolins A, Lluís H, ... , Gozal D, Almendros I, Farré R. **Fast cycling of intermittent hypoxia in a physiomimetic 3D environment: A novel tool for the study of the parenchymal effects of sleep apnea**. *Frontiers in Pharmacology*. 13:1081345. Q1

Cubillos-Zapata C, Martínez-García MA, Díaz-García E, ... , Farré R, Gozal D, García-Río F. **Obstructive sleep apnea is related to melanoma aggressiveness through paraspeckle protein-1 upregulation**. *European Respiratory Journal*. 61(2):2200707. D1

Mension E, Alonso I, Anglès-Acedo S, ..., Gómez S, Ribera L, Castelo-Branco C. **Effect of Fractional Carbon Dioxide vs Sham Laser on Sexual Function in Survivors of Breast Cancer Receiving Aromatase Inhibitors for Genitourinary Syndrome of Menopause: The LIGHT Randomized Clinical Trial**. *Jama Network Open*. 6(2):e2255697. D1

2.10

Arrhythmias and physical activity

GROUP LEADER

Eduard Guasch (HCB-IDIBAPS)

Publications

Original articles	Mean IF	5,41
11	Q1	64%
	D1	9%
	MA	18%
	OA	91%
Others	Mean IF	7,00
4	Q1	75%
	D1	25%
	MA	25%
	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

Aproximación traslacional para la detección precoz del daño cardiovascular y arritmias en atletas como herramienta para fomentar el ejercicio saludable (SAFE).
Consejo Superior de Deportes.
CSD_MedDep22
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

Meza-Ramos A, Alcarraz A, Lazo-Rodriguez M, ... , Batlle M, Guasch E, Ventura-Aguiar P. **High-Intensity Exercise Promotes Deleterious Cardiovascular Remodeling in a High-Cardiovascular-Risk Model: A Role for Oxidative Stress**. *Antioxidants*. 12(7):1462. D1

Gunturiz-Beltrán C, Borràs R, Alarcón F, ... , Sitges M, Guasch E, Mont L. **Quantification of right atrial fibrosis by cardiac magnetic resonance: verification of the method to standardize thresholds**. *Revista Española de Cardiología*. 76(3):173-182. Q1

Guasch E, Mont L. **Something is moving in sports-related sudden cardiac death ... is it time to change our minds?** *Europace*. 25(2):255-257. Q1

Winters J, Isaacs A, Zeemering S, ..., Goette A, Verheule S, Schotten U. **Heart Failure Female Sex and Atrial Fibrillation Are the Main Drivers of Human Atrial Cardiomyopathy: Results From the CATCH ME Consortium**. *Journal of the American Heart Association*. 12(22):e031220. Q2

Chua W, Cardoso VR, Guasch E, ... , Gkoutos GV, Kirchhof P, Fabritz L. **An angiopoietin 2, FGF23, and BMP10 biomarker signature differentiates atrial fibrillation from other concomitant cardiovascular conditions**. *Scientific Reports*. 13(1):16743. Q2

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 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

2.11

Biopathology and treatment of cardiac arrhythmias

GROUP LEADER

Lluís Mont (HCB)

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 electrocardioraphic 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

Publications

Original articles	Mean IF	6,99
29	Q1	69%
	D1	34%
	MA	21%
	OA	79%
Others	Mean IF	4,85
11	Q1	64%
	D1	0%
	MA	64%
	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

2

- Marta Hernández
- Levio Quinto

Selected active grants

CARE-ECGI - Terapia de resincronización cardiaca basada en imagen electrocardiográfica.
Agencia Estatal de Investigación.
AEI_CPP21
PI: Lluís Mont

Herramientas no-invasivas para la estratificación de riesgo y guía de la terapia de la fibrilación auricular.
Instituto de Salud Carlos III (ISCIII).
PI22/00441
PI: Lluís Mont

Selected publications

Vázquez-Calvo S, Casanovas JM, Garre P, ... , Brugada J, Mont L, Roca-Luque I. **Evolution of Deceleration Zones During Ventricular Tachycardia Ablation and Relation With Cardiac Magnetic Resonance**. *Jacc: Clinical Electrophysiology*. 9(6):779-789. Q1

Pujol-López M, Ferró E, Borràs R, ... , Sitges M, Tolosana JM, Mont L. **Stepwise application of ECG and electrogram-based criteria to ensure electrical resynchronization with left bundle branch pacing**. *Europace*. 25(6):euad128. Q1

Sanchez-Somonte P, Garre P, Vázquez-Calvo S, ... , Sitges M, Mont L, Roca-Luque I. **Scar conducting channel characterization to predict arrhythmogenicity during ventricular tachycardia ablation**. *Europace*. 25(3):989-999. Q1

Gunturiz-Beltrán C, Borràs R, Alarcón F, ... , Sitges M, Guasch E, Mont L. **Quantification of right atrial fibrosis by cardiac magnetic resonance: verification of the method to standardize thresholds**. *Revista Española de Cardiología*. 76(3):173-182. Q1

Mascheroni J, Stockburger M, Patwala A, ... , Garweg C, Verbelen T, Gallagher AG. **Effect of Metrics-Based Simulation Training to Proficiency on Procedure Quality and Errors Among Novice Cardiac Device Implanters: The IMPROF Randomized Trial**. *Jama Network Open*. 6(8):e2322750. D1

2.12

Clinical and experimental respiratory immunoallergy

GROUP LEADER

Joaquim Mullol (IDIBAPS)

Publications

Original articles	Mean IF	7,23
60	Q1	68%
	D1	23%
	MA	43%
	OA	80%
Others	Mean IF	9,57
39	Q1	64%
	D1	26%
	MA	56%
	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

2

- Yanru Guo
- Paula Isidora Mackers

Selected active grants

Heterogeneidad de la disfunción olfativa en fenotipos inflamatorios, postvíricos y neurodegenerativos: Estudio de biomarcadores genómicos específicos relacionados con el olfato.

Instituto de Salud Carlos III (ISCIII).
FIS_PI19/00806
PI: Isam Alobid

Estratificación del riesgo de gravedad y patrón de reconocimiento en el Síndrome LTP: papel de la afinidad, clonalidad BCR/TCR y la presentación facilitada de antígeno.
Instituto de Salud Carlos III (ISCIII).
FIS_PI19/00710
PI: Mariona Pascal, Joan Bartra

Selected publications

de Rosa A, Mosteiro A, Guizzardi G, ... , Prats-Galino A, Di Somma A, Enseñat J. **Endoscopic transorbital resection of the temporal lobe: anatomic qualitative and quantitative study**. *Frontiers in Neuroanatomy*. 17:1282226. D1

Mora T, Sánchez-Collado I, Mullol J, Ribó P, Muñoz-Cano R, Valero A. **Prevalence of asthma in Catalonia (Spain): a retrospective, large-scale population-based study**. *Journal of Investigational Allergology and Clinical Immunology*. Q1

Alobid I, Colás C, Castillo JA, ... , Gómez-Outes A, Sastre J, Mullol J, POLINA group. **Spanish consensus on the management of chronic rhinosinusitis with nasal polyps (POLIposis NAsal / POLINA 2**. *Journal of Investigational Allergology and Clinical Immunology*. 33(5):317-331. Q1

Bantula M, Tubita, Roca-Ferrer J, ... , Picado C, Arismendi E, Pascal M. **Weight loss and vitamin D improve hyporesponsiveness to corticosteroids in obese asthma**. *Journal of Investigational Allergology and Clinical Immunology*. 33(6):464-473. Q1

Kolkhir P, Akdis CA, Akdis M, ... , Ständer S, Zuberbier T, Maurer M. **Type 2 chronic inflammatory diseases: targets, therapies and unmet needs**. *Nature Reviews Drug Discovery*. 22(9):743-767. D1

RESEARCH INTERESTS

Respiratory, skin and food allergies, chronic rhinosinusitis, olfactory dysfunction and asthma are chronic diseases with a high prevalence.

They affect over 30% of the general population with high burden and a major impact on quality of life and socio-economic 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 nasal polyps and olfactory disorders
Severe asthma
Drug & food allergy
Anaphylaxis
Surgical innovation

RELATED DISEASES

Chronic rhinosinusitis, rhinitis, and severe asthma
Smell and taste didorders
Drug-and food-induced allergies
Atopic dermatitis, urticaria, and anaphylaxis
Sinus and skull base tumors

2.13

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	11,92
72	Q1	60%
	D1	28%
	MA	21%
	OA	57%
Others	Mean IF	14,60
24	Q1	67%
	D1	29%
	MA	71%
	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

1

- Victor Andrés Arévalos

Selected active grants

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

Efectos rejuvenecedores de la rapamicina sobre las células mesenquimales derivadas del tejido adiposo para optimizar su potencial terapéutico en la isquemia miocárdica crónica.
Instituto de Salud Carlos III (ISCIII).
FIS_PI21/00565
PI: Montserrat Rigol, Manel Sabaté

Selected publications

García-Álvarez A, Blanco I, García-Lunar I, ... , Fuster V, Barberá JA, Ibañez B, SPHERE-HF Investigators. **β3-adrenergic agonist treatment in chronic pulmonary hypertension associated with heart failure (SPHERE-HF): a double blind, placebo-controlled, randomized clinical trial**. *European Journal of Heart Failure.* 25(3):373-385. D1

Cepas-Guillén P, Flores-Umanzor E, Leduc N, ... , Aminian A, Rodés-Cabau J, Freixa X. **Impact of Device Implant Depth After Left Atrial Appendage Occlusion**. *Jacc-Cardiovascular Interventions*. 16(17):2139-2149. D1

Diletti R, den Dekker WK, Bennett J, ... , Brugaletta S, Boersma E, Van Mieghem NM, BIOVASC Investigators. **Immediate versus staged complete revascularisation in patients presenting with acute coronary syndrome and multivessel coronary disease (BIOVASC): a prospective, open-label, non-inferiority, randomised trial**. *Lancet.* 401 (10383):1172-1182. D1

Zeymer U, Freund A, Hochadel M, ... , Schneider S, Desch S, Thiele H. **Venoarterial extracorporeal membrane oxygenation in patients with infarct-related cardiogenic shock: an individual patient data meta-analysis of randomised trials**. *Lancet.* 402 (10410):1338-1346. D1

Banning, AS, Sabaté, M, Orban, M, ... , Adlam, D, Flather, M, Gershlick, AH. **Venoarterial extracorporeal membrane oxygenation or standard care in patients with cardiogenic shock complicating acute myocardial infarction: the multicentre, randomised EURO SHOCK trial**. *Eurointervention.* 19(6):482-492. Q1

2.14

Cardiac imaging

GROUP LEADER

Marta Sitges (HCB)

Publications

Original articles	Mean IF	6,50
28	Q1	61%
	D1	18%
	MA	0%
	OA	79%
Others	Mean IF	6,93
16	Q1	81%
	D1	19%
	MA	31%
	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

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

Evaluación de pacientes con oclusiones crónicas totales coronarias con imagen multimodal.
Instituto de Salud Carlos III (ISCIII).
FIS_ PI21/00401
PI: José Tomás Ortiz, Ander Regueiro

Selected publications

Bernardino G, Sepúlveda-Martínez Á, Rodríguez-López M, ... , Sitges M, Bijnens B, Crispi F. **Association of central obesity with unique cardiac remodelling in young adults born small for gestational age**. *European Heart Journal Cardiovascular Imaging*. 24(7): 930-937. Q1

Sade LE, Joshi SS, Cameli M, ... , Hanzevacki JS, Sitges M, Dweck MR. **Current Clinical Use of Speckle Tracking Strain Imaging: Insights from a Worldwide Survey from the European Association of Cardiovascular Imaging-EACVI**. *European Heart Journal Cardiovascular Imaging*. 24(12):1583-1592. Q1

Galli E, Baritussio A, Sitges M, Donnellan E, Jaber WA, Gimelli A. **Multi-modality imaging to guide the implantation of cardiac electronic devices in heart failure: is the sum greater than the individual components?** *European Heart Journal Cardiovascular Imaging*. 24(2):163-176. Q1

Evangelista A, Sitges M, Jondeau G, ... , van Kimmenade R, Aboyans V, Rodríguez-Palomares J. **Multimodality imaging in thoracic aortic diseases: a clinical consensus statement from the European Association of Cardiovascular Imaging and the European Society of Cardiology working group on aorta and peripheral vascular diseases**. *European Heart Journal Cardiovascular Imaging*. 24(5):e65-e85. Q1

Sanchis L, Regueiro A, Cepas-Guillen P, Sitges M, Freixa X. **First experience of left atrial appendage occlusion using a 3D mini transoesophageal echocardiographic probe with conscious sedation**. *Eurointervention*. 18(17):1460-1461. Q1

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

2.15

Applied research in infectious respiratory diseases and critically ill patients

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.

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

Publications

Original articles	Mean IF	13,52
48	Q1	81%
	D1	25%
	MA	46%
	OA	88%
Others	Mean IF	17,04
33	Q1	67%
	D1	42%
	MA	64%
	OA	70%

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

- Enric Roger Barbeta
- Hua Yang

Selected active grants

Interplay between risk factors, complications, sequelae and biological basis in acute respiratory failure: towards precision medicine (PYRAMID).
Agencia Estatal de Investigación.
AEI_PE22
PI: Miquel Ferrer

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

Galli F, Bindo F, Motos A, ... , Blasi F, Barbé F, Torres A, CIBERESUCICOVID Project investigators. **Procalcitonin and C-reactive protein to rule out early bacterial coinfection in COVID-19 critically ill patients**. *Intensive Care Medicine.* 49(8):934-945. D1

Martin-Loeches I, Reyes LF, Nseir S, ... , Taccone FS, Antonelli M, Torres A. **European Network for ICU-Related Respiratory Infections (ENIRRIs): a multinational, prospective, cohort study of nosocomial LRTI**. *Intensive care medicine.* 49(10):1212-1222. D1

Martin-Loeches I, Torres A, Nagavci B, ..., Weiss E, Welte T, Wunderink R. **ERS/ESICM/ESCMID/ALAT guidelines for the management of severe community-acquired pneumonia**. *Intensive Care Medicine.* 49(6):615-632. D1

Barbeta E, Arrieta M, Motos A, ... , Ferrando C, Ferrer M, Torres A. **A long-lasting porcine model of ARDS caused by pneumonia and ventilator-induced lung injury**. *Critical Care.* 27(1):239. Q1

Bermejo-Martin JF, García-Mateo N, Motos A, ... , Kelvin DJ, Barbé F, Torres A, CIBERES-UCI-COVID Group. **Effect of viral storm in patients admitted to intensive care units with severe COVID-19 in Spain: a multicentre, prospective, cohort study**. *Lancet Microbe.* 4(6):e431-e441. D1

3

LIVER, DIGESTIVE SYSTEM AND METABOLISM

Annual scientific Report 2023

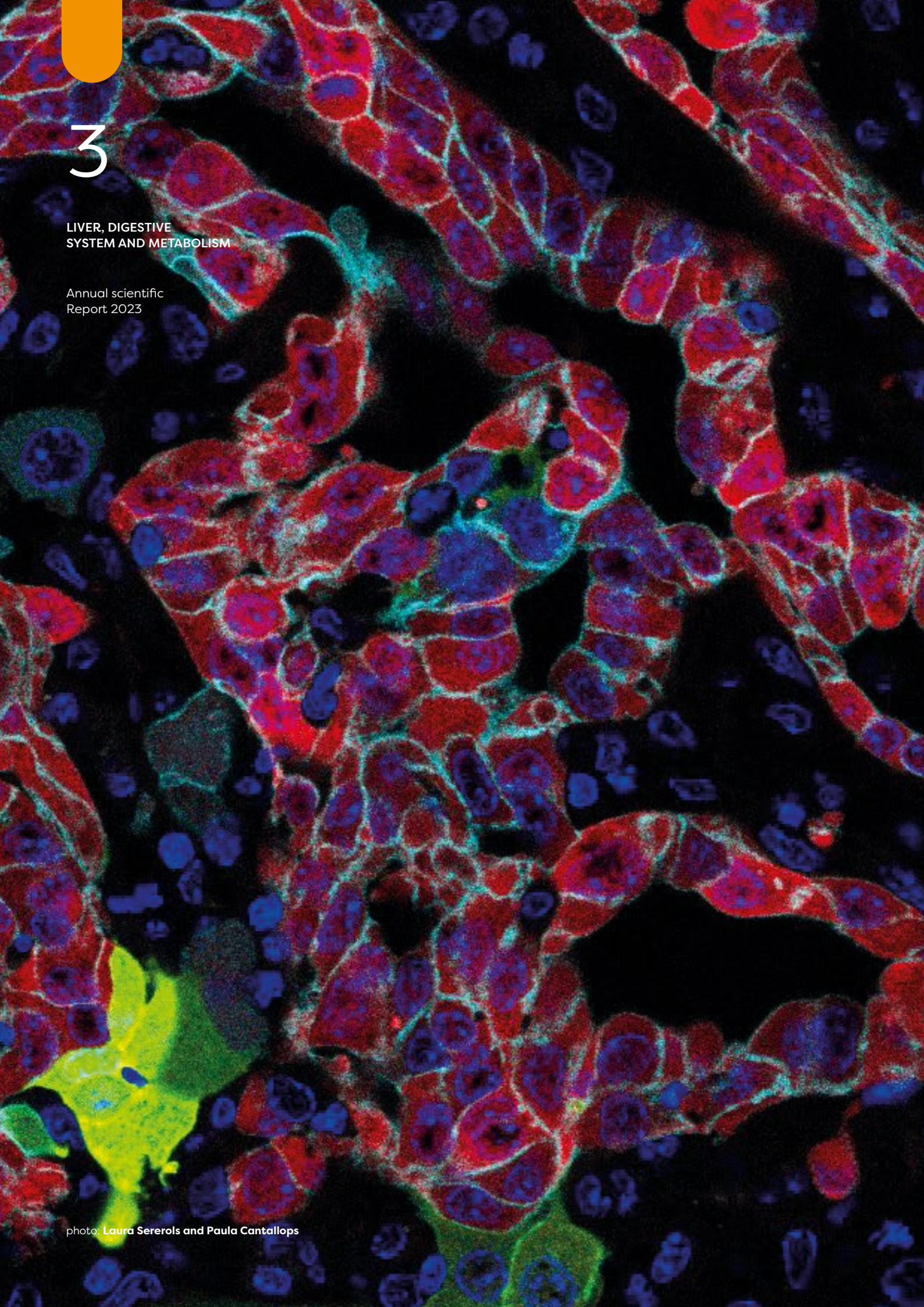


photo: **Laura Sererols and Paula Cantallops**

AREA 3

LIVER, DIGESTIVE SYSTEM AND METABOLISM

3.1 **Steatohepatitis and liver transplantation**
Ramón Bataller

3.2 **Translational colorectal cancer genomics**
Jordi Camps

3.3 **Gastrointestinal and pancreatic oncology**
Antoni Castells

3.4 **Genetic predisposition to gastrointestinal cancer**
Sergi Castellví-Bel

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

3.6 **Inflammation and liver disease**
Joan Clària

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

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

3.9 **Gene therapy and cancer**
Cristina Fillat

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

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

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

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

3.14 **Fetal and perinatal medicine**
Eduard Gratacós

3.15 **Metabolic bone disease**
Núria Guañabens

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

3.17 **Translational research in hepatic oncology**
Josep M. Llovet

3.18 **Gynecology, Human Reproduction and Women's Health**
M. Angeles Martínez

3.19 **Hepatocellular signaling and cancer**
Albert Morales

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

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

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

3.23 **Hepatic oncology (BCLC)**
Maria Reig

3.24 **Inflammatory bowel disease**
Azucena Salas

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

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

3.27 **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**	**9,53**
31	Q1	74%
	D1	45%
	MA	23%
	OA	81%
Others	**Mean IF**	**24,80**
6	Q1	83%
	D1	67%
	MA	50%
	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

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

Diaz LA, Arab JP, Louvet A, Bataller R, Arrese M. **The intersection between alcohol-related liver disease and nonalcoholic fatty liver disease**. *Nature Reviews Gastroenterology & Hepatology*. 20(12):764-783. D1

Fundora Y, Hessheimer AJ, Del Prete L, ..., Cillo U, Polak WG, Fondevila C. **Alternative forms of portal vein revascularization in liver transplant recipients with complex portal vein thrombosis**. *Journal of Hepatology*. 78(4):794-804. D1

Lazarus JV, Mark HE, Allen AM, ... , Schattenberg JM, Wong VWS, Younossi ZM. **A global research priority agenda to advance public health responses to fatty liver disease**. *Journal of Hepatology*. 79(3):618-634. D1

Millán O, Ruiz P, Julian J, ... , Colmenero J, Navasa M, Brunet M. **A plasmatic score using a miRNA signature and CXCL-10 for accurate prediction and diagnosis of liver allograft rejection**. *Frontiers in Immunology*. 14:1196882. Q1

Sanahuja JM, Reverter E, Ruiz Á, ... , Garcia-Valdecasas JC, Beltran J, Blasi A. **Portal hypertension has no role in perioperative bleeding during liver transplantation with systematic porto-caval shunt**. *HPB*. 25(4):454-462. Q2

3.02

Translational colorectal cancer genomics

GROUP LEADER
Jordi Camps (IDIBAPS)

Publications

Original articles	**Mean IF**	**5,93**
4	Q1	25%
	D1	25%
	MA	25%
	OA	100%
Others	**Mean IF**	**1,90**
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

Directed PhD theses

1

- Ivan Archilla Sanz

Selected active grants

Spatial distribution of genòmic alterations in tumor buds and poorly di erentiated clusters of colorectal cancer and their role in tumor immune evasion and metastasis.
Instituto de Salud Carlos III (ISCIII).
FIS_PI20/00863
PI: Jordi Camps, Miriam Cuatrecasas

Selected publications

de Gordoa KS, Rodrigo-Calvo MT, Archilla I, ... , Pellisé M, Camps J, Cuatrecasas M. **Lymph Node Molecular Analysis with OSNA Enables the Identification of pT1 CRC Patients at Risk of Recurrence: A Multicentre Study**. *Cancers.* 15(22):5481. Q2

Pablo-Fontecha V, Hernández-Illán E, Reparaz A, ... , Trullàs R, Podlesniy P, Camps J. **Quantification of rare somatic single nucleotide variants by droplet digital PCR using SuperSelective primers**. *Scientific Reports.* 13(1):18997. Q2

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 (1) 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

3.03

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	8,63
36	Q1	58%
	D1	31%
	MA	22%
	OA	78%
Others	Mean IF	8,51
14	Q1	57%
	D1	50%
	MA	36%
	OA	57%

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

- Gerhard Jung

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

Eficacia y seguridad de una vacuna basada en células dendríticas cargada con neopéptidos derivados de la alteración del marco de lectura en el síndrome de Lynch: ensayo clínico fase Ib.
Instituto de Salud Carlos III (ISCIII).
FIS_EnsClinicos22
PI: Francesc Balaguer

Selected publications

Fernandez-Rozadilla C, Timofeeva M, Chen Z, ... , Dunlop M, Houlston R, Peters U. **Deciphering colorectal cancer genetics through multi-omic analysis of 100,204 cases and 154,587 controls of European and east Asian ancestries**. *Nature Genetics.* 55(1):89-99. D1

Bonjoch L, Fernandez-Rozadilla C, Alvarez-Barona M, ... , Jover R, Castellvi-Bel S, Ruiz-Ponte C. **BMPR2 as a novel predisposition gene for hereditary colorectal polyposis**. *Gastroenterology*. 165(1):162-172.e5. D1

Uchima H, Calm A, Muñoz-González R, ... , Espinós J, Moreno De Vega V, Pellisé M. **Underwater cap-suction pseudopolyp formation for endoscopic mucosal resection: a simple technique for treating flat, appendiceal orifice or ileocecal valve colorectal lesions**. *Endoscopy*. 55(11):1045-1050. D1

Sánchez-Tilló E, Pedrosa L, Vila I, ... , Castells A, Maurel J, Postigo A. **The EMT factor ZEB1 paradoxically inhibits EMT in BRAF-mutant carcinomas**. *JCI Insight.* 8(20):e164629. Q1

Lanas Á, Balaguer F, Sánchez-Luengo M, ... , Poves C, Macedo G, Quintero E, Advantage study group. **Fecal occult blood and calprotectin testing to prioritize primary care patients for colonoscopy referral: The advantage study**. *United European Gastroenterology Journal.* 11(7):692-699. Q1

3.04

Genetic predisposition to gastrointestinal cancer

GROUP LEADER

Sergi Castellví-Bel (IDIBAPS)

Publications

Original articles	Mean IF	10,36
16	Q1	44%
	D1	38%
	MA	25%
	OA	88%
Others	Mean IF	7,44
7	Q1	57%
	D1	14%
	MA	14%
	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

- Cristina Herrera

Selected active grants

Investigación y desarrollo de nuevas estrategias para la detección precoz y la prevención del cáncer gástrico en la población española: proyecto Epi-GASTRIC/EDGAR.
Instituto de Salud Carlos III (ISCIII).
FIS_PI21/00333
PI: Leticia Moreira

Colorectal cancer in adolescents and young adults: identification of germline predisposition and somatic insults by a comprehensive multiomic characterization.
Asociación Española Contra el Cáncer.
AECC_Proyectos21
PI: Sergi Castellví-Bel

Selected publications

Fernandez-Rozadilla C, Timofeeva M, Chen Z, ... , Dunlop M, Houlston R, Peters U. **Deciphering colorectal cancer genetics through multi-omic analysis of 100,204 cases and 154,587 controls of European and east Asian ancestries**. *Nature Genetics*. 55(1):89-99. D1

Bonjoch L, Fernandez-Rozadilla C, Alvarez-Barona M, ... , Jover R, Castellvi-Bel S, Ruiz-Ponte C. **BMPR2 as a novel predisposition gene for hereditary colorectal polyposis**. *Gastroenterology.* 165(1):162-172.e5. D1

Llargués-Sistac G, Bonjoch L, Castellvi-Bel S. **HAP1, a new revolutionary cell model for gene editing using CRISPR-Cas9**. *Frontiers in Cell and Developmental Biology*. 11:1111488. Q1

Llach J, Aguilera P, Sánchez A, ... , Puig S, Balaguer F, Moreira L. **Pancreatic Cancer Surveillance in Carriers of a Germline Pathogenic Variant in CDKN2A**. *Cancers*. 15(6):1690. Q2

Bonjoch L, Soares de Lima Y, Díaz-Gay M, ... , Salas A, Alexandrov LB, Castellví-Bel S. **Unraveling the impact of a germline heterozygous POLD1 frameshift variant in serrated polyposis syndrome**. *Frontiers in Molecular Biosciences*. 10:1119900. Q2

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

3.05

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	10,75
6	Q1	100%
	D1	67%
	MA	50%
	OA	100%
Others	Mean IF	32,50
2	Q1	100%
	D1	100%
	MA	50%
	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

Hypothalamic control of gut function and microbiota composition: implications for energy balance regulation.
Fundació Bancaria "La Caixa".
HealthRes18-00100
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

Haddad-Tóvolli R, Claret M. **Metabolic and feeding adjustments during pregnancy**. *Nature Reviews Endocrinology.* 19(10):564-580. D1

Milà-Guasch M, Ramírez S, Llana SR, ..., Obri A, Haddad-Tóvolli R, Claret M. **Maternal emulsifier consumption programs offspring metabolic and neuropsychological health in mice**. *Plos Biology.* 21(8):e3002171. D1

Pozo M, Milà-Guasch M, Haddad-Tóvolli R, ... , D'Agostino G, Costa-Font J, Claret M. **Negative energy balance hinders prosocial helping behavior**. *Proceedings of the National Academy of Sciences of the United States of America.* 120(15):e2218142120. Q1

3.06

Inflammation and liver disease

GROUP LEADER
Joan Clària (HCB)

Publications

Original articles	Mean IF	12,27
7	Q1	57%
	D1	43%
	MA	57%
	OA	100%
Others	Mean IF	7,50
2	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 • Marta Duran

Selected active grants

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

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

Selected publications

Farias AQ, Vilalta AC, Zitelli PM, ... , Arroyo V, Moreau R, Carrilho FJ; ACLARA Study collaborators. **Genetic Ancestry, Race, and Severity of Acutely Decompensated Cirrhosis in Latin America**. *Gastroenterology*. 165(3):696-716. D1

Weiss E, de la Peña-Ramirez C, Aguilar F, ... , Moreau R, Trebicka J, Arroyo V. **Sympathetic nervous activation, mitochondrial dysfunction and outcome in acutely decompensated cirrhosis: the metabolomic prognostic models (CLIF-C MET)**. *Gut*. 72(8):1581-1591. D1

López-Vicario C, Sebastián D, Casulleras M, ... , Zorzano A, Arita M, Clària J. **Essential lipid autacoids rewire mitochondrial energy efficiency in metabolic dysfunction-associated fatty liver disease**. *Hepatology*. 76(4):1303-1318. D1

Clària J, Arroyo V, Moreau R. **Roles of systemic inflammatory and metabolic responses in the pathophysiology of acute-on-chronic liver failure**. *JHEP Reports*. 5(9):100807. Q1

Duran-Güell M, Garrabou G, Flores-Costa R, ... , Costa M, Arroyo V, Clària J. **Essential role for albumin in preserving liver cells from TNFα-induced mitochondrial injury**. *FASEB Journal*. 37(3):e22817-e22817. Q1

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 impact 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 and the inflammatory response in chronic liver disease.

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

3.07

Mitochondrial regulation of cell death and steatohepatitis

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 fatty 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 fatty liver disease (MAFLD)
Hepatocellular carcinoma (HCC)
Pancreatic ductal adenocarcinoma (PDAC)
Lysosomal disorders (LD)

Publications

Original articles	Mean IF	11,40
9	Q1	89%
	D1	56%
	MA	44%
	OA	89%
Others	Mean IF	18,55
2	Q1	100%
	D1	100%
	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

1 • Paula Segalés

Selected active grants

Alteración del eje ER-mitocondria en la progresión de la esteatohepatitis no alcohólica a carcinoma hepatocelular.
Ministerio de Economía y Competitividad.
MINECO_ PID2022- 142956OB-I00
PI: José Carlos Fernández-Checa

AXL y galectinas como nuevas dianas para diagnosis y terapia del cáncer de páncreas.
Ministerio de Ciencia e Innovación.
MICINN_PI23_00591
PI: Pilar Navarro Medrano

Selected publications

Fernandez-Checa JC, Torres S, Garcia-Ruiz C. **HILPDA, a new player in NASH-driven HCC, links hypoxia signaling with ceramide synthesis**. *Journal of Hepatology*. 79(2):269-272. D1

Ariño S, Aguilar-Bravo B, Coll M, ... , Moles A, Kubes P, Sancho-Bru P. **Ductular reaction-associated neutrophils promote biliary epithelium proliferation in chronic liver disease**. *Journal of Hepatology*. 79(4):1025-1036. D1

Alarcón-Vila C, Insausti-Urkia N, Torres S, ... , Fucho R, Fernández-Checa JC, García-Ruiz C. **Dietary and genetic disruption of hepatic methionine metabolism induce acid sphingomyelinase to promote steatohepatitis**. *Redox Biology*. 59:102596. D1

Goicoechea L, Conde de la Rosa L, Torres S, García-Ruiz C, Fernández-Checa JC. **Mitochondrial cholesterol: Metabolism and impact on redox biology and disease**. *Redox Biology*. 61:102643. D1

Fucho, R, Solsona-Vilarrasa E, Torres S, ... , Enrich C, García-Ruiz C, Fernandez-Checa JC. **Zonal expression of StARD1 and oxidative stress in alcoholic-related liver disease**. *Journal of Lipid Research*. 64(8):100413. Q1

3.08

Translational control of liver disease and cancer

GROUP LEADER

Mercedes Fernández-Lobato (IDIBAPS)

Publications

Original articles	**Mean IF**	**0**
0	Q1	0%
	D1	0%
	MA	0%
	OA	0%
Others	**Mean IF**	**11**
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 publications

Huang YS, Mendez R, Fernandez M, Richter JD. **CPEB and translational control by cytoplasmic polyadenylation: impact on synaptic plasticity, learning, and memory**. *Molecular Psychiatry*. 28(7):2728-2736. D1

Selected active grants

Identifying New Therapeutic Targets in Obesity-Driven Liver Cancer.
World Cancer Research Fund International (WCRFI). INT_WCRFI_RG_20
PI: Mercedes Fernández-Lobato

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

RESEARCH INTERESTS

Our group is interested in understanding the basic pathophysiology of liver disease and cancer, and use this information to identify new therapeutic targets for treatment of patients.

In particular, we study how and why fat consumption and obesity leads to an increased incidence of liver cancer, and how deregulation of the translation machinery increases the predisposition of the liver to damage and cancer.

Ultimately, the results we obtain will set us up for the next critical stage, of validating new therapies for treatment and prevention of liver cancer.

KEYWORDS

Translation of gene expression
Liver cancer
Fatty liver
Obesity
Metabolic reprogramming

RELATED DISEASES

Liver cancer
Non-alcoholic fatty liver disease (NAFLD/NASH)
Liver fibrosis
Obesity

3.09

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 in the cross-talk between cancer and stromal cells from the tumor microenvironment.

We investigate the role of DYRK1A kinase and work on the generation of nanomedicines exploring nanoparticles and oncolytic adenovirus therapies against pancreatic cancer.

We develop patient-derived organoids to individualize tumor response testing and generate mouse preclinical models to evaluate therapies. Moreover, we are exploring 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	3,83
8	Q1	38%
	D1	0%
	MA	25%
	OA	78%
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 • Anna Mateu

Selected active grants

Immunological incompatibility as a basis for cancer curing and vaccination (ULISES).
European Commission.
CE_H2020-FET PEN-RIA-2019-01-899708
PI: Cristina Fillat

Adenovirus oncoliticos que expresan el sistema PDT/prodroga y un inhibidor de LIF para inducir muerte celular inmunogenica y bloquear la inmunosupresion en cancer de páncreas.
Agencia Estatal de Investigación.
AEI_PID2020-119692RBC222018-2021
PI: Cristina Fillat

Selected publications

Okuno K, Xu C, Pascual-Sabater S, ... , Fillat C, Kinugasa Y, Goel A. **Andrographis Reverses Gemcitabine Resistance through Regulation of ERBB3 and Calcium Signaling Pathway in Pancreatic Ductal Adenocarcinoma**. *Biomedicines*. 11(1):119. Q1

Muñoz-Pujol G, Ugarteburu O, Segur-Bailach E, ... , Fons C, Ribes A, Tort F. **CRISPR/Cas9-based functional genomics strategy to decipher the pathogenicity of genetic variants in inherited metabolic disorders**. *Journal of Inherited Metabolic Disease*. 46(6):1029-1042. Q1

Ausania F, Landi F, Martinie JB, ... , Coratti A, Morelli L, Giulianotti PC. **Robotic versus laparoscopic distal pancreatectomy in obese patients**. *Surgical Endoscopy and Other Interventional Techniques*. 37(11):8384-8393. Q1

3.10

Viral, genetic and immune -mediated liver diseases

GROUP LEADER
Xavier Forns (HCB)

Publications

Original articles	**Mean IF**	**11,57**
19	Q1	68%
	D1	32%
	MA	26%
	OA	84%
Others	**Mean IF**	**18,31**
10	Q1	60%
	D1	60%
	MA	70%
	OA	70%

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

TherVacB: A therapeutic vaccine to cure hepatitis B.
European Commission.
CE_H2020-848223
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: Sofía Pérez del Pulgar, Xavier Forns

Selected publications

Pallett LJ, Swadling L, Diniz M, ... , Bengsch B, Schurich A, Maini MK. **Tissue CD14+CD8+ T cells reprogrammed by myeloid cells and modulated by LPS**. *Nature*. 614(7947):334-342. D1

Díaz-González Á, Hernández-Guerra M, Pérez-Medrano I, ... , García-Retortillo M, Crespo J, Londoño MC; ColHai Registry. **Budesonide as first-line treatment in patients with autoimmune hepatitis seems inferior to standard predni(-so)lone administration**. *Hepatology*. 77(4): 1095-1105. D1

Not A, Saludes V, Gálvez M, ... , Forns X, Lens S, Martró E. **Usefulness of dried blood spot samples for monitoring hepatitis C treatment outcome and reinfection among people who inject drugs in a test-and-treat program**. *Journal of Medical Virology*. 95(2):e28544. D1

Fernández T, Plana T, Tardón L, ... , Forns X, Martín-Santos R, Mariño Z. **Low risk of viral hepatitis amongst patients with severe mental disorders**. *Liver International*. 43(6):1204-1212. Q1

Mariño Z, Molera-Busoms C, Badenas C, ... , Torra M, Forns X, Artuch R. **Benefits of using exchangeable copper and the ratio of exchangeable copper in a real-world cohort of patients with Wilson disease**. *Journal of Inherited Metabolic Disease*. 46(5):982-991. 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

3.11

Regulation of liver micro-circulation 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	11,22
21	Q1	86%
	D1	43%
	MA	33%
	OA	76%
Others	Mean IF	21,06
15	Q1	73%
	D1	67%
	MA	60%
	OA	87%

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

- Oana Maria Farcau

Selected active grants

Caracterización de la cirrosis en regresión. Identificación de vías moleculares clave y nuevas estrategias terapéuticas para su potenciación. CIRROREGRES.
Agencia Estatal de Investigación.
AEI_PID2019-105148RB-I00
PI: Juan Carlos García-Pagán

Precision medicine in portal vein thrombosis: identification of new therapeutic targets and development of a unique theranosic approach.
Instituto de Salud Carlos III (ISCIII).
FIS_PI20/00569
PI: Virginia Hernández-Gea

Selected publications

Baiges A, Procopet B, Silva-Junior G, ... , Bosch J, Hernández-Gea V, Garcia-Pagán JC; REHEVASC, VALDIG, and EASL consortium. **Incidence and factors predictive of recurrent thrombosis in patients with non-cirrhotic portal vein thrombosis**. *Journal of Hepatology.* 78(1):114-122. D1

Magaz M, Giudicelli-Lett H, Nicoară-Farcău O, ... , Rautou PE, Durand F, García-Pagán JC. **Liver Transplantation for Porto-Sinusoidal Vascular Liver Disorder: Long-term Outcome**. *Transplantation.* 107(6):1330-1340. D1

Nicoară-Farcău O, Lozano JJ, Alonso C, ... , Torres F, Bosch J, Garcia-Pagan JC; PreDesCI Study Investigators. **Metabolomics as a tool to predict the risk of decompensation or liver related death in patients with compensated cirrhosis**. *Hepatology.* 77(6):2052-2062. D1

Garcia-Pagán JC, Valla DC. **Primary Budd-Chiari Syndrome**. *New England Journal of Medicine.* 388(14):1307-1316. D1

García-Pagán JC, Téllez L, Payancé A, ... , Angelini A, Paradis V, Rautou PE. **EASL-ERN position paper on liver involvement in patients with Fontan-type circulation**. *Journal of Hepatology.* 79(5):1270-1301. D1

3.12

Chronic liver diseases: molecular mechanisms and clinical consequences

GROUP LEADER
Pere Ginès (HCB)

Publications

Original articles	Mean IF	23,39
16	Q1	88%
	D1	56%
	MA	31%
	OA	69%
Others	Mean IF	21,04
16	Q1	81%
	D1	56%
	MA	50%
	OA	56%

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

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

Enfermedad hepática por consumo de alcohol: mecanismos patogénicos, relación con inflamación y síndrome metabólico, efectos de la abstinencia y evaluación de nuevos métodos terapéuticos.
Instituto de Salud Carlos III (ISCIII).
FIS_PI20/00579
PI: Pere Ginès

Selected publications

Serra-Burriel M, Juanola A, Serra-Burriel F, ... , Lammert F, Kamath PS, Ginès P. **Development, validation, and prognostic evaluation of a risk score for long-term liver-related outcomes in the general population: a multicohort study**. *Lancet*. 402(10406):988-996. D1

Ariño S, Aguilar-Bravo B, Coll M, ... , Moles A, Kubes P, Sancho-Bru P. **Ductular reaction-associated neutrophils promote biliary epithelium proliferation in chronic liver disease**. *Journal of Hepatology*. 79(4):1025-1036. D1

Juanola A, Ma AT, de Wit K, ... , Kamath PS, Hernaez R, Ginès P; LiverHope Investigators. **Novel prognostic biomarkers in decompensated cirrhosis: a systematic review and meta-analysis**. *Gut*. 73(1):156-165. D1

Avitabile E, Pérez-Guasch M, Gratacós-Ginès J, ... , Malhi H, Shah VH, Kamath PS. **Adding inflammatory markers and refining NIAAA criteria improve diagnostic accuracy for Alcohol-associated Hepatitis**. *Clinical Gastroenterology and Hepatology*. S1542-3565(23):00231-8. D1

Martínez-Sánchez C, Bassegoda O, Deng H, ... , Smith AM, Graupera I, Coll M. **Therapeutic targeting of adipose tissue macrophages ameliorates liver fibrosis in non-alcoholic fatty liver disease**. *JHEP Reports*. 5(10):100830. Q1

RESEARCH INTERESTS

The group researches the mechanisms of the disease progression. It starts with the intestinal microbiome and analyses the hepatic transcriptome and systemic and hepatic inflammation.

It studies different prognostic biomarkers for patients with cirrhosis and its complications. It trials new treatment strategies and conducts therapeutic studies to prevent the disease progression.

The main areas of interest are: Biomarker identification for patients' prognosis, Characterization of systemic and hepatic inflammation, Screening for liver fibrosis and New strategies to halt disease progression.

KEYWORDS

Liver cirrhosis
Biomarkers
Microbiome
Alcohol
NAFLD

RELATED DISEASES

Decompensated cirrhosis
Alcohol-related liver disease
Non-alcoholic fatty liver disease
Hepatorenal syndrome
Acute-on-chronic liver failure

3.13

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

Chronic liver disease
Portal hypertension
Aging
Liver sinusoidal endothelial cells
Liver fibrosis

RELATED DISEASES

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

Publications

Original articles	**Mean IF**	**10,73**
8	Q1	88%
	D1	38%
	MA	13%
	OA	63%
Others	**Mean IF**	**11,76**
5	Q1	100%
	D1	40%
	MA	80%
	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

Selected active grants

Impact of sinusoidal hypertension in the pathophysiology of liver diseases: depicting novel mechanisms and therapeutic opportunities.
Instituto de Salud Carlos III (ISCIII).
FIS_PI20/00220
PI: Jordi Gracia-Sancho

PH-Care: Development and validation of a point of care testing for the diagnosis and prognosis of portal hypertension.
Instituto de Salud Carlos III (ISCIII).
FIS_DTS21/00060
PI: Jordi Gracia-Sancho

Selected publications

Ortega-Ribera M, Gibert-Ramos A, Abad-Jordà L, ... , Albillos A, García-Pagán JC, Gracia-Sancho J. **Increased sinusoidal pressure impairs liver endothelial mechanosensing, uncovering novel biomarkers of portal hypertension**. *JHEP Reports*. 5(6):100722. Q1

Felli E, Selicean S, Guixé-Muntet S, ... , Bosch J, Berzigotti A, Gracia-Sancho J. **Mechanobiology of portal hypertension**. *JHEP Reports*. 5(11):100869. Q1

Kaur S, Kidambi S, Ortega-Ribera M, ..., Xie WF, Tacke F, Gracia-Sancho J. **In vitro models for the study of liver biology and diseases - advances and limitations.** *CMGH Cellular and Molecular Gastroenterology and Hepatology.* 15(3):559-571. Q1

Felli E, Felli E, Muttillo EM, ... , Pinzani M, Diana M, Gracia-Sancho J. **Liver ischemia-reperfusion injury: From trigger loading to shot firing**. *Liver Transplantation*. 29(11):1226-1233. Q1

3.14

Fetal and perinatal medicine

GROUP LEADER
Eduard Gratacós (HCB)

Publications

Original articles	Mean IF	5,70
50	Q1	62%
	D1	38%
	MA	52%
	OA	86%
Others	Mean IF	5,03
18	Q1	56%
	D1	33%
	MA	28%
	OA	61%

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

5

- Ramón Cases
- David Coronado
- Ayako Nakaki
- Laura Nogué
- Kilian Vellvé

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

Evaluación del efecto de diversos esquemas de nutrición y soporte hormonal sobre el desarrollo fetal en un modelo experimental de placenta artificial.
Instituto de Salud Carlos III (ISCIII).
FIS_ PI22/01146
PI: Elisenda Eixarch

Selected publications

Cobo T, Sanchez-Garcia AB, Ferrero S, ... , Collado MC, Marin S, Cascante M. **Non-invasive prediction models of intraamniotic infection in women with preterm labor**. *American Journal of Obstetrics and Gynecology*. 228(1):78.e1-78.e13. D1

Hawkins-Villarreal A, Moreno-Espinosa AL, Castillo K, ... , Gratacós E, Goncé A, Eixarch E. **Cortical maturation assessed by magnetic resonance imaging in unaffected/mildly affected fetuses with cytomegalovirus infection**. *Ultrasound in Obstetrics & Gynecology*. 61(5):566-576. D1

Hawkins-Villarreal A, Castillo K, Nadal A, ... , Gratacós E, Eixarch E, Goncé A. **Halo sign in fetal cytomegalovirus infection: cerebral imaging abnormalities and postmortem histopathology in cohort of 35 infected fetuses**. *Ultrasound in Obstetrics & Gynecology*. 61(6):749-757. D1

Borrell A, Paz y Mino F, Pauta, M, ..., Camacho A, Segura M, Figueras F. **Postnatal genetic and neurodevelopmental assessment in non-placental severely small-for-gestational- age infants born at term**. *Ultrasound in Obstetrics & Gynecology.* 62(3):361-368. D1

Crovetto F, Nakaki A, Arranz A, ... , Vieta E, Crispi F, Gratacós E. **Effect of a Mediterranean Diet or Mindfulness-Based Stress Reduction During Pregnancy on Child Neurodevelopment: A Prespecified Analysis of the IMPACT BCN Randomized Clinical Trial**. *JAMA Network Open*. 6(8):e2330255. D1

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

3.15

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	4,64
5	Q1	20%
	D1	20%
	MA	60%
	OA	60%
Others	Mean IF	6,70
5	Q1	80%
	D1	0%
	MA	80%
	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

Selected publications

Parés A, Guañabens N. **Bone fractures in primary biliary cholangitis**. *Journal of Internal Medicine*. 294(2):159-160. Q1

Filella X, Rodríguez-Garcia M, Fernández-Galán E. **Clinical usefulness of circulating tumor markers**. *Clinical Chemistry And Laboratory Medicine*. 61(5):895-905. Q1

Calaf-Alsina J, Cano A, Guañabens N, ... , Neyro JL, Nogues X, Diez-Perez A. **Sequential management of postmenopausal health and osteoporosis: An update**. *Maturitas*. 177:107846. Q1

Gómez-Vaquero C, Hernández JL, Olmos JM; ... , Satorra P, Tebé C, Guañabens N, OsteoResSer Working Group of the Spanish Society of Rheumatology. **High incidence of clinical fragility fractures in postmenopausal women with rheumatoid arthritis.** *Bone*. 168:116654. Q2

Peris P, Monegal A, Mäkitie RE, Guañabens N, González-Roca E. **Osteoporosis related to WNT1 variants: a not infrequent cause of osteoporosis**. *Osteoporosis International*. 34(2):405-411. Q2

3.16

Endocrine disorders: crosstalk between molecular, metabolic and therapeutic determinants

Publications

Original articles	Mean IF	3,99
24	Q1	33%
	D1	4%
	MA	13%
	OA	54%
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

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

Papel del factor de crecimiento de fibroblastos 21 en la disfunción metabólica durante el Síndrome de Cushing en activo y tras curación. Estudio en humanos y modelo animal.
Instituto de Salud Carlos III (ISCIII).
FIS_PI19/00581
PI: Felicia Alexandra Hanzu

Selected publications

Araujo-Castro M, García Sanz I, Mínguez Ojeda C, ... , Barca-Tierno V, Herrera-Martínez AD, Calatayud M. **Local recurrence and metastatic disease in pheochromocytomas and sympathetic paragangliomas.** *Frontiers in Endocrinology*. 14:1279828. Q1

Ruiz-Sanchez JG; Paja-Fano M; Gonzalez-Boillos M, ... , Morales-Ruiz M, Hanzu FA, Araujo-Castro M. **Effect of Obesity on Clinical Characteristics of Primary Aldosteronism Patients at Diagnosis and Postsurgical Response**. *Journal of Clinical Endocrinology & Metabolism*. 109(1):e379-e388. Q1

Marques-Pamies M, Gil J, Valassi E, ..., Webb SM, Marazuela M, Puig-Domingo M. **Revisiting the usefulness of the short acute octreotide test to predict treatment outcomes in acromegaly**. *Frontiers in Endocrinology.* 14:1269787. Q1

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, neuroendocrine and adrenal 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
Adrenal endocrinology
Cardiovascular and metabolism
Neuroendocrinology
Steroids

RELATED DISEASES
Cushing syndrome and hypercortisolism
Adrenal tumors
Pituitary tumours
Neuroendocrine tumours
Secondary arterial hypertension

3.17

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, understanding the pathogenesis of HCC in non- alcoholic steatohepatitis, 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
Cholangiocarcinoma
Hepatoblastoma
Non-alcoholic steatohepatitis

Publications

Original articles	Mean IF	26,00
10	Q1	100%
	D1	80%
	MA	40%
	OA	100%
Others	Mean IF	45,50
6	Q1	100%
	D1	83%
	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

2

- Carmen Andreu
- Roger Esteban

Selected active grants

THRIVE: Tumor-host interactions in liver cancer of childhood and adults.
European Commission. CE_HE_CANCER23_RIA
PI: Josep M. Llovet

Mecanismos inmunogenómicos de respuesta y resistencia a inmunoterapias y nuevas combinaciones de fármacos en carcinoma hepatocelular relacionado con hígado graso.
Agencia Estatal de Investigación. AEI_PE22
PI: Josep M. Llovet

Selected publications

Montironi C, Castet F, Haber PK, ... , Uzilov A, Sia D, Llovet JM. **Inflamed and non-inflamed classes of HCC: a revised immunogenomic classification**. *Gut*. 72(1):129-140. D1

Haber PK, Castet F, Torres-Martin M, ..., Villanueva A, Sia D, Llovet JM. **Molecular markers of response to anti-PD1 therapy in advanced hepatocellular carcinoma**. *Gastroenterology*. 164(1): 72-88.e18. D1

Llovet JM, Kudo M, Merle P, ... , Dubrovsky L, Siegel AB, Finn RS; LEAP-002 Investigators. **Lenvatinib plus pembrolizumab versus lenvatinib plus placebo for advanced hepatocellular carcinoma (LEAP-002): a randomised, double-blind, phase 3 trial**. *Lancet Oncology*. 24(12):1399-1410. D1

Rialdi A, Duffy M, Scopton AP, ... , Lujambio A, Guccione E, Dar AC. **WNTinib is a multi-kinase inhibitor with specificity against β-catenin mutant hepatocellular carcinoma.** *Nature Cancer*. 4(8):1157-1175. D1

Llovet JM, Willoughby CE, Singal AG, ... , El-Serag HB, Finn RS, Friedman SL. **Nonalcoholic steatohepatitis-related hepatocellular carcinoma: pathogenesis and treatment**. *Nature Reviews Gastroenterology & Hepatology*. 20(8): 487-503. D1

3.18

Gynecology, human reproduction and women´s health

GROUP LEADER

M. Angeles Martínez (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**	**5,44**
23	Q1	61%
	D1	13%
	MA	43%
	OA	70%
Others	**Mean IF**	**3,23**
8	Q1	13%
	D1	0%
	MA	75%
	OA	13%

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

7

- Vicente Bebia
- Núria Carreras
- José Luis Coloma
- Cristian de Guirior
- Cristina Martí
- Eduard Mension
- Carmen M. Tauste

Selected active grants

PROTECT-EUROPE: Vaccinating Europe to protect against the cancers caused by HPV.
European Commission.
CE_EU4H_AG_21-PJ-08
PI: Marta del Pino

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

Selected publications

Mension E, Alonso I, Anglès-Acedo S, ..., Gómez S, Ribera L, Castelo-Branco C. **Effect of Fractional Carbon Dioxide vs Sham Laser on Sexual Function in Survivors of Breast Cancer Receiving Aromatase Inhibitors for Genitourinary Syndrome of Menopause: The LIGHT Randomized Clinical Trial**. *JAMA Network Open*. 6(2):e2255697. D1

Ros C, Mension E, Rius M, ... , Espuña-Pons M, Anglès-Acedo S, Castelo- Branco C. **Assessing vaginal wall thickness by transvaginal ultrasound in breast cancer survivors: A pilot study**. *Maturitas*. 171:7-12. Q1

Agusti N, Viveros-Carreño D, Grillo-Ardila C, ... , Vidal-Sicart S, Torne A, Díaz-Feijoo B. **Sentinel lymph node detection in early-stage ovarian cancer: a systematic review and meta-analysis**. *International Journal of Gynecological Cancer*. 33(10):1493-1501. Q1

Pino MD, Matas I, Carrillo P, ... , Rakislova N, Torné A, Ordi J. **Natural History of Anal HPV Infection in Women Treated for Cervical Intraepithelial Neoplasia**. *Cancers*. 15(4):1147. Q2

Carrillo-Torres P, Martínez-Zamora MÁ, Ros C, ... , Mensión E, Gracia M, Carmona F. **Clinical and sonographic impact of oral contraception in patients with deep endometriosis and adenomyosis at 2 years of follow-up**. *Scientific Reports*. 13(1):2066. Q2

3.19

Hepatocellular signaling and cancer

GROUP LEADER

Albert Morales (IIBB-CSIC)

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
MASLD
Sepsis

RELATED DISEASES

Metabolic dysfunction-associated steatotic liver disease (MASLD)
Hepatocellular carcinoma (HCC)
Liver metastases
Sepsis

Publications

Original articles	Mean IF	6,93
4	Q1	50%
	D1	50%
	MA	25%
	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

Targeted therapies based on molecular profiling: mitochondria and GAS6/TAM axis in cellular crosstalk.
Ministerio de Ciencia e Innovación y Universidades.
MCIU_PN2021_PID2021-123564OB-I00
PI: Albert Morales Muñoz, Pablo García de Frutos

Participación de las trampas extracelulares de neutrófilos (NETs) en la esteatohepatitis no alcohólica (EHNA): contribución a la sepsis y enfoque de género.
Instituto de Salud Carlos III (ISCIII).
FIS_PI22/00475
PI: Montserrat Marí

Selected publications

Cuño-Gómiz C, de Gregorio E, Tutusaus A, ... , Colell A, Morales A, Marí M. **Sex-based differences in natural killer T cell-mediated protection against diet-induced steatohepatitis in Balb/c mice**. *Biology of Sex Differences*. 14(1):85. D1

de Dios C, Abadin X, Roca-Agujetas V, ..., Trullas R, Mari M, Colell A. **Inflammasome activation under high cholesterol load triggers a protective microglial phenotype while promoting neuronal pyroptosis**. *Translational Neurodegeneration*. 12(1):10. D1

Cristóbal H, Enjuanes C, Batlle M, ... , Sabaté M, Comin-Colet J, de Frutos PG. **Prognostic Value of Soluble AXL in Serum from Heart Failure Patients with Preserved and Reduced Left Ventricular Ejection Fraction**. *Journal of Personalized Medicine*. 13(3):446. Q2

Ortega-Paz L, Cristóbal H, Ortiz-Perez JT, ... , Brugaletta S, Sabaté M, Dantas AP. **Direct actions of dapagliflozin and interactions with LCZ696 and spironolactone on cardiac fibroblasts of patients with heart failure and reduced ejection fraction**. *ESC Heart Failure*. 10(1):453-464. Q2

3.20

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

Publications

Original articles	**Mean IF**	**6,96**
24	Q1	54%
	D1	25%
	MA	38%
	OA	75%
Others	**Mean IF**	**4,22**
5	Q1	40%
	D1	0%
	MA	80%
	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

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

De Angelis Rigotti F, Wiedmann L, Hubert MO, ... , Mogler C, Fischer A, Rodriguez-Vita J. **Semaphorin 3C exacerbates liver fibrosis**. *Hepatology*. 78(4):1092-1105. D1

Moreno-Lanceta A, Medrano-Bosch M, Fundora, Y, ... , Edelman ER, Jiménez W, Melgar-Lesmes P. **RNF41 orchestrates macrophage-driven fibrosis resolution and hepatic regeneration**. *Science Translational Medicine*. 15(704):eabq6225. D1

Córdoba-Jover B, Ribera J, Portolés I, ... , Elortza F, Pinyol R, Huguet-Pradell J. **Tcf20 deficiency is associated with increased liver fibrogenesis and alterations in mitochondrial metabolism in mice and humans**. *Liver International*. 43(8):1822-1836. Q1

Alvarez-Mora MI; Garrabou G; Molina-Porcel L, ... , Barcos T, Cantó-Santos J, Rodriguez-Revenga L. **Exploration of SUMO2/3 Expression Levels and Autophagy Process in Fragile X-Associated Tremor/Ataxia Syndrome: Addressing Study Limitations and Insights for Future Research**. *Cells*. 12(19):2364. Q2

Alvarez-Mora MI, Rodríguez-Revenga L, Jodar M, ... , Martí MJ, Sánchez-Valle R, Madrigal I. **Implementation of Exome Sequencing in Clinical Practice for Neurological Disorders**. *Genes*. 14(4):813. Q2

GROUP LEADER
Manuel Morales-Ruiz (HCB)

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

3.21

Pathogenesis and prevention of diabetes

GROUP LEADER

Anna Novials (IDIBAPS)

RESEARCH INTERESTS

Diabetes represents a serious health problem due to its high prevalence (>500 million people worldwide), its economic cost and the number of deaths it causes due to chronic complications.

By combining clinical and basic research in animal models and in humans, our research focuses on 1) the prevention and control of diabetes with lifestyle interventions, especially physical exercise, 2) the adaptation and dysfunction of pancreatic beta-cells during the progression of the disease, and 3) the molecular mechanisms of organ crosstalk involved in the metabolic imbalance present in diabetes.

KEYWORDS

Diabetes
Obesity
Physical exercise
Pancreatic beta-cell
Small extracellular vesicles

RELATED DISEASES

Diabetes
Obesity
Fatty liver disease
Cardiovascular diseases
Neurodegenerative diseases

Publications

Original articles	Mean IF	4,50
5	Q1	40%
	D1	0%
	MA	60%
	OA	80%
Others	Mean IF	5,60
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 • Serafin Murillo

Selected active grants

Inter-organ cross-talk and type 2diabetes: effects of circulating exosomes on pancreatic islets.
Instituto de Salud Carlos III (ISCIII).
FIS_PI20/00658
PI: Joan Marc Servitja, Anna Novials

Benchtop NMR for lab-on-chip.
European Commission.
CE_H2020-FETOPN19
PI: Joan Marc Servitja

Selected publications

Rodríguez-Comas J, Castaño C, Ortega MA, ... , Novials A, Párrizas M, Ramón-Azcón, J. **Immunoaffinity-Based Microfluidic Platform for Exosomal MicroRNA Isolation from Obese and Lean Mouse Plasma**. *Advanced Materials Technologies*. Q1

Fontcuberta-PiSunyer M, García-Alamán A, Prades È, ... , Vidal J, Gomis R, Gasa R. **Direct reprogramming of human fibroblasts into insulin-producing cells using transcription factors**. *Communications Biology*. 6(1):256. Q1

Castaño C, Novials A, Párrizas M. **Exosomes from Short-Term High-Fat or High-Sucrose Fed Mice Induce Hepatic Steatosis through Different Pathways**. *Cells*. 12(1):169. Q2

Castaño C, Novials A, Párrizas M. **An Overview of Inter-Tissue and Inter-Kingdom Communication Mediated by Extracellular Vesicles in the Regulation of Mammalian Metabolism**. *International Journal of Molecular Sciences*. 24(3):2071. Q1

Gómez-Peralta F, Menéndez E, Conde S, ... , Pérez PR, Rica I, López, ID. **Physical activity patterns in type 1 diabetes in Spain: The SED1 study**. *BMC Sports Science, Medicine and Rehabilitation*. 15(1):92. Q3

3.22

Protective strategies against hepatic ischemia reperfusion injury

Publications

Original articles	Mean IF	6,10
4	Q1	50%
	D1	25%
	MA	25%
	OA	50%
Others	Mean IF	4,75
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

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

Ferrer-Fàbrega J, Cárdenas G, Sapena V, ... , Fernández-Cruz L, García-Valdecasas JC, Fuster J. **Validation of the Back-table Graft Arterial Anastomosis between the Splenic Artery and Superior Mesenteric Artery: Arterial Complications after a 21-year Single-center Experience of Pancreas Transplantation**. *Annals of Surgery*. D1

Casillas-Ramírez A, Micó-Carnero M, Sánchez-González A, Maroto-Serrat C, Trostchansky A, Peralta C. **NO-IL-6/10-IL-1β axis: a new pathway in steatotic and non-steatotic liver grafts from brain-dead donor rats**. *Frontiers in Immunology*. 14:1178909. Q1

Latini A, Uroz CP, Trostchansky A. **Editorial: Insights in experimental pharmacology and drug discovery: 2022**. *Frontiers in Pharmacology*. 14:1250936. Q1

Chaabani R, Bejaoui M, Ben Jeddou I, ... , Belgacem S, Peralta C, Ben Abdennebi H. **Effect of the Non-steroidal Anti-inflammatory Drug Diclofenac on Ischemia-Reperfusion Injury in Rat Liver: A Nitric Oxide-Dependent Mechanism**. *Inflammation*. 46(4):1221-1235. Q2

Saavedra-Pérez D, Manyalich M, Domínguez P, ... , López-Boado MÁ, Vilaça J, Vidal Ó. **Unilateral axilo-breast approach (UABA) with gas insufflation versus open conventional hemithyroidectomy: A prospective comparative study**. *Cirugia Española*. 101(2):107-115. Q3

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

3.23

Hepatic oncology (BCLC)

GROUP LEADER
Maria Reig (HCB)

RESEARCH INTERESTS

This is a multidisciplinary research group with different research profiles.

The main research interests are grouped on:

a) Stratification of the risk factors for liver cancer in the era of cured HCV.

b) Diagnosis and staging tools to allow a high diagnostic accuracy for very early liver cancer and accurate evaluation of tumour burden with prognosis prediction.

c) Predictors of treatment response including biology behaviour for stratified risk prediction through tissue, blood and faecal profiling and imaging assessment.

d) Cholangiocarcinoma.

e) Rare hepatic tumours.

f) Research in nursing.

KEYWORDS
Liver cancer
Predictors of response
Animal models
Plasticity
Patients experience

RELATED DISEASES
Liver diseases
Hepatocellular carcinoma
Biliary tract cancer
Rare liver cancer
Primary liver cancer

Publications

Original articles	**Mean IF**	**11,86**
16	Q1	63%
	D1	44%
	MA	19%
	OA	81%
Others	**Mean IF**	**16,60**
15	Q1	87%
	D1	67%
	MA	60%
	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

2

- Marco Sanduzzi
- Victor Sapena

Selected active grants

EUCAN Image: A European Cancer Image Platform Linked to Biological and Health Data for Next-Generation Artificial Intelligence and Precision Medicine in Oncology.
European Commission.
CE_H2020_SC1_20_1s13
PI: Jordi Rimola , Jordi Bruix

Tumor plasticity and the regulation of carbonic anhidrase 9 in hepatocellular carcinoma. Rational basis to modulate immune evasion and improve treatment response.
Instituto de Salud Carlos III (ISCIII).
FIS_PI22/01427
PI: Maria Reig

Selected publications

European Association for the Study of the Liver. **EASL-ILCA Clinical Practice Guidelines on the management of intrahepatic cholangiocarcinoma**. *Journal of Hepatology.* 79(1):181-208. D1

Calderaro J, Maille P, Favre L, ... , Wetwittayaklang P, Tantipisit J, Shen JN. **Deep learning-based phenotyping reclassifies combined hepatocellular-cholangiocarcinoma**. *Nature Communications*. 14(1):8290. D1

El Hajra I, Sanduzzi-Zamparelli M, Sapena V, ... , Rios J, Bruix J, Reig M. **Outcome of patients with hepatocellular carcinoma and liver dysfunction under Immunotherapy: a systematic review and meta-analysis**. *Hepatology*. 77(4):1139-1149. D1

Ronot M, Nahon P, Rimola J. **Screening of liver cancer with abbreviated MRI**. *Hepatology*. 78(2):670-686. D1

Iavarone M, Nault JC, Cabibbo G, Torres F, Reig M. **Indolent cancer and pattern of progression: Two missing parameters in trial design for hepatology**. *Hepatology*. 79(6):1452-1462. D1

3.24

Inflammatory bowel disease

GROUP LEADER

Azucena Salas (IDIBAPS)

Publications

Original articles	Mean IF	7,49
11	Q1	64%
	D1	18%
	MA	18%
	OA	55%
Others	Mean IF	17,12
5	Q1	60%
	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

Directed PhD theses

1

- Alba Garrido

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

Estudio de la heterogeneidad en la enfermedad inflamatoria Intestinal mediante el uso de análisis de célula única.
Agencia Estatal de Investigación.
AEI_PID2021-123918OB-I00
PI: Azucena Salas

Selected publications

Verstockt B, Salas A, Sands BE, ... , Leibovitzh H, Neurath MF, Vande Casteele N; Alimentiv Translational Research Consortium (ATRC). **IL-12 and IL-23 pathway inhibition in inflammatory bowel disease**. *Nature Reviews Gastroenterology & Hepatology*. 20(7):433-446. D1

Garrido-Trigo A, Corraliza AM, Veny M, ... , Mereu E, Heyn H, Salas A. **Macrophage and neutrophil heterogeneity at single-cell spatial resolution in human inflammatory bowel disease**. *Nature Communications*. 14(1):4506. D1

Barreiro de Acosta M, Fernández-Clotet A, Mesonero F, ... , Cabriada JL, Domènech E, Rodríguez-Lago I; BIOSCOPE study group from the ENEIDA registry. **Long-term outcomes of biological therapy in Crohn's disease complicated with internal fistulizing disease: BIOSCOPE study from GETECCU**. *American Journal of Gastroenterology*. 118(6):1036-1046. Q1

Garrido-Trigo A, Veny M, Salas A. **Uncovering intestinal macrophages through the integration of single-cell and spatial transcriptomics**. *Genes And Immunity*. Q1

Giordano A, Escapa M, Urpí-Ferreruela M, ... , Ginés A, Llach J, González-Suárez B. **Diagnostic accuracy of artificial intelligence-aided capsule endoscopy (TOP100) in overt small bowel bleeding**. *Surgical Endoscopy and Other Interventional Techniques*. 37(10):7658-7666. Q1

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

3.25

Liver cell plasticity and tissue repair

GROUP LEADER

Pau Sancho-Bru (IDIBAPS)

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
Alcohol-related liver diseases
Hepatoblastoma
Colangiocarcinoma

Publications

Original articles	Mean IF	17,97
7	Q1	86%
	D1	71%
	MA	29%
	OA	71%
Others	Mean IF	78,80
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

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

Ilyas SI, Affo S, Goyal L, ... , Sapisochin G, Yang JD, Gores GJ. **Cholangiocarcinoma - novel biological insights and therapeutic strategies**. *Nature Reviews Clinical Oncology*. 20(7):470-486. D1

Fernandez-Barrena MG, Avila MA, Claveria-Cabello A, ... , Cairo S, Domingo-Sàbat M, Zanatto L. **Identification and experimental validation of druggable epigenetic targets in hepatoblastoma**. *Journal of Hepatology*. 79(4):989-1005. D1

Ariño S, Aguilar-Bravo B, Coll M, ... , Moles A, Kubes P, Sancho-Bru P. **Ductular reaction-associated neutrophils promote biliary epithelium proliferation in chronic liver disease**. *Journal of Hepatology*. 79(4):1025-1036. D1

Aguilar-Bravo B, Ariño S, Blaya D, ..., Ginès P Mathurin P, Sancho-Bru P. **Hepatocyte dedifferentiation profiling in alcohol-related liver disease identifies CXCR4 as a driver of cell reprogramming**. *Journal of Hepatology*. 79(3):728-740. D1

3.26

Pathogenesis and treatment of autoimmunity

GROUP LEADER
Pere Santamaria (IDIBAPS)

Publications

Original articles	**Mean IF**	**13,97**
3	Q1	100%
	D1	67%
	MA	67%
	OA	100%
Others	**Mean IF**	**7,75**
2	Q1	100%
	D1	50%
	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

- Daniel Parras

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

Solé P, Yamanouchi J, Garnica J, ... , Yang Y, Serra P, Santamaria P. **A T follicular helper cell origin for T regulatory type 1 cells**. *Cellular & Molecular Immunology*. 20(5):489-511. D1

Kogevinas M, Karachaliou M, Espinosa A, ... , de Cid R, Dobaño C, Tonne C. **Long-Term Exposure to Air Pollution and COVID-19 Vaccine Antibody Response in a General Population Cohort (COVICAT Study, Catalonia)**. *Environmental Health Perspectives*. 131(4):47001. D1

Thompson PJ, Pipella J, Rutter GA, Gaisano HY, Santamaria P. **Islet autoimmunity in human type 1 diabetes: initiation and progression from the perspective of the beta cell**. *Diabetologia*. 66(11):1971-1982. D1

Solé P, Parras D, Yamanouchi J, ... , Yang Y, Serra P, Santamaria P. **Transcriptional re-programming of insulin B-chain epitope-specific T-follicular helper cells into anti-diabetogenic T-regulatory type-1 cells**. *Frontiers in Immunology*. 14:1177722. Q1

Angelats E, Santamaria P. **Lineage origin and transcriptional control of autoantigen-specific T-regulatory type 1 cells**. *Frontiers in Immunology*. 14:1267697. Q1

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

3.27

Translational research in diabetes, lipids and obesity

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

Publications

Original articles	Mean IF	6,53
41	Q1	56%
	D1	22%
	MA	32%
	OA	76%
Others	Mean IF	3,09
12	Q1	17%
	D1	0%
	MA	75%
	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

1

- Ainhoa Garcia

Selected active grants

Control de glucosa en mujeres versus hombres: hacia terapias de insulina específicas por sexo en diabetes tipo 1 (DIABETEXX).
Agencia Estatal de Investigación.
AEI_PE22
PI: Ignacio Conget

Optimización de la reprogramación de fibroblastos humanos a células productoras de insulina.
Agencia Estatal de Investigación.
AEI_PE22
PI: Rosa Gasa

Selected publications

Boswell L, Ventura-Aguiar P, Alejaldre A, ... , Diekmann F, Esmatjes E, Amor AJ. **Diabetic Neuropathy Is Independently Associated With Worse Graft Outcomes and Incident Cardiovascular Disease After Pancreas Transplantation: A Retrospective Cohort Study in Type 1 Diabetes**. *Transplantation*. 107(2):475-484. D1

Téllez N, Rojas A, Gasa R. **Editorial: Look who's talking: Dialogues with beta cells**. *Frontiers in Endocrinology*. 5:13:1117181. Q1

Fontcuberta-PiSunyer M, García-Alamán A, Prades È, ... , Vidal J, Gomis R, Gasa R. **Direct reprogramming of human fibroblasts into insulin-producing cells using transcription factors**. *Communications Biology*. 6(1):256. Q1

Bujosa F, Herreras Z, Catalán M, ... , Jiménez A, Ortega E, Chiva-Blanch G. **Total carotene plasma concentrations are inversely associated with atherosclerotic plaque burden: A post-hoc analysis of the DIABIMCAP cohort**. *Clinical Nutrition*. 42(7):1168-1174. Q1

Osorio-Conles Ó, Jiménez A, Ibarzabal A, Balibrea JM, de Hollanda A, Vidal J. **Limited Bariatric Surgery-induced Weight Loss in Subjects With Type 2 Diabetes: Predictor Variables in Adipose Tissue**. *Journal of Clinical Endocrinology & Metabolism*. 108(11):e1205-e1213. Q1

4

CLINICAL AND EXPERIMENTAL NEUROSCIENCE

Annual scientific Report 2023

photo: **Paloma Rivero and Agnese Brischetto**

AREA 4

CLINICAL AND EXPERIMENTAL NEUROSCIENCE

4.1 **Pathophysiology and treatment of neurodegenerative disorders**
Jordi Alberch

4.2 **Schizophrenia**
Miquel Bernardo

4.3 **Systems neuropharmacology**
Analía Bortolozzi

4.4 **Child and adolescent psychiatry and psychology**
Josefina Castro-Fornieles

4.5 **Cerebrovascular diseases**
Ángel Chamorro

4.6 **Theoretical neurobiology of cortical circuits**
Albert Compte

4.7 **Pathogenesis of autoimmune neuronal disorders**
Josep Dalmau

4.8 **Cortical circuit dynamics**
Jaime de la Rocha

4.9 **Inherited metabolic diseases and muscular disorders**
Glòria Garrabou

4.10 **Neurophysiology**
Xavier Gasull

4.11 **Clinical neurophysiology**
Alejandro Iranzo

4.12 **Neuropsychology**
Carme Junqué

4.13 **Advanced imaging in neuroimmunological diseases (ImaginEM)**
Sara Llufriu

4.14 **Clinical addictions**
Hugo López-Pelayo

4.15 **Parkinson disease and other neurodegenerative movement disorders: clinical and experimental research**
M. Josep Martí

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: Daniel del Toro
- Glia-neuron crosstalk in Huntington's disease.
  PI: Dr. Silvia Ginés
- Neural plasticity in neurological and neuropsychiatric disorders.
  PI: Albert Giralt
- Modulation of 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

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	8,55
13	Q1	92%
	D1	23%
	MA	62%
	OA	100%
Others	Mean IF	10,60
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

6

- Sara Conde-Berriozábal
- Esther García
- Clelia Introna
- Anna Sancho
- Júlia Solana
- Cristina Vila

Selected active grants

Molecular interactions of guidance receptors acting in early cortical development.
Wellcome Discovery Awards.
UNS141550
PI: Daniel del Toro

4-Deep Brain Reconstruction (4-DBR).
European Commission.
CE_HE_PathOPEN_21
PI: Josep M. Canals

Selected publications

Solana-Balaguer J, Campoy-Campos G, Martín-Flores N, ... , Soriano J, Masana M, Malagelada C. **Neuron-derived extracellular vesicles contain synaptic proteins, promote spine formation, activate TrkB-mediated signalling and preserve neuronal complexity**. *Journal of Extracellular Vesicles*. 12(9):e12355. D1

Ballasch I, García-García E, Vila C, ... , Rodríguez MJ, Canals JM, Giralt A. **Ikzf1 as a novel regulator of microglial homeostasis in inflammation and neurodegeneration**. *Brain Behavior and Immunity*. 109:144-161. D1

Rodríguez-Urgellés E, Casas-Torremocha D, Sancho-Balsells A, ... , Sanchez-Vives MV, Giralt A, Alberch J. **Thalamic Foxp2 regulates output connectivity and sensory-motor impairments in a model of Huntington's Disease**. *Cellular and Molecular Life Sciences*. 80(12):367. Q1

Miguez A, Gomis C, Vila C, ... , Allen ND, Borràs FE, Canals JM. **Soluble mutant huntingtin drives early human pathogenesis in Huntington's disease**. *Cellular and Molecular Life Sciences*. 80(8):238. Q1

Conde-Berriozabal S, García-Gilabert L, García-García E, ... , Rodríguez MJ, Alberch J, Masana M. **M2 cortex circuitry and sensory-induced behavioral alterations in Huntington's Disease: role of superior colliculus**. *Journal of Neuroscience*. 43(18):3379-3390. Q1

4.02

Schizophrenia

GROUP LEADER
Miquel Bernardo (HCB)

RESEARCH INTERESTS

The group is developing longitudinal follow-up studies of initial psychotic episodes and defining the factors involved and the determinants of their evolution.

This is a task that it carries out while analysing the clinical, neurocognitive, neurobiological, neuroimaging and environmental correlates that condition the therapeutic response and the risk of relapse. It also puts into practice techniques and procedures to analyse genetic and neurobiological variants, especially related with inflammatory balance and oxidative stress, in order to look for biomarkers and predictive models that enable identification of new therapeutic targets.

KEYWORDS
Schizophrenia
First episode psychosis
Psychosis

RELATED DISEASES
Psychosis

Publications

Original articles	**Mean IF**	**7,21**
47	Q1	89%
	D1	53%
	MA	40%
	OA	79%
Others	**Mean IF**	**6,17**
7	Q1	57%
	D1	29%
	MA	29%
	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

Selected active grants

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

Biomarcadores de pérdida sináptica, daño neuronal e inflamación en líquido cefalorraquídeo y sangre periférica en pacientes con un primer episodio psicótico.
Instituto de Salud Carlos III (ISCIII).
FIS_PI20/01066
PI: Miquel Bioque, Miquel Bernardo

Selected publications

Segura AG, Mané A, Prohens L, ... , Saiz-Ruiz J, Bernardo M, Mas S; PEPs Group. **Exploration of cannabis use and polygenic risk scores on the psychotic symptom progression of a FEP cohort**. *Psychiatry Research*. 325:115249. D1

Mezquida G, Amoretti S, Bioque M, ... , Gonzalez-Pinto A, Berrocoso E, Bernardo M. **Identifying risk factors for predominant negative symptoms from early stages in schizophrenia: A longitudinal and sex-specific study in first-episode schizophrenia patients**. *Revista de Psiquiatria y Salud Mental.* 16(3):159-168. D1

Bioque M, Rumià J, Roldán P, ... , Tercero J, Parellada E, Vieta E. **Deep brain stimulation and digital monitoring for patients with treatment-resistant schizophrenia and bipolar disorder: A case series.** *Revista de Psiquiatria y Salud Mental.* S1888-9891(23):00013-7. D1

Martínez-Pinteño A, Rodríguez N, Olivares D, Madero S, Gómez M, Prohens L, García-Rizo C, Mas S, Morén C, Parellada E, Gassó P. **Early treatment with JNJ-46356479, a mGluR2 modulator, improves behavioral and neuropathological deficits in a postnatal ketamine mouse model of schizophrenia**. *Biomedicine & Pharmacotherapy.* 158:114079. D1

Anmella G, Amoretti S, Safont G, ... , García-Portilla MP, Bernardo M. Arranz B. **Intestinal permeability and low-grade chronic inflammation in schizophrenia: A multicentre study on biomarkers. Rationale, objectives, protocol and preliminary results.** *Spanish Journal of Psychiatry and Mental Health.* S2950-2853(23)00040-6. D1

4.03

Systems neuropharmacology

GROUP LEADER
Analía Bortolozzi (IIBB-CSIC)

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
Oligonucleotide therapeutics

RELATED DISEASES

Major depressive disorder
Stress-related disorders
Parkinson's disease
Proteinopathies

Publications

Original articles	Mean IF	7,06
5	Q1	100%
	D1	20%
	MA	20%
	OA	80%
Others	Mean IF	4,70
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

2

- Elena López
- Lluis Miquel Río

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

Tristán-Noguero A, Fernández-Carasa I, Calatayud C, ... , Raya Á, García-Cazorla À, Consiglio A. **iPSC-based modeling of THD recapitulates disease phenotypes and reveals neuronal malformation.** *EMBO Molecular Medicine.* 15(3):e15847. D1

Rodríguez-Urgellés E, Sancho-Balsells A, Ballasch I, ... , Manasanch A, Bortolozzi A, Sanchez-Vives MV. **Thalamic Foxp2 regulates output connectivity and sensory-motor impairments in a model of Huntington's Disease.** *Cellular and Molecular Life Sciences.* 80(12):367. Q1

Sancho-Alonso M, Arenas YM, Izquierdo-Altarejos P, Martinez-Garcia M, Llansola M, Felipo V. **Enhanced Activation of the S1PR2-IL-1β-Src-BDNF-TrkB Pathway Mediates Neuroinflammation in the Hippocampus and Cognitive Impairment in Hyperammonemic Rats.** *International Journal of Molecular Sciences.* 24(24):17251-17251. Q1

Riga MS, Paz V, Didriksen M, Celada P, Artigas F. **Lu AF35700 reverses the phencyclidine-induced disruption of thalamo-cortical activity by blocking dopamine D1 and D2 receptors.** *European Journal of Pharmacology.* 953:175802. Q1

Miquel-Rio L, Sarriés-Serrano U, Pavia-Collado R, Meana JJ, Bortolozzi A. **The Role of α-Synuclein in the Regulation of Serotonin System: Physiological and Pathological Features.** *Biomedicines.* 11(2):541-541. Q1

4.04

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	7,64
38	Q1	84%
	D1	58%
	MA	37%
	OA	74%
Others	Mean IF	5,30
9	Q1	56%
	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

- Adriana Fortea

Selected active grants

Interacción genética y ambiente en hijos de pacientes con esquizofrenia o trastorno bipolar.
Instituto de Salud Carlos III (ISCIII).
FIS_PI21/00519
Josefina Castro-Fornieles

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

Selected publications

Camprodon-Boadas P, De La Serna E, Plana MT, ... , Sugranyes G, Ortiz AE, Castro-Fornieles J. **Delusional beliefs in adolescents with anorexia nervosa, obsessive-compulsive disorder, or first-episode psychosis: A comparative study**. *Psychiatry Research.* 328:115490. D1

Via E, Calvo A, de la Serna E, ... , Moreno E, Bargallo N, Castro-Fornieles J. **Longitudinal study in adolescent anorexia nervosa: evaluation of cortico-striatal and default mode network resting-state brain circuits**. *European Child & Adolescent Psychiatry.* 32(3): 513-526. D1

De la Serna E, Puig O, Mezquida G, ... , Cuesta MJ, Bernardo M, Castro-Fornieles J; PEP's Group. **Relationship between cognition and age at onset of first-episode psychosis: comparative study between adolescents, young adults, and adults**. *European Child & Adolescent Psychiatry.* 32(4):639-649. D1

Camprodon-Boadas P, Rosa-Justicia M, Sugranyes G, ... , Torrent C, Castro-Fornieles J, de la Serna E. **Cognitive reserve and its correlates in child and adolescent offspring of patients diagnosed with schizophrenia or bipolar disorder**. *European Child & Adolescent Psychiatry.* 32(8):1463-1473. D1

Baeza I, de la Serna E, Mezquida G, ... , Ayora M, Bernardo M, Castro-Fornieles J. **Prodromal symptoms and the duration of untreated psychosis in first episode of psychosis patients: what differences are there between early vs. adult onset and between schizophrenia vs. bipolar disorder?** *European Child & Adolescent Psychiatry.* 33(3):799-810. D1

4.05

Cerebrovascular diseases

GROUP LEADER

Ángel Chamorro (HCB)

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 reperfusion and to promote brain recovery.

Moreover, we need novel treatments for brain 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

Publications

Original articles	Mean IF	10,63
26	Q1	73%
	D1	38%
	MA	42%
	OA	69%
Others	Mean IF	15,63
6	Q1	100%
	D1	100%
	MA	50%
	OA	83%

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

Anti-inflammatory miRNA nanoshuttles as therapeutic strategy for stroke (NANO4STROKE).
Instituto de Salud Carlos III (ISCIII).
FIS_AC20/00052
PI: Anna Planas

Selected publications

Arbaizar-Rovirosa M, Pedragosa J, Lozano JJ, ... , Pol A, Gallizioli M, Planas AM. **Aged lipid-laden microglia display impaired responses to stroke**. *EMBO Molecular Medicine*. 15(2):e17175. D1

Leira EC, Chamorro A, Planas AM, Chauhan AK. **Uric Acid: A Translational Journey in Cerebroprotection That Spanned Preclinical and Human Data**. *Neurology*. 101(23):1068-1074. D1

Gallizioli M, Arbaizar-Rovirosa M, Brea D, Planas AM. **Differences in the post-stroke innate immune response between young and old**. *Seminars in Immunopathology*. 45(3):367-376. D1

Díaz-Marugan L, Gallizioli M, Márquez-Kisinousky L, ... , de Los Reyes-Gavilán CG, Miró-Mur F, Planas AM. **Post-stroke Lung Infection by Opportunistic Commensal Bacteria Is Not Mediated by Their Expansion in the Gut Microbiota**. *Stroke*. 54(7):1875-1887. D1

Santana D, Mosteiro A, Llull L, ... , Torné R, Amaro S, 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 analysis**. *European Stroke Journal*. 9(1):180-188. Q1

4.06

Theoretical neurobiology of cortical circuits

GROUP LEADER
Albert Compte (IDIBAPS)

Publications

Original articles	Mean IF	11,10
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

Zugman A, Alliende LM, Medel V, ... , Pine DS, Evans-Lacko S, Crossley NA. **Country-level gender inequality is associated with structural differences in the brains of women and men**. *Proceedings of the National Academy of Sciences of the USA*. 120(20):e2218782120. Q1

Selected active grants

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

CRCNS US-Spain Research Proposal: Serial dependence in working memory.
National Science Foundation (NSF, USA) & Instituto de Salud Carlos III (ISCIII). CRCNS_19
PI: Albert Compte

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
Sleep

RELATED DISEASES

Autoimmune encephalitis
Schizophrenia

4.07

Pathogenesis of autoimmune neuronal disorders

GROUP LEADER

Josep Dalmau (ICREA-IDIBAPS)

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

Publications

Original articles	Mean IF	8,99
27	Q1	89%
	D1	59%
	MA	26%
	OA	75%
Others	Mean IF	22,85
12	Q1	92%
	D1	75%
	MA	75%
	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

1

- Jon Landa

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

Factores predictores, nuevos biomarcadores y anticuerpos involucrados en enfermedades desmielinizantes infantiles.
Instituto de Salud Carlos III (ISCIII).
FIS_PI21/00316
PI: Thais Armangué

Selected publications

Dalmau J, Graus F. **Diagnostic criteria for autoimmune encephalitis: utility and pitfalls for antibody-negative disease**. *Lancet Neurology.* 22(6):529-540. D1

Armangué T, Olivé-Cirera G, Martínez-Hernandez E, ... , Casanovas JL, Zhang SY, Dalmau J. **Neurological complications in herpes simplex encephalitis: clinical, immunological and genetic studies**. *Brain.* 146:4306-43198. D1

Blanco Y, Escudero D, Lleixà C, ... , Dalmau J, Querol L, Saiz A. **mRNA COVID-19 Vaccination Does Not Exacerbate Symptoms or Trigger Neural Antibody Responses in Multiple Sclerosis**. *Neurology-Neuroimmunology & Neuroinflammation.* 10(6):e200163. D1

Fonseca E, Cabrera-Maqueda JM, Ruiz-García R, ... , Blanco Y, Graus F, Martinez-Hernandez E; Neuro-ICI-Spain study group. **Neurologic adverse events related to immune-checkpoint inhibitors in Spain: a retrospective cohort study**. *Lancet Neurol.* 22:1150-1159. D1

Iranzo A, Mammana A, Muñoz-Lopetegi A, ... , Santamaria-Cano J, Gaig C, Parchi P. **Misfolded α-synuclein assessment in the skin and CSF by RT-QuIC in isolated REM sleep behavior disorder**. *Neurology.* 100:e1944-1954. D1

4.08

Cortical circuit dynamics

GROUP LEADER

Jaime de la Rocha (IDIBAPS)

Publications

Original articles	Mean IF	8,45
2	Q1	100%
	D1	100%
	MA	50%
	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_POC1
PI: Jaime de la Rocha

Los mecanismos de circuito de los sesgos del aprendizaje durante la toma de decisiones.
Agencia Estatal de Investigación.
AEI_PCI22_02
PI: Jaime de la Rocha

Selected publications

Molano-Mazón M, Shao YX, Duque D, Yang GR, Ostojic S, de la Rocha J. **Recurrent networks endowed with structural priors explain suboptimal animal behavior.** *Current Biology.* 33(4):622-638.e7. D1

Hyafil A, de la Rocha J, Pericas C, Katz LN, Huk AC, Pillow JW. **Temporal integration is a robust feature of perceptual decisions**. *eLife*. 12:e84045. D1

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 automated behavioral tasks in rodents with electrophysiological recordings and optogenetic manipulation of neuronal activity.

We also 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
Computational network model

RELATED DISEASES

Schizophrenia
Anti-NMDAr encephalitis

4.09

Inherited metabolic diseases and muscular disorders

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

Publications

Original articles	**Mean IF**	**10,93**
43	Q1	65%
	D1	28%
	MA	19%
	OA	79%
Others	**Mean IF**	**13,11**
9	Q1	56%
	D1	44%
	MA	22%
	OA	56%

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

- Judith Cantó
- Ana Matas
- Gerard Muñoz

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

Anthon CT, Pène F, Perner A, ... , Granholm A, Moller MH, Russell L. **Thrombocytopenia and platelet transfusions in ICU patients: an international inception cohort study (PLOT-ICU)**. *Intensive Care Medicine*. 49(11):1327-1338. D1

Cantó-Santos J, Valls-Roca L, Tobías E, ... , Cardellach F, Grau-Junyent JM, Garrabou G. **Unravelling inclusion body myositis using a patient-derived fibroblast model**. *Journal of Cachexia Sarcopenia and Muscle.* 14(2):964-977. D1

Cantó-Santos J, Valls-Roca L, Tobías E, ... , Artuch R, Grau-Junyent JM, Garrabou G. **Integrated Multi-Omics Analysis for Inferring Molecular Players in Inclusion Body Myositis**. *Antioxidants*. 12(8):1639. D1

Milisenda JC, Pinal-Fernandez I, Lloyd TE, ... , Christopher-Stine L, Corse AM, Mammen AL. **The pattern of MHC class I expression in muscle biopsies from patients with myositis and other neuromuscular disorders**. *Rheumatology*. 62(9):3156-3160. Q1

Muñoz-Pujol G, Ugarteburu O, Segur-Bailach E, ... , Fons C, Ribes A, Tort F. **CRISPR/Cas9-based functional genomics strategy to decipher the pathogenicity of genetic variants in inherited metabolic disorders**. *Journal of Inherited Metabolic Disease*. 46(6):1029-1042. Q1

4.10

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. Ion channels and receptors that participate in detecting painful and itchy stimuli in sensory neurons, and their regulation during chronic pain and itch.

2. Glutamate receptors and their regulatory proteins, or the functional consequences of de *novo* mutations altering ionotropic glutamate receptors.

3. The role of neuron-microglia crosstalk in synaptic and neuronal deficits in neurodegenerative diseases.

4. Congenital glycosylation alterations of ion channels involved in cerebellar dysfunctions.

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	8,41
7	Q1	86%
	D1	29%
	MA	14%
	OA	86%
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

- Roberto García

Selected active grants

A new target for the treatment of acute and chronic itch.
LEO Foundation Research.
LF-OC-22-001114
PI: Xavier Gasull

Medicina personalizada para las Grinpatías y sinaptopatías glutamatérgicas asociadas a encefalopatías del desarrollo.
Instituto de Salud Carlos III (ISCIII).
FIS_PI22/00515
PI: Xavier Altafaj

Selected publications

Landra-Willm A, Karapurkar A, Duveau A, ... , Boué-Grabot E, Kienzler MA, Sandoz G. **A photoswitchable inhibitor of TREK channels controls pain in wild-type intact freely moving animals**. *Nature Communications*. 14(1):1160. D1

Ballasch I, García-García E, Vila C, ..., Rodríguez MJ, Canals JM, Giralt A. **Ikzf1 as a novel regulator of microglial homeostasis in inflammation and neurodegeneration**. *Brain Behavior and Immunity*. 109:144-161. D1

Pedraza N, Monserrat M, Ferrezuelo F, ... , Esteban JA, Egea J, Gari E. **Cyclin D1-Cdk4 regulates neuronal activity through phosphorylation of GABAA receptors**. *Cellular and Molecular Life Sciences*. 80(10):280. Q1

Millá E, Ventura-Abreu N, Vendrell C, ... , Pazos M, Gasull X, Comes N. **Differential Gene and Protein Expression of Conjunctival Bleb Hyperfibrosis in Early Failure of Glaucoma Surgery**. *International Journal of Molecular Sciences*. 24(15):11949. Q1

den Hollander B, Veenvliet ARJ, Rothuizen-Lindenschot M, ... , Brands MM, Jacobs BAW, van Karnebeek CD. **Evidence for effect of l-serine, a novel therapy for GRIN2B-related neurodevelopmental disorder**. *Molecular Genetics and Metabolism*. 138(3):107523. Q2

4.11

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

RELATED DISEASES

Anti-IgLON5 disease
REM sleep behavior disorder
Epilepsy
Neuromuscular disorders
Neuropatic pain

Publications

Original articles	Mean IF	5,58
33	Q1	61%
	D1	24%
	MA	27%
	OA	76%
Others	Mean IF	5,27
6	Q1	83%
	D1	0%
	MA	67%
	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

Directed PhD theses

5

- Lilia Isabel Márquez
- Marta Fernandez
- Paula Marrero
- Gerard Maya
- Laura Pérez

Selected active grants

Behaviors in REM sleep personalised automatic 3 D video analysis as novel tool to detect alpha-synucleinopathies.
European Commission
& Generalitat de Catalunya.
CE_ERA_PerMed_21
& GENCAT_ERAPERMED21-093
PI: Alejandro Iranzo

Detección de la alfa-sinucleína y rado de senescencia neuronal en biopsias y resecciones quirúrgicas de órganos periféricos en pacientes afectos del trastorno de conducta del sueño REM idiopático.
Instituto de Salud Carlos III (ISCIII).
FIS_ PI20/00764
PI: Alejandro Iranzo

Selected publications

Ollila HM, Sharon E, Lin L, ... , Hallmayer J, Ye CJ, Mignot EJ. **Narcolepsy risk loci outline role of T cell autoimmunity and infectious triggers in narcolepsy**. *Nature Communications*. 14(1):2709. D1

Stankeviciute L, Falcon C, Operto G, ... , Cacciaglia R, Gispert JD, Grau-Rivera O; and for the ALFA study. **Differential effects of sleep on brain structure and metabolism at the preclinical stages of AD**. *Alzheimers & Dementia*. 19(12):5371-5386. D1

Berger-Sieczkowski E, Endmayr V, Haider C, ... , Graus F, Gelpi E, Höftberger R. **Analysis of inflammatory markers and tau deposits in an autopsy series of nine patients with anti-IgLON5 disease**. *Acta Neuropathologica*. 146(4):631-645. D1

Iranzo A, Mammana A, Muñoz-Lopetegi A, ... , Cano JS, Gaig C, Parchi P. **Misfolded α-Synuclein Assessment in Skin and CSF by RT-QuIC in Isolated REM Sleep Behavior Disorder**. *Neurology*. 100(18):e1944-e1954. D1

Saint Amour di Chanaz L, Pérez-Bellido A, Wu X, ... , Navarro V, Valero-Cabré A, Fuentemilla L. **Gamma amplitude is coupled to opposed hippocampal theta-phase states during the encoding and retrieval of episodic memories in humans**. *Current Biology*. 33(9):1836-1843.e6. D1

4.12

Neuropsychology

GROUP LEADER
Carme Junqué (UB)

Publications

Original articles	**Mean IF**	**6,54**
35	Q1	57%
	D1	31%
	MA	29%
	OA	91%
Others	**Mean IF**	**4,10**
2	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

3

- Mª del Rocío Cabello
- Agnès Pérez
- María Redondo

Selected active grants

Home-based non-invasive brain stimulation for treatment-resistant depression: feasibility, efficacy and biomarker of treatment response.
Fundació la Marató de TV3.
420/U/2022
PI: David Bartrés-Faz

Structural and functional brain patterns associated with different phenotypes cognitive and its progression in REM sleep behavior disorders.
Ministerio de Ciencia e Innovación y Universidades.
MCIU_PID2020-114640GB-100
PI: Bàrbara Segura, Carme Junqué

Selected publications

Abellaneda-Pérez K, Cattaneo G, Cabello-Toscano M, ... , Tormos JM, Pascual-Leone A, Bartrés-Faz D. **Purpose in life promotes resilience to age-related brain burden in middle-aged adults**. *Alzheimers Research & Therapy.* 15(1):49. D1

Mulet-Pons L, Solé-Padullés C, Cabello-Toscano M, ... , Pascual-Leone A, Bartrés-Faz D, Vaqué-Alcázar L. **Brain connectivity correlates of cognitive dispersion in a healthy middle-aged population: influence of subjective cognitive complaints**. *Journals of Gerontology Series B-Psychological Sciences and Social Sciences*. 78(11): 1860-1869. Q1

Ariza M, Cano N, Segura B, ... , NAUTILUS Project Collaborative Group; Garolera M, Junqué C. **COVID-19 severity is related to poor executive function in people with post-COVID conditions**. *Journal of Neurology*. 270(5):2392-2408. Q1

Campabadal A, Oltra J, Junqué C, ... , Rami L, Sánchez-Valle R, Segura B. **Structural brain changes in post-acute COVID-19 patients with persistent olfactory dysfunction**. *Annals of Clinical and Translational Neurology*. 10(2): 195-203. Q1

Pérez-Millan A, Contador J, Juncà-Parella J, ... , Lladó A, Sánchez-Valle R, Sala-Llonch R. **Classifying Alzheimer's disease and frontotemporal dementia using machine learning with cross-sectional and longitudinal magnetic resonance imaging data**. *Human Brain Mapping.* 44(6):2234- 2244. Q1

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

4.13

Advanced imaging in neuroimmunological diseases (ImaginEM)

GROUP LEADER

Sara Llufriu (HCB-IDIBAPS)

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

Publications

Original articles	Mean IF	10,59
16	Q1	75%
	D1	50%
	MA	13%
	OA	94%
Others	Mean IF	3,80
7	Q1	29%
	D1	14%
	MA	29%
	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

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

Dendritic cells therapy combined with immunomodulatory treatment in multiple sclerosis (TolDec-COMBINEM).
Instituto de Salud Carlos III (ISCIII).
FIS_ICI19/00034
PI: Yolanda Blanco

Selected publications

International Multiple Sclerosis Genetics Consortium; MultipleMS Consortium. **Locus for severity implicates CNS resilience in progression of multiple sclerosis**. *Nature*. 619(7969):329-331. D1

Fonseca E, Cabrera-Maqueda JM, Ruiz-García R, ... , Blanco Y, Graus F, Martinez-Hernandez E; Neuro-ICI-Spain study group. **Neurological adverse events related to immune-checkpoint inhibitors in Spain: a retrospective cohort study**. *Lancet Neurology*. 22(12): 1150-1159. D1

Martinez-Heras E, Solana E, Vivó F, ... , Saiz A, Blanco Y, Llufriu S. **Diffusion-based structural connectivity patterns of multiple sclerosis phenotypes**. *Journal of Neurology Neurosurgery and Psychiatry*. 94(11):916-923. D1

Blanco Y, Escudero D, Lleixà C, ... , Dalmau J, Querol L, Saiz A. **mRNA COVID-19 Vaccination Does Not Exacerbate Symptoms or Trigger Neural Antibody Responses in Multiple Sclerosis**. *Neurology-Neuroimmunology & Neuroinflammation*. 10(6):e200163. D1

Llufriu S, Agüera E, Costa-Frossard L, ... , Requeni L, Zubizarreta I, Rovira À. **Recommendations for the coordination of Neurology and Neuroradiology Departments in the management of patients with multiple sclerosis**. *Neurologia*. 38(7):453-462. Q2

4.14

Clinical addictions

GROUP LEADER

Hugo López-Pelayo (HCB)

Publications

Original articles	Mean IF	4,55
11	Q1	45%
	D1	18%
	MA	18%
	OA	73%
Others	Mean IF	3,82
5	Q1	40%
	D1	0%
	MA	60%
	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

- Chrysanthi Blithikioti

Selected active grants

Workforce in Addictions - Valorisation in Europe (WAVE).
European Commission.
CE_JUST- 2020- AG-DRU
PI: Hugo López-Pelayo

IBM-ABJ: Intervención Breve Motivacional combinada con Aprendizaje Basado en el Juego para mejorar la retención en tratamiento de pacientes con daño hepático relacionado con el alcohol.
Instituto de Salud Carlos III (ISCIII).
FIS_PI20/00760
PI: Hugo López-Pelayo

Selected publications

Manthey J, Braddick F, López-Pelayo H, Shield K, Rehm J, Kilian C. **Unrecorded alcohol use in 33 European countries: Analyses of a comparative survey with 49,000 people who use alcohol**. *International Journal of Drug Policy*. 116:104028. Q1

Kilian C, Manthey J, Braddick F, López-Pelayo H, Rehm J. **Social disparities in alcohol's harm to others: evidence from 32 European countries**. *International Journal of Drug Policy*. 118:104079. Q1

Hernández-Rubio A, Sanvisens A, Barbier-Torres L, ... , Rodríguez de Fonseca F, Farré M, Muga R; CohRTA. **Associations of hypomagnesemia in patients seeking a first treatment of alcohol use disorder**. *Drug and Alcohol Dependence*. 245:109822. Q2

Manthey J, Pons-Cabrera MT, Rosenkranz M, Lopez-Pelayo H. **Measuring cannabis quantities in online surveys: A rapid review and proposals for ways forward**. *International Journal of Methods in Psychiatric Research*. 32(3):e1971. Q2

Domínguez-Vázquez I, Nuño-Gómez L, Freixa-Fontanals N, ... , Cervera G, Corominas-Díaz A, Balcells-Oliveró M. **Multifamily therapy in the community mental health network: A pragmatic randomized and controlled study**. *Journal of Marital and Family Therapy*. 49(1):205-221. Q2

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

4.15

Parkinson disease and other neurodegenerative movement disorders: clinical and experimental research

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
AMS
Ataxia

Publications

Original articles	**Mean IF**	**6,34**
13	Q1	54%
	D1	46%
	MA	31%
	OA	85%
Others	**Mean IF**	**4,12**
5	Q1	0%
	D1	0%
	MA	80%
	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

- Cèlia Painous
- Marta Soto

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

Barcelona 2022 PPMI Healthy Brain Aging Initiative (HeBA).
Michael J. Fox Foundation for Parkinson.
INT_MJFF_HEBA_22
PI: M. Josep Martí

Selected publications

Garrido A, Fairfoul G, Tolosa E, Marti MJ, Ezquerra M, Green AJE. **Brain and Cerebrospinal Fluid α-Synuclein Real-Time Quaking-Induced Conversion Identifies Lewy Body Pathology in LRRK2-PD**. *Movement Disorders*. 38(2): 333-338. D1

Vollstedt EJ, Schaake S, Lohmann K, ... , Brockmann K, Corvol JC, Klein; MJFF Global Genetic Parkinson's Disease Study Group. **Embracing Monogenic Parkinson's Disease: The MJFF Global Genetic PD Cohort**. *Movement Disorders*. 38(2):286-303. D1

Gomes S, Garrido A, Tonelli F, ... , Pirker W, Zimprich A, Sammler E. **Elevated urine BMP phospholipids in LRRK2 and VPS35 mutation carriers with and without Parkinson's disease**. *NPJ Parkinsons's Disease*. 9(1):52. D1

Soto M, Fernández M, Bravo, P, ... , Naito A, Casey B, Fernández-Santiago R. **Differential serum microRNAs in premotor LRRK2 G2019S carriers from Parkinson's disease**. *NPJ Parkinsons's Disease*. 9(1):15. D1

Painous C, Pascual-Diaz S, Muñoz-Moreno E, ... , Martí MJ, Bargalló N, Compta Y. **Midbrain and pons MRI shape analysis and its clinical and CSF correlates in degenerative parkinsonisms: a pilot study**. *European Radiology*. 33(7):4540-4551. Q1

4.16

Imaging of mood- and anxiety-related disorders (IMARD)

GROUP LEADER

Joaquim Raduà (IDIBAPS)

Publications

Original articles	Mean IF	10,65
33	Q1	79%
	D1	42%
	MA	12%
	OA	82%
Others	Mean IF	12,36
20	Q1	85%
	D1	60%
	MA	40%
	OA	62%

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

- Pol Palau
- Aleix Solanes

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

The ENIGMA Bipolar Medications Initiative: A Global Study of Bipolar Disorder Medication Associations on the Brain.
Milken Institute - Baszucki Brain Research Fund. INT_Milken_BD_21
PI: Joaquim Radua

Selected publications

Radua J, Koutsouleris N. **Ten Simple Rules for Using Machine Learning in Mental Health Research**. *Biological Psychiatry.* S0006-3223(23):01724-9. D1

Palau P, Verdolini N, Alonso-Lana S, ... , Munuera J, Fernandez-Corcuera P, Brambilla P. **Improved estimation of the risk of manic relapse by combining clinical and brain scan data**. *Revista de Psiquiatria y Salud Mental.* 16(4):235-243. D1

Picó-Pérez M, Fullana MA, Albajes-Eizagirre A, ... , Harrison BJ, Radua J, Soriano-Mas C. **Neural predictors of cognitive-behavior therapy outcome in anxiety-related disorders: a meta-analysis of task-based fMRI studies**. *Psychological Medicine.* 53(8): 3387-3395. D1

Solanes A, Gosling CJ, Fortea L, ... , Solana E, Vieta E, Radua J. **Removing the effects of the site in brain imaging machine-learning - Measurement and extendable benchmark**. *Neuroimage.* 265:119800. D1

Fortea L, Tortella-Feliu M, Juaneda-Seguí A, ... , Lane SP, Radua J, Fullana MA. **Development and Validation of a Smartphone-Based App for the Longitudinal Assessment of Anxiety in Daily Life**. *Assessment.* 30(4):959-968. Q2

RESEARCH INTERESTS

Mood and anxiety-related disorders are among the leading causes of disability, and available treatments only help half of sufferers.

To contribute to better prevention and management of these disorders, 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 Sanchez-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.

Our main research lines are:

- Study of familial dementias.
- Biomarkers in early-onset sporadic Alzheimer's disease.
- Biomarkers in rare dementias: Frontotemporal lobar degeneration and prion diseases.
- Biomarkers in Lewy body dementia.
- Alzheimer's disease continuum.
- Neuropathology of neurodegenerative diseases.
- Locus coeruleus in AD.
- Physiopathological mechanisms of neurodegenerative diseases.

KEYWORDS

Alzheimer's disease
Neurodegenerative dementias
Familial dementias
Fluid biomarkers
Neuroimaging

RELATED DISEASES

Alzheimer's disease
Frontotemporal dementia
Primary progressive aphasia
Dementia with Lewy bodies
Prion diseases

Publications

Original articles	**Mean IF**	**11,77**
35	Q1	80%
	D1	37%
	MA	26%
	OA	89%
Others	**Mean IF**	**6,40**
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

3

- Gonzalo Forno
- Agnès Pérez
- Oscar Ramos

Selected active grants

Demencias genéticas (enfermedad de Alzheimer, demencia frontotemporal y enfermedades priónicas genéticas): cambios longitudinales y diferencias en expresión y epigenéticas con formas esporádicas.
Instituto de Salud Carlos III (ISCIII).
FIS_PI20/00448
PI: Raquel Sanchez-Valle

Diagnóstico precoz de la enfermedad de Alzheimer mediante el perfil de linfocitos citotóxicos y caracterización de alteraciones del sueño.
Instituto de Salud Carlos III (ISCIII).
FIS_AC21_2/00007
PI: Raquel Sanchez-Valle

Selected publications

Falgàs N, Walsh CM, Yack L, ... , Vossel K, Neylan TC, Grinberg LT. **Alzheimer's disease phenotypes show different sleep architecture**. *Alzheimers & Dementia*. 19(8):3272-3282. D1

Sarto J, Ruiz-García R, Guillén N, ... , Sanchez-Valle R, Lladó A, Balasa M. **Diagnostic Performance and Clinical Applicability of Blood-Based Biomarkers in a Prospective Memory Clinic Cohort**. *Neurology*. 100(8):E860-E873. D1

Pérez-Millan A, Borrego-Écija S, van Swieten JC, ... , Rohrer JD, Sala-Llonch R, Sánchez-Valle R; Genetic FTD Initiative, GENFI. **Loss of brainstem white matter predicts onset and motor neuron symptoms in C9orf72 expansion carriers: a GENFI study**. *Journal of Neurology*. 270(3):1573-1586. Q1

Pérez-Carbonell L, Sarto J, Gaig C, ... , Santamaria J, Iranzo A, Sánchez-Valle R. **Sleep in Gerstmann-Straüssler-Scheinker disease**. *Sleep Medicine.* 108:11-15. Q1

Guillén N, Contador J, Buongiorno M, ... , Balasa M, Sánchez-Valle R, Lladó A. **Agreement of cerebrospinal fluid biomarkers and amyloid-PET in a multicenter study**. *European Archives of Psychiatry and Clinical Neuroscience*. 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
Epilepsy
Stroke
Pain
Orthopedic and neurological rehabilitation

Publications

Original articles	Mean IF	4,40
6	Q1	33%
	D1	0%
	MA	83%
	OA	83%
Others	Mean IF	3,80
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

2

- Mercè Á. de la Campa
- José M. Sánchez

Selected active grants

Human Brain Project Specific Grant Agreement 3.
European Commission.
CE_H2020-FLAG-HBP-19
PI: Mavi Sanchez-Vives

NEMESIS: NEurological MEchanismS of Injury, and Sleep-like cellular Dynamics.
opean Commission.
CE_HE_ERC_2022_SyG
PI: Mavi Sanchez-Vives

Selected publications

Rodríguez-Urgellés E, Sancho-Balsells A, Ballasch I, ... , Manasanch A, Bortolozzi A, Sanchez-Vives MV. **Thalamic Foxp2 regulates output connectivity and sensory-motor impairments in a model of Huntington's Disease**. *Cellular and Molecular Life Sciences*. 80(12):367. Q1

Dalla-Porta L, Barbero-Castillo A, Sanchez-Sanchez JM, Sanchez-Vives MV. **M-current modulation of cortical slow oscillations: Network dynamics and computational modeling**. *Plos Computational Biology*. 19(7):e1011246. Q1

Johnston T, Seinfeld S, Gonzalez-Liencres C, Barnes N, Slater M, Sanchez-Vives MV. **Virtual reality for the rehabilitation and prevention of intimate partner violence - From brain to behavior: A narrative review**. *Frontiers in Psychology*. 13:788608. Q1

Swidrak J, Arias A, de la Calle ER, Cruz AC, Sanchez-Vives MV. **Virtual embodiment in fibromyalgia**. *Scientific Reports*. 13(1):10719. Q2

Seinfeld S, Hortensius R, Arroyo-Palacios J, ... , de Gelder B, Slater M, Sanchez-Vives MV. **Domestic Violence From a Child Perspective: Impact of an Immersive Virtual Reality Experience on Men With a History of Intimate Partner Violent Behavior**. *Journal of Interpersonal Violence*. 38(3-4):2654-2682. 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 and quantify changes 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	12,31
17	Q1	94%
	D1	65%
	MA	24%
	OA	59%
Others	Mean IF	4,94
5	Q1	60%
	D1	20%
	MA	60%
	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

- Adriana Fortea

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

Valli I, De la Serna E, Segura AG, ... , Mas S, Castro-Fornieles J, Sugranyes G. **Genetic and Structural Brain Correlates of Cognitive Subtypes Across Youth at Family Risk for Schizophrenia and Bipolar Disorder**. *Journal of the American Academy of Child and Adolescent Psychiatry*. 62(1):74-83. D1

Fortea A, van Eijndhoven P, Ilzarbe D, ... , Stephan-Otto C, Baeza I, Sugranyes G. **Longitudinal Changes in Cortical Surface Area Associated With Transition to Psychosis in Adolescents at Clinical High-Risk for the Disease**. *Journal of the American Academy of Child And Adolescent Psychiatry*. 62(5):593-600. D1

Barth C, Kelly S, Nerland S, ... , Wortinger LA, Thompson PM, Agartz I. **In vivo white matter microstructure in adolescents with early-onset psychosis: a multi-site mega-analysis**. *Molecular Psychiatry*. 28(3):1159-1169. 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**. *European Child & Adolescent Psychiatry*. 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**. *Schizophrenia Bulletin*. 50(2):sbad107-426. Q1

4.20

Neurobiology

GROUP LEADER

Ramon Trullàs (IIBB-CSIC)

Publications

Original articles	Mean IF	9,41
11	Q1	82%
	D1	36%
	MA	36%
	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

- Esther García-García

Selected active grants

Mitochondrial DNA in prodromal Parkinson's Disease.
Michael J. Fox Foundation for Parkinson. INT_MJFF-001111
PI: Ramon Trullas

Exploring mitochondrial DNA alterations as a therapeutic target in Alzheimer's disease.
Agencia Estatal de Investigación. AEI_PE22
PI: Anna Colell

Selected publications

Lee W, Zamudio-Ochoa A, Buchel G, ... , Trullas R, Mitalipov S, Temiakov D. **Molecular basis for maternal inheritance of human mitochondrial DNA**. *Nature Genetics*. 55(10):1632-1639. D1

de Dios C, Abadin X, Roca-Agujetas V, ... , Trullas R, Mari M, Colell A. **Inflammasome activation under high cholesterol load triggers a protective microglial phenotype while promoting neuronal pyroptosis**. *Translational Neurodegeneration*. 12(1):10. D1

Pablo-Fontecha V, Hernández-Illán E, Reparaz A, ... , Trullàs R, Podlesniy P, Camps J. **Quantification of rare somatic single nucleotide variants by droplet digital PCR using SuperSelective primers**. *Scientific Reports*. 13(1):18997. 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

4.20

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 paradigm 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	7,32
77	Q1	74%
	D1	42%
	MA	34%
	OA	73%
Others	Mean IF	13,09
45	Q1	82%
	D1	40%
	MA	53%
	OA	70%

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

- Gerard Anmella

Selected active grants

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

Edit-B: The RNA blood test for bipolar disorder.
European Commission.
CE_EIT_Inn_22_24marz
PI: Eduard Vieta

Selected publications

Solmi M, De Toffol M, Kim JY, ... , Castle D, Shin JI, Dragioti E. **Balancing risks and benefits of cannabis use: umbrella review of meta-analyses of randomised controlled trials and observational studies**. *BMJ-British Medical Journal*. 382:e072348. D1

Gomes-da-Costa S, Solé E, Williams E, ... , Palao D, Vieta E, Verdolini N. **The impact of the Catalonia Suicide Risk Code (CSRC) in a tertiary hospital: Reduction in hospitalizations and emergency room visits for any reason but not for suicide attempt**. *Revista de Psiquiatria y Salud Mental*. 16(2):68-75. D1

Mcintyre RS, Alsuwaidan M, Baune BT, ... , Williams N, Young AH, Maj M. **Treatment-resistant depression: definition, prevalence, detection, management, and investigational interventions**. *World Psychiatry*. 22(3):394-412. D1

Anmella G, Sanabra M, Primé-Tous M, ... , Villegas M, Vieta E, Hidalgo-Mazzei D. **Vickybot, a chatbot for anxiety-depressive symptoms and work-related burnout in primary care and healthcare professionals: development, feasibility, and potential effectiveness studies**. *Journal of Medical Internet Research*. 25:e43293. D1

Solmi M, Cortese S, Vita G, ... , Salazar-de-Pablo G, Fusar-Poli P, Correll CU. **An umbrella review of candidate predictors of response, remission, recovery, and relapse across mental disorders**. *Molecular Psychiatry*. 28(9):3671-3687. D1

5

ONCOLOGY AND HAEMATOLOGY

Annual scientific Report 2023

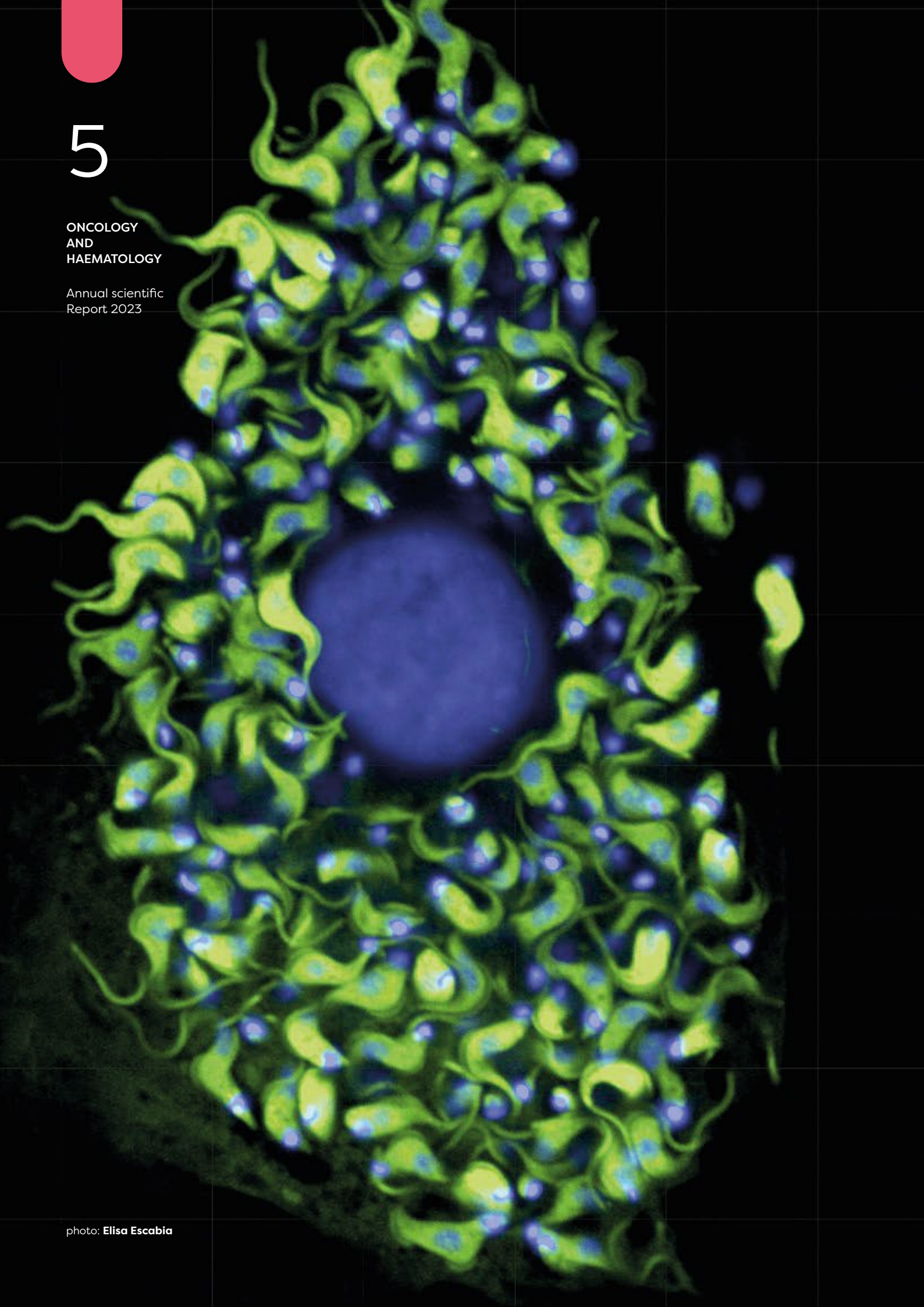


photo: **Elisa Escabia**

AREA 5

ONCOLOGY AND HAEMATOLOGY

5.1 **Signal transduction and cell cycle**
Neus Agell

5.2 **Functional characterization of oncogenic mechanisms in lymphomagenesis**
Virginia Amador

5.3 **Molecular pathology of lymphoid neoplasms**
Elías Campo

5.4 **Experimental therapies in lymphoid neoplasms**
Dolors Colomer

5.5 **Molecular pathology of inflammatory conditions and solid tumours**
Miriam Cuatrecasas

5.6 **Hemotherapy-hemostasis**
Maribel Díaz-Ricart

5.7 **Myeloid neoplasms**
Jordi Esteve

5.8 **Myeloma, amyloidosis, macroglobulinemia and other gammapathies**
Carlos Fernández de Larrea

5.9 **Cellular immunotherapies for cancer**
Sònia Guedan

5.10 **Lymphoid neoplasms**
Armando López-Guillermo

5.11 **Biomedical epigenomics**
José Ignacio Martín-Subero

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

5.13 **Microenvironment in lymphoma pathogenesis and therapy**
Patricia Pérez-Galán

5.14 **Lipid trafficking and disease**
Albert Pol

5.15 **Diagnosis and therapy in oncology**
Francesca Pons

5.16 **Gene regulation in stem cells, cell plasticity, differentiation, and cancer**
Antonio Postigo

5.17 **Translational genomics and targeted therapies in solid tumours**
Aleix Prat

5.18 **Melanoma: imaging, genetics and immunology**
Susana Puig

5.19 **Molecular genetics of paediatric lymphomas**
Itziar Salaverria

5.20 **Hematopoietic progenitor cell transplantation**
Álvaro Urbano-Ispizua

5.01

Signal transduction and cell cycle

GROUP LEADER

Neus Agell (UB)

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

Publications

Original articles	Mean IF	10,09
8	Q1	100%
	D1	50%
	MA	0%
	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

- Fernando Unzueta

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

Martinez-Campanario MC, Cortés M, Moreno-Lanceta A, ... , Andrés V, Melgar-Lesmes P, Postigo A. **Atherosclerotic plaque development in mice is enhanced by myeloid ZEB1 downregulation**. *Nature Communications.* 14(1) :8316. D1

Cortés M, Brischetto A, Martinez-Campanario MC, ... , Castro P, Cañete Juan D, Postigo A. **Inflammatory macrophages reprogram to immunosuppression by reducing mitochondrial translation**. *Nature Communications.* 14(1):7471. D1

Cantó-Santos J, Valls-Roca L, Tobías E, ... , Cardellach F, Grau-Junyent JM, Garrabou G. **Unravelling inclusion body myositis using a patient-derived fibroblast model**. *Journal of Cachexia Sarcopenia and Muscle*. 14(2):964-977. D1

Samouillan V, Garcia E, Benitez-Amaro A, ... , Chiabrando G, Enrich C, Llorente-Cortes V. I**nhibitory Effects of LRP1-Based Immunotherapy on Cardiac Extracellular Matrix Biophysical Alterations Induced by Hypercholesterolemia**. *Journal of Medicinal Chemistry*. 66(9):6251-6262. D1

Morales-Paytuvi F, Fajardo A, Ruiz-Mirapeix C, ... , Collins BM, Parton RG, Pol A. **Early proteostasis of caveolins synchronizes trafficking, degradation, and oligomerization to prevent toxic aggregation**. *Journal of Cell Biology.* 222(9):e202204020. Q1

5.02

Functional characterization of oncogenic mechanisms in lymphomagenesis

GROUP LEADER

Virginia Amador (IDIBAPS)

Publications

Original articles	Mean IF	11,40
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

- Marta Sureda

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

Tumor-immune microenvironment in mantle cell lymphoma.
Fundació la Marató de TV3.
TV3_Cancer_19
PI: Virginia Amador

Selected publications

Sureda-Gómez M, Balsas P, Rodríguez ML, ... , Beà S, Campo E, Amador V. **Tumorigenic role of Musashi-2 in aggressive mantle cell lymphoma**. *Leukemia*. 37(2):408-421. 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 factors
Chromatin remodelers
Tumor microenvironment
Cancer stem cell

RELATED DISEASES

Lymphoid neoplasms
Mantle cell lymphoma
Burkitt lymphoma

5.03

Molecular pathology of lymphoid neoplasms

GROUP LEADER

Elías Campo (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.

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	11,07
16	Q1	75%
	D1	44%
	MA	44%
	OA	87%
Others	Mean IF	6,09
7	Q1	43%
	D1	14%
	MA	43%
	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

2

- Elena Fernández
- Julia Salmerón

Selected active grants

MCLSYSTEMS: Interacciones genómicas y microambiente en la evolución del linfoma de células del manto.
Agencia Estatal de Investigación.
AEI_PE21
PI: Elías Campo

CLLSYSTEMS: (Epi)Genomic and microenvironment interactions driving evolution in chronic lymphocytic leukemia. Targets for clinical intervention.
Fundació Bancaria "La Caixa".
HealthRes22
PI: Elías Campo

Selected publications

Salmerón-Villalobos J, Castrejon-de-Anta N, Guerra-Garcia P, ... , Campo E, Balagué O, Salaverria I. **Decoding the molecular heterogeneity of pediatric monomorphic post-solid organ transplant lymphoproliferative disorders**. *Blood*. 142(5):434-445. D1

Gonzalez-Farre B, Ramis-Zaldivar JE, Castrejón de Anta N, ... , Lopez-Guillermo A, Salaverria I, Campo E. **Intravascular Large B-Cell Lymphoma Genomic Profile Is Characterized by Alterations in Genes Regulating NF-κB and Immune Checkpoints**. *American Journal of Surgical Pathology*. 47(2):202-211. D1

Grau M, López C, Navarro A, ... , López-Guillermo A, Matutes E, Beà S. **Unraveling the genetics of transformed splenic marginal zone lymphoma**. *Blood Advances*. 7(14):3695-3709. Q1

Syrykh C, Pons-Brun B, Russiñol N, ... , Delgado J, Campo E, Nadeu F. **IGLV3-21R110 mutation has prognostic value in patients with treatment-naive chronic lymphocytic leukemia**. *Blood Advances*. 7(23):7384-7391. Q1

López-Oreja I, López-Guerra M, Correa J, ... , Campo E, Colomer D, Nadeu F. **All-CLL: A Capture-based Next-generation Sequencing Panel for the Molecular Characterization of Chronic Lymphocytic Leukemia**. *Hemasphere*. 7(10):e962. Q1

5.04

Experimental therapies in lymphoid neoplasms

GROUP LEADER
Dolors Colomer (HCB)

Publications

Original articles	**Mean IF**	**8,61**
15	Q1	73%
	D1	33%
	MA	13%
	OA	87%
Others	**Mean IF**	**6,14**
5	Q1	60%
	D1	0%
	MA	60%
	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

Selected active grants

Impacto de la variabilidad genética y heterogeneidad tumoral en la terapia dirigida en la CLL.
Agencia Estatal de Investigación.
AEI_PE21
PI: Dolors Colomer

Desarrollo de una terapia biológica de primera clase para el tratamiento de la leucemia mieloide aguda.
Agencia Estatal de Investigación.
AEI_CPP21
PI: Dolors Colomer

Selected publications

López-Oreja I, López-Guerra M, Correa J, ..., Campo E, Colomer D, Nadeu F. **All-CLL: A Capture-based Next-generation Sequencing Panel for the Molecular Characterization of Chronic Lymphocytic Leukemia**. *Hemasphere*. 7(10):e962. Q1

Moreno DF, López-Guerra M, Paz S, ... , Rosiñol L, Colomer D, Fernández de Larrea C. **Prognostic impact of MYD88 and CXCR4 mutations assessed by droplet digital polymerase chain reaction in IgM monoclonal gammopathy of undetermined significance and smouldering Waldenström macroglobulinaemia**. *British Journal of Haematology*. 200(2):187-196. Q1

López-Oreja I, Gohr A, Playa-Albinyana H, ... , Valcárcel J, Bonnal S, Colomer D. **SF3B1 mutation-mediated sensitization to H3B-8800 splicing inhibitor in chronic lymphocytic leukemia**. *Life Science Alliance*. 6(11):e202301955. Q1

Mascaro JM, Rodriguez-Pinto I, Poza G, ... , Casals F, Yagüe J, Aróstegui J. **Spanish cohort of VEXAS syndrome: clinical manifestations, outcome of treatments and novel evidences about UBA1 mosaicism**. *Annals of the Rheumatic Diseases*. 82(12):1594-1605. D1

Araujo-Ayala F, Dobaño-López C, Valero JG, ... , Colomer D, Bezombes C, Pérez-Galán P. **A novel patient-derived 3D model recapitulates mantle cell lymphoma lymph node signaling, immune profile and in vivo ibrutinib responses**. *Leukemia*. 37(6):1311-1323. D1

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

5.05

Molecular pathology of inflammatory conditions and solid tumors

GROUP LEADER

Miriam Cuatrecasas (HCB)

RESEARCH INTERESTS

Our aim in the research of solid tumours and tumours of the central nervous system is the integration of histopathology and molecular alterations of precursor lesions, and the mechanisms of tumour development to deepen in the process of carcinogenesis, as well as the identification of new biomarkers to enable customized therapy.

On the field of neurodegenerative diseases our research is focused on the process of degeneration and markers of its early detection.

The area of inflammatory diseases deepens on the mechanisms and consequences on specific organs and tissues, and at the systemic level.

KEYWORDS

Cancer
Neurodegenerative
Inflammatory

RELATED DISEASES

Carcinoma
Neurodegenerative
Inflammatory

Publications

Original articles	Mean IF	6,65
32	Q1	53%
	D1	19%
	MA	13%
	OA	75%
Others	Mean IF	11,00
4	Q1	25%
	D1	25%
	MA	50%
	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

- Ivan Archilla

Selected active grants

Detección de alfa-sinucleína en biopsias y resecciones quirúrgicas de órganos periféricos en el trastorno de conducta del sueño REM, como modelo premotor de la enfermedad de Parkinson.
Instituto de Salud Carlos III (ISCIII).
FIS_PI20/00764
PI: Iban Aldecoa, Alejandro Iranzo

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

Casals J, Acosta Y, Caballero G, ... , Jhaveri KD, Quintana LF, García-Herrera A. **Differentiating Acute Interstitial Nephritis From Immune Checkpoint Inhibitors From Other Causes**. *Kidney International Reports*. 8(3):672-675. Q1

Villarreal JZ, Pérez-Anker J, Puig S, ..., Martinez-Pozo A, Quintana LF, García-Herrera A. **Ex vivo confocal microscopy detects basic patterns of acute and chronic lesions using fresh kidney samples**. *Clinical Kidney Journal*. 16(6):1005-1013. Q1

Rodrigo-Calvo MT, Saez de Gordoa K, Lopez-Prades S, ... , Camps J, Musulen E, Cuatrecasas M. **Tumour Cell Seeding to Lymph Nodes from In Situ Colorectal Cancer**. *Cancers*. 15(3):842. Q2

de Gordoa KS, Rodrigo-Calvo MT, Archilla I, ... , Pellisé M, Camps J, Cuatrecasas M. **Lymph Node Molecular Analysis with OSNA Enables the Identification of pT1 CRC Patients at Risk of Recurrence: A Multicentre Study**. *Cancers*. 15(22):5481. Q2

Mascaro JM, Rodriguez-Pinto I, Poza G, ... , Casals F, Yagüe J, Aróstegui J. **Spanish cohort of VEXAS syndrome: clinical manifestations, outcome of treatments and novel evidences about UBA1 mosaicism**. *Annals of the Rheumatic Diseases*. 82(12):1594-1605. D1

5.06

Hemotherapy – hemostasis

Publications

Original articles	**Mean IF**	**6,27**
23	Q1	52%
	D1	9%
	MA	26%
	OA	83%
Others	**Mean IF**	**4,84**
18	Q1	33%
	D1	6%
	MA	56%
	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

6

- Maryury Calvo
- Jesús Fernández
- Irene García
- Dídac Jerez
- Júlia Martínez
- Ángel Molina

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

Alteraciones de la hemostasia en pacientes con soporte vital extracorpóreo. Evaluación de un nuevo método de diagnóstico rápido y con potencial como guía terapéutica ex vivo.
Sociedad Española de Trombosis y Hemostasia.
SETH_LopezBorrasca22
PI: Maribel Díaz Ricart

Selected publications

Moreno-Castaño AB, Fernández S, Ventosa H, ... , Fernández-Avilés F, Castro P, Diaz-Ricart M. **Characterization of the endotheliopathy, innate-immune activation and hemostatic imbalance underlying CAR-T cell toxicities: laboratory tools for an early and differential diagnosis**. *Journal for Immunotherapy of Cancer*. 11(4):e006365. Q1

Martinez-Sanchez J, Pascual-Diaz R, Palomo M, ... , Escolar G, Carreras E, Diaz-Ricart M. **Mafosfamide, a cyclophosphamide analog, causes a pro-inflammatory response and increased permeability on endothelial cells in vitro**. *Bone Marrow Transplantation*. 58(4):407-413. Q1

Martinez-Sanchez J, Palomo M, Pedraza A, ... , Penack O, Carreras E, Diaz-Ricart M. **Differential protein expression in endothelial cells exposed to serum from patients with acute graft-vs-host disease, depending on steroid response**. *Journal of Cellular and Molecular Medicine*. 27(9):1227-1238. Q2

Martinez-Sanchez J, Castrillo L, Jerez D, ... , Diaz-Ricart M, Escolar G, Roqué M. **Antithrombotic and prohemorrhagic actions of different concentrations of apixaban in patients exposed to single and dual antiplatelet regimens**. *Scientific Reports*. 13(1):22969. Q2

Chausse V, Mas-Moruno C, Martin-Gómez H, ... , Escolar G, Ginebra MP, Pegueroles M. **Functionalization of 3D printed polymeric bioresorbable stents with a dual cell-adhesive peptidic platform combining RGDS and YIGSR sequences**. *Biomaterials Science*. 11(13):4602-4615. Q2

GROUP LEADER
Maribel Díaz-Ricart (HCB)

RESEARCH INTERESTS

- **Molecular mechanisms in 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.
- **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

5.07

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 lanscape and mechanisms of clonal evolution, clinical impact of measurable residual disease assessment, and development of targeted therapy.

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	6,99
18	Q1	67%
	D1	11%
	MA	22%
	OA	78%
Others	Mean IF	5,95
4	Q1	75%
	D1	0%
	MA	0%
	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

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

Guijarro F, López-Guerra M, Paz S, ... , Cuesta-Casanovas L, Carbó JM, Risueño RM. **Germ line variants in patients with acute myeloid leukemia without a suspicion of hereditary hematologic malignancy syndrome**. *Blood Advances.* 7(19):5799-5811. Q1

Castaño-Díez S, Pomares H, Esteban D, ... , Xicoy B, Esteve J, Díaz-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

Garrote M, Lopez-Guerra M, Arellano-Rodrigo E, ... , Colomer D, Cervantes F, Alvarez-Larran A. **Clinical Characteristics and Outcomes of Patients with Primary and Secondary Myelofibrosis According to the Genomic Classification Using Targeted Next-Generation Sequencing**. *Cancers.* 15(15):3904. Q2

Bazarbachi A, Labopin M, Gedde-Dahl T, ... , Nagler A, Ciceri F, Mohty M. **Improved Posttransplant Outcomes in Recent Years for AML Patients with FLT3-ITD and Wild-type NPM1: A Report from the EBMT Acute Leukemia Working Party**. *Clinical Cancer Research.* 29(21):4441-4448. D1

Pérez-Amill, L; Bataller, A; Delgado, J; Esteve, J; Juan, ME; Klein-González, N. **Advancing CART therapy for acute myeloid leukemia: recent breakthroughs and strategies for future development**. *Frontiers in Immunology.* 14:1260470. Q1

5.08

Myeloma, amyloidosis, macroglobulinemia and other gammapathies

GROUP LEADER

Carlos Fernández de Larrea (HCB-IDIBAPS)

Publications

Original articles	Mean IF	28,00
24	Q1	71%
	D1	50%
	MA	25%
	OA	83%
Others	Mean IF	9,64
9	Q1	33%
	D1	11%
	MA	22%
	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

Selected active grants

Ensayo clínico fase II sobre el uso de un CART humanizado dirigido contra BCMA (ARI0002h) en pacientes con mieloma múltiple recaído/refractario a inhibidores del proteasoma, inmunomoduladores y anticuerpos anti-CD38.
Instituto de Salud Carlos III (ISCIII).
FS_ICI19/00025
PI: Carlos Fernández de Larrea

Estrategias novedosas de ingeniería avanzada para optimizar la función y la persistencia de las células CAR-T en el mieloma múltiple.
Instituto de Salud Carlos III (ISCIII).
FS_PI22/00647
PI: Carlos Fernández de Larrea

Selected publications

Oliver-Caldes A, Gonzalez-Calle V, Cabanas V, ... , Pascal M, Urbano-Ispizua A, Fernandez de Larrea C. **Fractionated initial infusion and booster dose of ARI0002h, a humanised, BCMA-directed CART-cell therapy, for patients with relapsed or refractory multiple myeloma (CARTBCMA- HCB-01): a single-arm, multicentre, academic pilot study**. *Lancet Oncology*. 24(8):913-924. D1

Rosiñol L, Oriol A, Rios R, ... , San Miguel J, Lahuerta JJ, Bladé J. **Lenalidomide and dexamethasone maintenance with or without ixazomib, tailored by residual disease status in myeloma**. *Blood*. 142(18):1518-1528. D1

Moreno DF, López-Guerra M, Paz S, ... , Rosiñol L, Colomer D, Fernández de Larrea C. **Prognostic impact of MYD88 and CXCR4 mutations assessed by droplet digital polymerase chain reaction in IgM monoclonal gammopathy of undetermined significance and smouldering Waldenström macroglobulinaemia**. *British Journal of Haematology*. 200(2):187-196. Q1

Sonneveld P, Dimopoulos MA, Boccadoro M, ... , Rodriguez-Otero P, Bladé J, Moreau P, PERSEUS Trial Investigators. **Daratumumab, Bortezomib, Lenalidomide, and Dexamethasone for Multiple Myeloma**. *New England Journal of Medicine*. 390(4):301-313. D1

San-Miguel J, Dhakal B, Yong K, ... ; Patel N, Harrison SJ, Einsele H. **Cilta-cel or Standard Care in Lenalidomide-Refractory Multiple Myeloma**. *New England Journal of Medicine*. 389(4):335-347. 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 malignant plasma cells.

KEYWORDS

Multiple myeloma
CAR T-cells
Immunotherapy
Molecular biology
Monoclonal gammopathies

RELATED DISEASES

Myeloma multiple
Macroglobulinemia
Amyloidosis
Monoclonal gammopathy
Plasma cell leukemia

5.09

Cellular immunotherapies for cancer

GROUP LEADER

Sònia Guedan (IDIBAPS)

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

Publications

Original articles	Mean IF	21,70
2	Q1	100%
	D1	100%
	MA	0%
	OA	100%
Others	Mean IF	4,20
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

- Berta Marzal

Selected active grants

Fine-tuning T cell networks of exhaustion by synthetic sensors (T-FITNESS).
European Commission.
CE_HE_PathCh_21_Eme
PI: Sonia Guedan

Accelerating Development and Improving Access to CAR and TCR-engineered T cell therapy (T2EVOLVE).
European Commission.
CE_IMI12_18
PI: Sonia Guedan

Selected publications

Jung IY, Bartoszek RL, Rech AJ ... Bushman FD, Herbst F, Fraietta JA. **Type I Interferon Signaling via the EGR2 Transcriptional Regulator Potentiates CAR T cell-intrinsic Dysfunction**. *Cancer Discovery*. 13(7):1636-1655. D1

Olivera I, Bolaños E, Gonzalez-Gomariz J, ... , Rabinovich GA, Teijeira A, Melero I. **mRNAs encoding IL-12 and a decoy-resistant variant of IL-18 synergize to engineer T cells for efficacious intratumoral adoptive immunotherapy**. *Cell Reports Medicine*. 4(3):100978. D1

Bonini C, Chapuis AG, Hudecek M, Guedan S, Magnani C, Qasim W. **Genome editing in engineered T cells for cancer immunotherapy**. *Human Gene Therapy*. 34(17-18):853-869. Q1

5.10

Lymphoid neoplasms

GROUP LEADER

Armando López-Guillermo (HCB)

Publications

Original articles	**Mean IF**	**8,26**
27	Q1	74%
	D1	22%
	MA	7%
	OA	70%
Others	**Mean IF**	**8,28**
12	Q1	83%
	D1	17%
	MA	8%
	OA	83%

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

- Ana Muntañola
- Alfredo Rivas

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

Heterogeneidad molecular en el linfoma de células del manto: cfDNA, proliferación tumoral y volumen metabólico tumoral. Estudio de su significado clínico.
Instituto de Salud Carlos III (ISCIII).
FIS_ PI22/00203
PI: Eva Giné Soca

Selected publications

Grau M, López C, Navarro A, ... , López-Guillermo A, Matutes E, Beà S. **Unraveling the genetics of transformed splenic marginal zone lymphoma**. *Blood Advances*. 7(14):3695-3709. Q1

Martín García-Sancho A, Baile M, Rodríguez G, ... , Campo E, López-Guillermo A, Caballero D. **Lenalidomide in combination with R-ESHAP in patients with relapsed or refractory diffuse large B-cell lymphoma: A phase 2 study from GELTAMO**. *British Journal of Haematology.* 203(2):202-211. Q1

Muntanola A, Villalobos MT, Gonzalez-Villambrosia S, ... , Lopez-Guillermo A, Salar A, Montalban C. **Low-risk HPLLs/ABC score patients with splenic marginal zone lymphoma can be safely managed without treatment: Results from a prospective Spanish study**. *British Journal of Haematology.* 202(4):776-784. Q1.

Hess G, Dreyling M, Oberic L, ... , Reitan J, Wade S, Salles G. **Real-world experience among patients with relapsed/refractory mantle cell lymphoma after Bruton tyrosine kinase inhibitor failure in Europe: The SCHOLAR-2 retrospective chart review study**. *British Journal of Haematology.* 202(4):749-759. Q1

Mozas P, López C, Grau M, ... , Campo E, López-Guillermo A, Beà S. **Genomic landscape of follicular lymphoma across a wide spectrum of clinical behaviors**. *Hematological Oncology.* 41(4): 631-643. Q2

RESEARCH INTERESTS

Lymphoproliferative neoplasms 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, lymphoproliferative diseases 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, is essential to choose the best treatment and develop new therapies including immuno and cellular therapies.

KEYWORDS

Lymphoma
Chronic lymphocytic leukemia
Prognosis
Mutational profile and CNA
Immuno and cellular therapies

RELATED DISEASES

Hodgkin lymphoma
Non-hodgkin lymphoma
Chronic lymphocytic leukemia
Lymphoproliferative disorders

5.11

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	12,30
10	Q1	60%
	D1	40%
	MA	10%
	OA	100%
Others	Mean IF	5,33
4	Q1	50%
	D1	0%
	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

Directed PhD theses

1

- Ramon Massoni-Badosa

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

Causas y consecuencias de la activación de la cromatina en el linfoma de las células del manto: un estudio mecanístico y de single cells.
Agencia Estatal de Investigación.
AEI_PE20
PI: José Ignacio Martín-Subero

Selected publications

Tsagiopoulou M, Chapaprieta V, Russiñol N, ... , Campo E, Stamatopoulos K, Martin-Subero JI. **Chromatin activation profiling of stereotyped chronic lymphocytic leukemias reveals a subset 8-specific signature**. *Blood*. 141(24):2955-2960. D1

Mateos-Jaimez J, Mangolini M, Vidal A, ... , Ringshausen I, Martin-Subero JI, Maiques-Diaz A. **Robust CRISPR-Cas9 Genetic Editing of Primary Chronic Lymphocytic Leukemia and Mantle Cell Lymphoma Cells**. *Hemasphere*. 7(6):e909. Q1

Kulis M, Martin-Subero JI. **Integrative epigenomics in chronic lymphocytic leukaemia: Biological insights and clinical applications**. *British Journal of Haematology*. 200(3):280-290. Q1

de Rop FV, Hulselmans G, Flerin C, ... , Regev A, Aerts S, Heyn H. **Systematic benchmarking of single-cell ATAC-sequencing protocols**. *Nature Biotechnology*. D1

Broséus J, Hergalant S, Vogt J, ... , Lichter P, Ammerpohl O, Guéant JL, SICGC MMML-Seq Consortium. **Molecular characterization of Richter syndrome identifies de novo diffuse large B-cell lymphomas with poor prognosis**. *Nature Communications*. 14(1):309. D1

5.12

Molecular biology of reproduction and development

GROUP LEADER

Rafael Oliva (HCB-UB)

Publications

Original articles	Mean IF	5,77
3	Q1	67%
	D1	0%
	MA	0%
	OA	67%
Others	Mean IF	4,40
3	Q1	33%
	D1	0%
	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

Madurez molecular de la cromatina del espermatozoide y selección espermática en los tratamientos de reproducción asistida.
Instituto de Salud Carlos III (ISCIII).
FIS_PI20/00936
PI: Rafael Oliva

Impact of COVID-19 on male reproductive Health.
Fundació la Marató de TV3.
TV3_COVID19_21
PI: Rafael Oliva

Selected publications

Castillo J, de la Iglesia A, Leiva M, Jodar M, Oliva R. **Proteomics of human spermatozoa**. *Human Reproduction*. 38(12):2312-2320. Q1

de la Iglesia A, Jodar M, Oliva R, Castillo J. **Insights into the sperm chromatin and implications for male infertility from a protein perspective.** *Wires Mechanisms of Disease.* 15(2):e1588. Q3

Blanco M, El Khattabi L, Gobé C, ... , Ziyyat A, Pflieger D, Cocquet J. **DOT1L regulates chromatin reorganization and gene expression during sperm differentiation**. *Embo Reports*. 24(6):e56316. Q1

Boutet ML, Casals G, Valenzuela-Alcaraz B, ... , Manau D, Gratacós E, Crispi F. **Subfertility versus ART: unraveling the origins of fetal cardiac programming**. *Human Reproduction*. 38(10):1961-1969. Q1

Alvarez-Mora MI, Rodríguez-Revenga L, Jodar M, ... , Martí MJ, Sánchez-Valle R, Madrigal I. **Implementation of Exome Sequencing in Clinical Practice for Neurological Disorders**. *Genes*. 14(4):813. Q2

RESEARCH INTERESTS

The 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

5.13

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).

KEYWORDS

Non-Hodgkin lymphoma
Microenvironment
Immunotherapy
Patient-derived models
Cell therapy

RELATED DISEASES

Follicular lymphoma
Mantle cell lymphoma
Diffuse large B cell lymphoma
Chronic lymphocytic leukemia

Publications

Original articles	Mean IF	11,07
3	Q1	100%
	D1	33%
	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

- Cèlia Dobaño

Selected active grants

Vascularized lymphoma on chip: amultifaceted tool for translational research. MyLymphoTool.
Fundació Bancaria "La Caixa".
HealthRes22
PI: Patricia Pérez-Galán

Dual CD19-CART approaches to counteract antigen escape and tumor microenvironment immune suppression.
Follicular Lymphoma Foundation.
INT_Milken_FLF_22
PI: Patricia Pérez-Galán

Selected publications

Araujo-Ayala F, Dobaño-López C, Valero JG, ... , Colomer D, Bezombes C, Pérez-Galán P. **A novel patient-derived 3D model recapitulates mantle cell lymphoma lymph node signaling, immune profile and in vivo ibrutinib responses**. *Leukemia*. 37(6):1311-1323. D1

Faria C, Gava F, Gravelle P, ... , Laurent C, Pérez-Galán P, Bezombes C. **Patient-derived lymphoma spheroids integrating immune tumor microenvironment as preclinical follicular lymphoma models for personalized medicine**. *Journal for Immunotherapy of Cancer.* 11(10):e007156. Q1

Melchor J, Garcia-Lacarte M, Grijalba SC, ... , Pérez-Galán P, Martinez-Climent JA, Roa S. **Venetoclax improves CD20 immunotherapy in a mouse model of MYC/BCL2 double-expressor diffuse large B-cell lymphoma**. *Journal for Immunotherapy of Cancer.* 11(2):e006113. Q1

5.14

Lipid trafficking and disease

GROUP LEADER
Albert Pol (ICREA-IDIBAPS)

Publications

Original articles	**Mean IF**	**9,45**
2	Q1	100%
	D1	50%
	MA	50%
	OA	100%
Others	**Mean IF**	**8,20**
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

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

Safi R, Sánchez-Álvarez M, Bosch M, Demangel C, Parton RG, Pol A. **Defensive-lipid droplets: Cellular organelles designed for antimicrobial immunity**. *Immunological Reviews.* 317(1):113-136. Q1

Morales-Paytuví F, Fajardo A, Ruiz-Mirapeix C, ... , Collins BM, Parton RG, Pol A. **Early proteostasis of caveolins synchronizes trafficking, degradation, and oligomerization to prevent toxic aggregation**. *Journal of Cell Biology.* 222(9):e202204020. Q1

Arbaizar-Rovirosa M, Pedragosa J, Lozano JJ, ... , Pol A, Gallizioli M, Planas AM. **Aged lipid-laden microglia display impaired responses to stroke**. *Embo Molecular Medicine.* 15(2):e17175. D1

Herms A, Jones PH. **Somatic Mutations in Normal Tissues: New Perspectives on Early Carcinogenesis**. *Annual Review of Cancer Biology-Series.* 7:189-205. Q1

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

5.15

Diagnosis and therapy in oncology

GROUP LEADER

Francesca Pons (HCB)

RESEARCH INTERESTS

The arsenal of diagnostic and therapeutic tools available for cancer patients includes molecular studies, diverse diagnostic imaging techniques (MRI, PET/CT, sentinel node detection, etc) and radiation therapy.

The research conducted by the group is focused on these areas, with the aim of developing techniques to improve diagnosis, prognostic assessment and evaluation of the response to treatment in these diseases.

In addition, work is being carried out on new cancer therapies based on the use of encapsulated and non-encapsulated ionising radiation.

KEYWORDS

Oncology molecular studies
Radiotherapy
Breast cancer diagnosis
Sentinel lymph node
Positron emission tomography

RELATED DISEASES

Breast cancer
Malignant melanoma
Lymphoma
Head and neck tumours
Gynecological carcinoma

Publications

Original articles	Mean IF	4,80
21	Q1	43%
	D1	14%
	MA	29%
	OA	62%
Others	Mean IF	2,62
6	Q1	17%
	D1	0%
	MA	17%
	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

2

- Nuria Rosón
- Ivan Vollmer

Selected active grants

Remote assistance for radio-guided surgery in a mixed reality environament.
Associación Española Contra el Cáncer. AECC_Semilla23
PI: Aida Niñerola

Ganglio centinela en el cáncer de endometrio mediante detección híbrida (99mTc-nanocoloide de albúmina-ICG). Mapa linfático de la punción cervical versus miometrial.
Instituto de Salud Carlos III (ISCIII). FIS_PI18/00728
PI: Pilar Paredes, Sergi Vidal-Sicart

Selected publications

Hernandez-Meneses M, Paez-Martinez S, Ambrosioni J, ... , Tolosana JM, Fuster D, José M Miró, Hospital Clínic of Barcelona Infective Endocarditis Team Investigators. **Reappraisal of [18F]FDG-PET/CT for diagnosis and management of cardiac implantable electronic device infections**. *Revista Española de Cardiología.* S1885-5857(23):00101-9-979. Q1

Lopez-Rueda A, Puig J, Thió-Henestrosa S, ... , Valduvieco I, González JJ, Oleaga L. **Texture Analysis of the Apparent Diffusion Coefficient Focused on Contrast-Enhancing Lesions in Predicting Survival for Bevacizumab-Treated Patients with Recurrent Glioblastoma**. *Cancers*. 15(11):3026. Q2

Rovera G, de Koster EJ, Rufini V, ... , Vidal-Sicart S, Valdés Olmos R, Collarino A. **99mTc-Tilmanocept performance for sentinel node mapping in breast cancer, melanoma, and head and neck cancer: a systematic review and meta-analysis from a European expert panel**. *European Journal of Nuclear Medicine and Molecular Imaging*. 50(11):3375-3389. D1

Agusti N, Viveros-Carreño D, Grillo-Ardila C, ... , Vidal-Sicart S, Torne A, Díaz-Feijoo B. **Sentinel lymph node detection in early-stage ovarian cancer: a systematic review and meta-analysis**. *International Journal of Gynecological Cancer*. 33(10):1493-1501. Q1

Cebrecos I, Mension E, Alonso I, ... , Ganau S, Vidal M, Schettini F. **Nonsentinel Axillary Lymph Node Status in Clinically Node-Negative Early Breast Cancer After Primary Systemic Therapy and Positive Sentinel Lymph Node: A Predictive Model Proposal**. *Annals of Surgical Oncology*. 30(8):4657-4668. Q1

5.16

Gene regulation in stem cells, cell plasticity, differentiation, and cancer

Publications

Original articles	Mean IF	12,22
5	Q1	100%
	D1	40%
	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

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

EMT factors beyond the tumor cell: Do (and how) ZEB factors regulate the plasticity and reprogramming of tumor-associated factors (TAMs).
Agencia Estatal de Investigación.
AEI_PE20
PI: Antonio Postigo

Selected publications

Cortés M, Brischetto A, Martinez-Campanario MC, ... , Castro P, Cañete Juan D, Postigo A. **Inflammatory macrophages reprogram to immunosuppression by reducing mitochondrial translation**. *Nature Communications*. 14(1):7471. D1

Martinez-Campanario MC, Cortés M, Moreno-Lanceta A, ... , Andrés V, Melgar-Lesmes P, Postigo A. **Atherosclerotic plaque development in mice is enhanced by myeloid ZEB1 downregulation**. *Nature Communications*. 14(1):8316. D1

Ninfali C, Cortes M, Martinez-Campanario MC, ... , Pintado B, Garrabou G, Postigo A. **The adaptive antioxidant response during fasting-induced muscle atrophy is oppositely regulated by ZEB1 and ZEB2**. *Proceedings of The National Academy of Sciences of the USA*. 120(46):e2301120120. Q1

Ninfali C, Siles L, Esteve-Codina A, Postigo A. **The mesodermal and myogenic specification of hESCs depend on ZEB1 and are inhibited by ZEB2**. *Cell Reports*. 42(10):113222. Q1.

Sánchez-Tilló E, Pedrosa L, Vila I, ... , Castells A, Maurel J, Postigo A. **The EMT factor ZEB1 paradoxically inhibits EMT in BRAF-mutant carcinomas**. *Jci Insight*. 8(20):e164629. Q1

GROUP LEADER
Antonio Postigo (ICREA-IDIBAPS)

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

Colorectal and ovarian cancer
Autoimmune inflammatory chronic diseases
Acute Inflammation
Aging
Muscular dystrophies and atrophy

5.17

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 focuses on addressing challenges in cancer treatment by better classifying cancer subtypes, identifying biomarkers, and discovering new therapeutic targets.

We use genomic and molecular data to identify novel biomarkers and drivers of resistance to targeted therapies.

Additionally, we study sensitivity and resistance mechanisms using preclinical models.

Promising results guide clinical trial design and lead to biomarker development. Our goal is to develop personalized treatments for cancer patients.

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	13,03
86	Q1	63%
	D1	30%
	MA	21%
	OA	7%
Others	Mean IF	7,52
23	Q1	57%
	D1	26%
	MA	52%
	OA	61%

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

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

Oliveira M, Falato C, Cejalvo JM, ... , Ferrero-Cafiero JM, Pascual T, Prat A. **Patritumab Deruxtecan in Untreated Hormone Receptor-Positive/HER2-Negative Early Breast Cancer: Final Results from Part A of the Window-of-Opportunity SOLTI TOT-HER3 Pre-Operative Study**. *Annals of Oncology*. 34(8):670-680. D1

Villacampa G, Tung NM, Pernas S, ... , Martín M, Prat A, Tolaney SM. **Association of HER2DX with pathological complete response and survival outcomes in HER2-positive breast cancer**. *Annals of Oncology.* 34(9):783-795. D1

Arance A, de la Cruz-Merino L, Petrella TM, ... , Diede SJ, Krepler C, Long GV. **Phase II LEAP-004 Study of Lenvatinib Plus Pembrolizumab for Melanoma With Confirmed Progression on a Programmed Cell Death Protein-1 or Programmed Death Ligand 1 Inhibitor Given as Monotherapy or in Combination.** *Journal of Clinical Oncology.* 41(1):75-85. D1

Prat A, Brasó-Maristany F, Martínez-Sáez O, ... , Tolosa P, Parker JS, Perou CM. **Circulating tumor DNA reveals complex biological features with clinical relevance in metastatic breast cancer**. *Nature Communications.* 14(1):1157. D1

Okuno K, Kandimalla R, Mendiola M, ... , Kinugasa Y, Maurel J, Goel A. **A microRNA signature for risk-stratification and response prediction to FOLFOX-based adjuvant therapy in stage II and III colorectal cancer**. *Molecular Cancer*. 22(1):13. D1

5.18

Melanoma: imaging, genetics and immunology

GROUP LEADER
Susana Puig (HCB)

Publications

Original articles	Mean IF	10,71
27	Q1	59%
	D1	33%
	MA	30%
	OA	70%
Others	Mean IF	8,37
12	Q1	83%
	D1	58%
	MA	8%
	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

Novel health care strategies for melanoma in children, adolescents and young adults.
European Commission.
CE_HE_CANCER21_RIA
PI: Susana Puig

Monitoring multidimensional aspects of QUAlity of Life after cancer ImmunoTherapy - an Open smart.
European Commission.
CE_H2020-SC1_19_1s24
PI: Susana Puig

Selected publications

Riquelme-Mc Loughlin C, Sandoval-Clavijo A, Blanco de Tord M, ... , Puig S, Toll A, Podlipnik S. **Prognostic role of microsatellites in melanoma and implications in the AJCC classification system: a cohort study**. *Journal of The American Academy of Dermatology*. 88(2):338-347. D1

Marti-Marti I, Podlipnik S, Cañueto J, ... , Tomás-Velázquez A, Sandoval-Clavijo A, Toll A. **Prognostic factors of satellitosis or in-transit metastasis in cutaneous squamous cell carcinoma**. *Journal of The American Academy of Dermatology*. 89(1):119-127. D1

Alamon-Reig F, Combalia M, Albero-González R, ... , Puig S, Malvehy J, Podlipnik S. **Analysis of dermoscopic changes of blue nevi on digital follow-up: a 21-year retrospective cohort study**. *Journal of the European Academy of Dermatology and Venereology*. 37(5):914-921. D1

Soglia S, Pérez-Anker J, Albero R, ... , Tognetti L, Venturini M, Malvehy J. **Understanding the anatomy of dermoscopy of melanocytic skin tumours: Correlation in vivo with line-field optical coherence tomography**. *Journal of the European Academy of Dermatology and Venereology*. 38(6):1191-1201. D1

Yélamos O, Andersen D, Pont M, ... , Guy RH, Brix S, Puig S. **Development and validation of a minimally invasive and image-guided tape stripping method to sample atopic skin in children**. *Clinical and Experimental Dermatology*. 48(2):80-88. Q1

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)

5.19

Molecular genetics of paediatric lymphomas

GROUP LEADER

Itziar Salaverria (IDIBAPS)

RESEARCH INTERESTS

Our corrent research interest is the study of the genetic and molecular profiles of the different NHL 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

Publications

Original articles	Mean IF	10,17
3	Q1	67%
	D1	67%
	MA	67%
	OA	67%
Others	Mean IF	11,10
3	Q1	67%
	D1	33%
	MA	0%
	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 • Julia Salmerón

Selected active grants

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

Nuevas firmas genéticas para avanzar en la Medicina de precisión en Linfoma B No-Hodgkin Pediátrico.
Asociación Española Contra el Cáncer.
AECC_Proyectos21
PI: Itziar Salaverria

Selected publications

Salmerón-Villalobos J, Castrejon-de-Anta N, Guerra-Garcia P, ... , Campo E, Balagué O, Salaverria I. **Decoding the molecular heterogeneity of pediatric monomorphic post-solid organ transplant lymphoproliferative disorders**. *Blood*. 142(5):434-445. D1

Gonzalez-Farre B, Ramis-Zaldivar JE, Castrejón de Anta N, ... , Lopez-Guillermo A, Salaverria I, Campo E. **Intravascular Large B-Cell Lymphoma Genomic Profile Is Characterized by Alterations in Genes Regulating NF-κB and Immune Checkpoints**. *American Journal of Surgical Pathology*. 47(2): 202-211. D1

Quintanilla-Martinez L, Salaverria I, Weigert O. **The clinical and molecular taxonomy of t(14,18)-negative follicular lymphomas**. *Blood Advances.* 7(18): 5258-5271. Q1

5.20

Hematopoietic progenitor cell transplantation

GROUP LEADER

Álvaro Urbano-Ispizua (HCB)

Publications

Original articles	Mean IF	7,65
22	Q1	59%
	D1	9%
	MA	14%
	OA	68%
Others	Mean IF	4,44
7	Q1	71%
	D1	0%
	MA	29%
	OA	57%

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

Perez-Valencia AI, Cascos E, Carbonell-Ordeig S, ... , Fernández-Avilés F, Rovira M, Salas MQ. **Incidence, Risk Factors, and Impact of Early Cardiac Toxicity after Allogeneic Hematopoietic Cell Transplantation**. *Blood Advances.* 7(10):2018-2031. Q1

Gómez-Hernando M, Quintana LF, Suárez-Lledo M, ... , Martínez C, Rovira M, Salas MQ. **Hyponatremia induced by post-transplant cyclophosphamide in allogeneic hematopoietic cell transplantation**. *Bone Marrow Transplantation.* 58(2):212-214. Q1

Oliver-Caldes A, Gonzalez-Calle V, Cabanas V, ... , Pascal M, Urbano-Ispizua A, Fernandez de Larrea C. **Fractionated initial infusion and booster dose of ARI0002h, a humanised, BCMA-directed CART-cell therapy, for patients with relapsed or refractory multiple myeloma (CARTBCMA- HCB-01): a single-arm, multicentre, academic pilot study**. *Lancet Oncology.* 24(8): 913-924. D1

Salas MQ, Atenafu EG, Pasic I, ... , Mattsson J, Alibhai SMH, Kumar R. **HCT frailty scale for younger and older adults undergoing allogeneic hematopoietic cell transplantation**. *Bone marrow transplantation.* 58(11):1237 -1246. Q1

Sánchez-Guijo F, Avendaño-Solá C, Badimón L, ... , Zapata AG, Sureda A, Moraleda JM. **Role of Hospital Exemption in Europe: position paper from the Spanish Advanced Therapy Network (TERAV)**. *Bone Marrow Transplantation.* 58(6):727-728. Q1

RESEARCH INTERESTS

The group is a pioneer centre in Europe conducting clinical trials with academic CAR-T cells.

ARI-001, a CD19-CAR-T therapy developed in house, is the first European-developed CAR-T therapy approved for the treatment of acute lymphoblastic leukaemia under hospital exemption.

ARI-002, a BCMA-CAR-T cell therapy developed by our group has been succesfullytested in a phase I clinical trial (n=60).

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.

KEYWORDS

Allogeneic transplantation
Immunotherapy
Adoptive T cell transfer
Chimeric antigen receptor
Veno-oclussive disease

RELATED DISEASES

Hematology malignancies
Solid tumors

TRANSVERSAL RESEARCH GROUPS

Annual scientific Report 2023

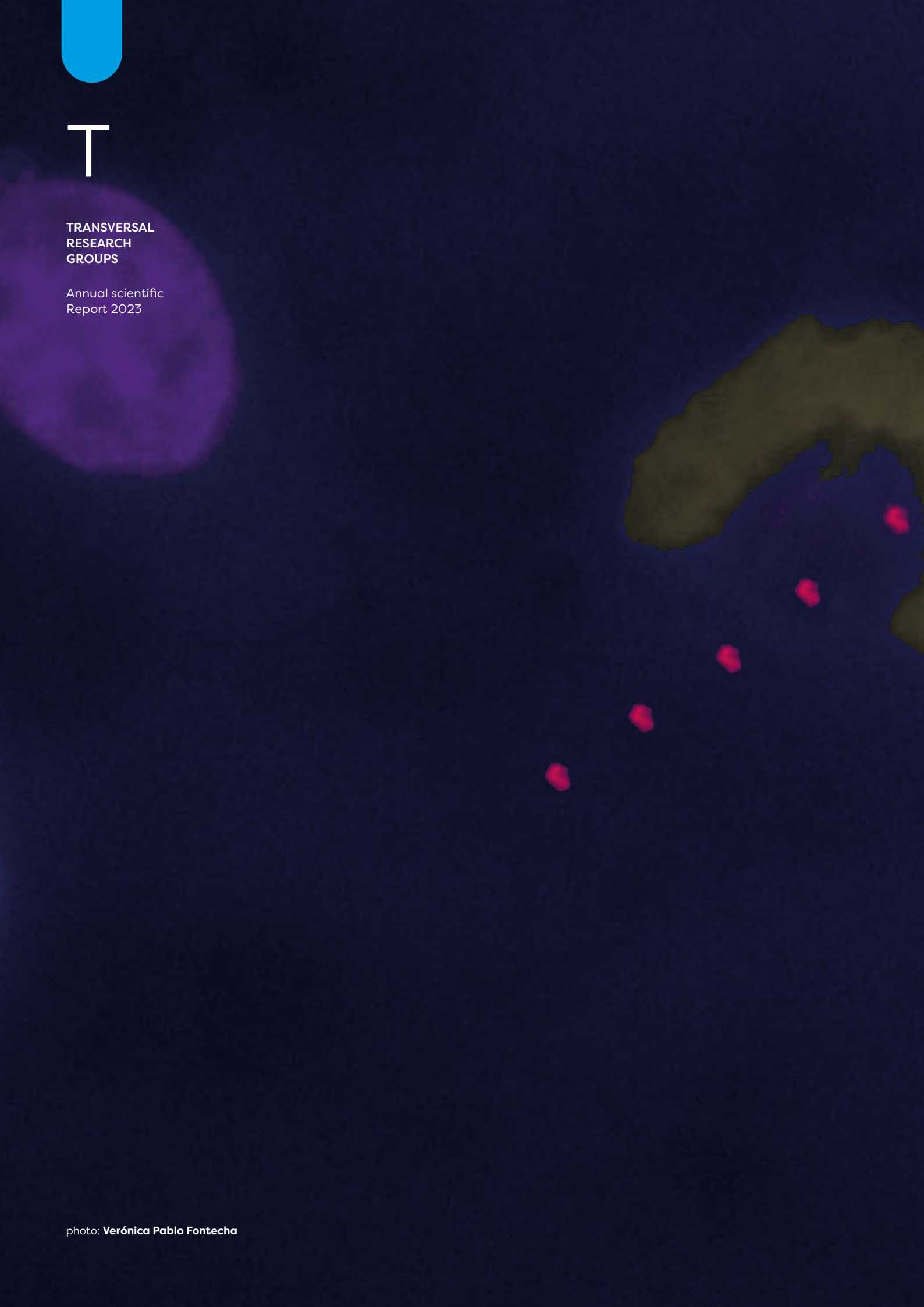


photo: **Verónica Pablo Fontecha**

TRANSVERSAL
AREA

TRANSVERSAL RESEARCH GROUPS

T.1 **Clinical pharmacology**
Gonzalo Calvo

T.2 **Primary healthcare transversal research group**
Antoni Sisó-Almirall

T.3 **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	11,07
13	Q1	62%
	D1	31%
	MA	0%
	OA	62%
Others	Mean IF	10,75
2	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

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

A testing bed for the development of high-risk medical devices.
European Commission.
CE_H2020-NMBP-IND-20
PI: Gonzalo Calvo

Selected publications

Oliver-Caldes A, Gonzalez-Calle V, Cabanas V, ... , Pascal M, Urbano-Ispizua A, Fernandez de Larrea C. **Fractionated initial infusion and booster dose of ARI0002h, a humanised, BCMA-directed CART-cell therapy, for patients with relapsed or refractory multiple myeloma (CARTBCMA- HCB-01): a single-arm, multicentre, academic pilot study**. *Lancet Oncology*. 24(8):913-924. D1

Agarwal B, Cañizares RB, Saliba F, ... , Fernandez J, Mitzner S, Jalan R. **Randomized-controlled trial of the DIALIVE liver dialysis device vs**. *Journal of Hepatology*. 79(1):79-92. D1

Madrid-Gambin F, Fabregat-Safont D, Gomez-Gomez A, ... , Mason NL, Ramaekers JG, Pozo OJ. **Present and future of metabolic and metabolomics studies focused on classical psychedelics in humans**. *Biomedicine & Pharmacotherapy*. 169:115775. D1

Leal L, Nava J, Escobar K, ... , Barreiro A, Prat T, Torroella E. **Safety and immunogenicity of a recombinant protein RBD fusion heterodimer vaccine against SARS-CoV-2**. *NPJ Vaccines*. 8(1):147. Q1

Durand-Zaleski I, Ducrocq G, Mimouni M, ... , Rousseau A, Simon T, Steg PG. **Economic evaluation of Restrictive Vs. Liberal Transfusion Strategy Following Acute Myocardial Infarction (REALITY): trial-based cost effectiveness and cost utility analyses**. *European Heart Journal-Quality of Care and Clinical Outcomes*. 9(2):qcac029-202. Q2

T.02

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
- Health community
- COVID-19

KEYWORDS
Primary healthcare
Family physician
General practitioner
Health care innovation
Chronic diseases

Publications

Original articles	**Mean IF**	**7,28**
4	Q1	100%
	D1	50%
	MA	25%
	OA	100%
Others	**Mean IF**	**3,10**
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

1

- Carmen Herranz

Selected active grants

ASCAPE- Artificial intelligence Supporting CAncer Patients across Europe.
European Commission.
CE _H2020-SC1_19_1s24
PI: Inmaculada Grau Corral

Selected publications

Herranz C, Martín-Moreno BL, Dana Muzzio F, Siso-Almirall A, Roca J, Cano I. **A Practice-Proven Adaptive Case Management Approach for Innovative Health Care Services (Health Circuit): Cluster Randomized Clinical Pilot and Descriptive Observational Study**. *Journal of Medical Internet Research*. 25:e47672. D1

González-de Paz L, Valdesoiro-Navarrete L, Roma J, ... , Benavent-Areu J, Bartra J, Sisó-Almirall A. **Prevalence and Impact of Asthma and Allergy on Daily Life, Health Outcomes and Use of Healthcare Services in Children: A Population-Based Study**. *Archivos de Bronconeumologia*. 59(8):481-487. Q1

Agustí A, Sisó-Almirall A, Roman M, Vogelmeier CF; members of the Scientific Committee of GOLD (Appendix). **Gold 2023: Highlights for primary care**. *NPJ Primary Care Respiratory Medicine*. 33(1):28. Q2

T.03

Research in nursing

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

Publications

Original articles	**Mean IF**	**2,50**
5	Q1	20%
	D1	20%
	MA	60%
	OA	60%
Others	**Mean IF**	**2,80**
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

- Meritxell Cucala

Selected active grants

Clinical Reasoning in nursing/midwifery education and clinical practice.
European Comission.
CE_2021-1-BE02-KA220-HED-000023194
PI: Adelaida Zabalegui

Selected publications

Sevilla-Guerra S, Zabalegui A, Comellas-Oliva M, ... , Martin-Baranera M, Rivera-Villalobos D, Ferrús-Ferrús-Estopà L. **How do healthcare professionals and managers view the role of the advanced practice nurse?** *International Nursing Review*. 71(2):335-351. D1

Paden L, Pajnic M; Vettorazzi R, ... , Franco H, Vandervoort A, Ravljen M. **"Learning a Way of Thinking"-World Café on Clinical Reasoning in Nursing and Midwifery Education and Practice across Five European Union Countries**. *Healthcare (Basel).* 11(22):2969. Q2

Pérez-Perdomoy 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

Nuevo M, Rodriguez-Rodriguez D, Jauregui R, ... , Zabalegui A, Conti M, Prat-Fabregat S. **Telerehabilitation following fast-track total knee arthroplasty is effective and safe: a randomized controlled trial with the ReHub® platform**. *Disability And Rehabilitation*. 46(12):2629-2639. Q2

Pérez-Ortega S, Querol-Vallés E, Prats-Barrera J, Venturas-Nieto M, Zabalegui A. **Emotional response of critically-ill cardiac patients during hygiene procedures in intensive care: a prospective and descriptive study**. *Revista Latino-Americana de Enfermagem*. 31:e4031. Q3

Group leaders index

Annual scientific Report 2023

Notes

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