

ANNUAL SCIENTIFIC REPORT 2016

IDI BAPS

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About IDIBAPS

The Institut d'Investigacions Biomèdiques August Pi i Sunyer (IDIBAPS) is a public research center dedicated to translational research in the field of biomedicine.

It aims to integrate state-of-the-art basic research and quality clinical research to acquire and transfer knowledge regarding the main health problems present in our society, with the final purpose of improving their prevention and treatment. Therefore, innovation and technological progress are at the forefront of IDIBAPS. The IDIBAPS staff consists of more than 470 principal investigators, making IDIBAPS one of the most powerful translational research centers in Spain.

IDIBAPS is located in a melting pot site for biomedical research, the Clínic Campus. Here the School of Medicine of the University of Barcelona, the Hospital Clínic of Barcelona and the Barcelona Institute of Biomedical Research (IIBB-CSIC) are found right next to one another. This strategic positioning is ideal to create powerful synergies and ensuring that IDIBAPS research is effectively transferred to the patient and featured in the training of new health professionals.

IDIBAPS is accredited as an Instituto de Investigaciones Sanitarias by the Instituto de Salud Carlos III (ISCIII).

The research activities of the Institute are divided into five different areas, which encompass more than 50 top-level research teams. IDIBAPS researchers work in five different fields of activity:

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 transversal groups perform research in Primary Care, Nursing, Pharmacology and Clinical Trials.

Scientific breakthroughs are never the result of chance. They are the result of long-term commitments that involve not only researchers, but also society as a whole. IDIBAPS is a consortium that has made such a commitment, to encourage translational research, innovation and technological progress in the field of biomedicine, through different research programmes addressing diseases with a high prevalence, morbidity and mortality in our society.

Focus on translational research

The data presented in this Annual Scientific Report details the ever-growing scientific achievements made by IDIBAPS investigators and their capacity to attract public and private funding. This enormous potential to capture resources and their translation into applied results for clinical practice constitute the best guarantee for securing the future of the Institute. With 51 patents and 37 technology transfer agreements, the research underway at IDIBAPS has a direct impact on society and industry.

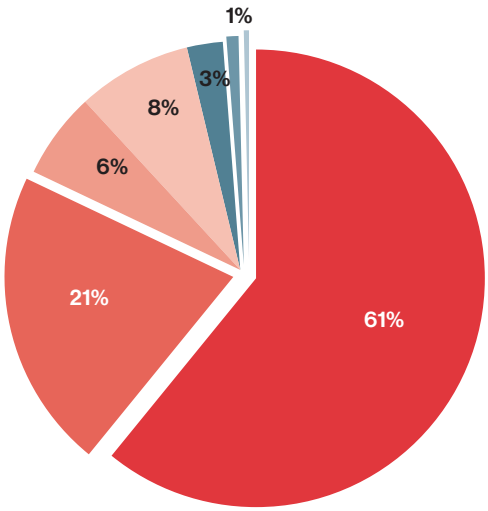
In 2016 IDIBAPS researchers published 1025 original articles, 69 % of them in journals belonging to the first quartile of impact in their respective fields. The number of reviews (224), editorials (42) and clinical guidelines (39) that the Institute's researchers either led or participated in during 2016 is another indicator of their strong influence in the scientific community.

Funding sources

The economic figures of the Institute are another example of its high level of competitiveness. The funding of IDIBAPS research, coming from multiple public sources but mainly from competitive research calls, ensures the sustainability and the leading capacity of the researchers and their scientific projects.

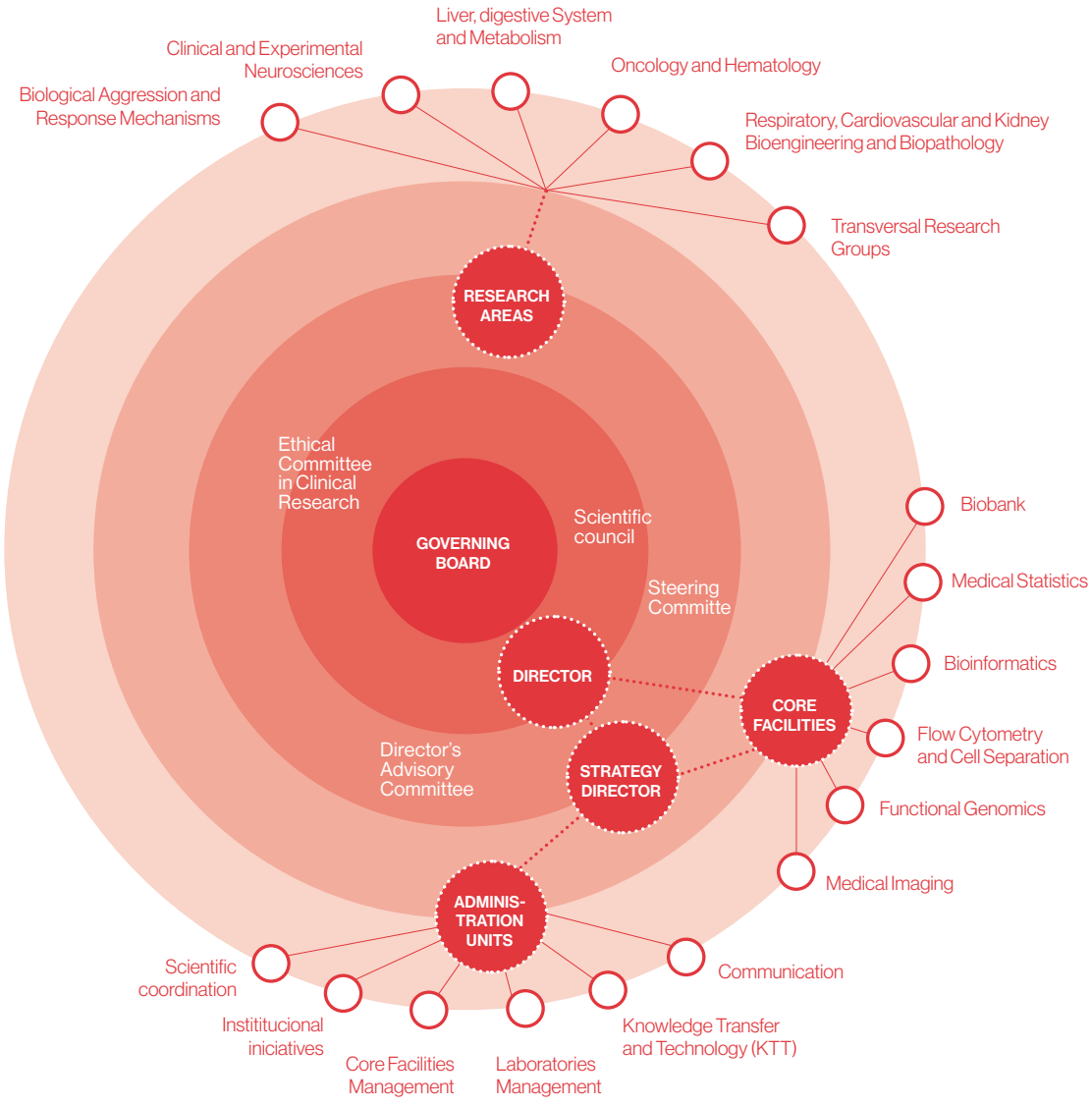
The funding of IDIBAPS during 2016 totalled more than 28 million Euros.

Around 21% of this amount corresponds to the contribution of the Generalitat de Catalunya from the Departament d'Economia i Coneixement (DECO) and the Departament de Salut (DSalut). The rest of the funding obtained by IDIBAPS during 2016 corresponds to calls for research funding (61%), as well as contracts and cooperative agreements with private entities (8%), Capital grant (6%) IDIBAPS core facility services (2'5%), and financial income sources (1%).



- COMPETITIVE PROJECTS > **17.164.130 €**
- GENERALITAT DE CATALUNYA > **5.971.452 €**
- CAPITAL GRANT > **1.715.057 €**
- PRIVATE PROJECTS > **2.284.182 €**
- CORE FACILITIES > **715.344 €**
- OTHER > **240.532 €**
- FINANCIAL INCOME > **103.022 €**

Organisation chart



IDIBAPS requires a solid administrative infrastructure to support the state-of-the-art research developed by its researchers.

For this reason, in addition to developing its own scientific management and administrative units, IDIBAPS works together with the Fundació Clínic per a la Recerca Biomèdica to ensure efficiency and quality in the services offered to its research staff, in particular, in the areas of research project management and administration.

Administration Units*

* at December 31

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Director
Gemma Pedrola
Assistant

STRATEGY DIRECTION
Marga Nadal
Strategy director
Laura González
Assistant

MANAGING DIRECTION
Rosa Vilavella
Managing Director
Laura Lopera
Assistant

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Head
Arantxa Fernández
Cristina Nogueroles

INSTITUTIONAL INICIATIVES
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Head
Camille Evard

COMMUNICATION OFFICE
Daniel Arbós

CORE FACILITIES MANAGEMENT
Anna Bosch
Head
Meritxell Rufet
Soraya Pérez

LABORATORIES MANAGEMENT
Sandra Piquer
Head
Cristina Canaleta
Labmanager CEK floor 1
Maite Cazorla
Labmanager CELLEX floor 2/3
Marta Diví
Labmanager CEK floor 2
Marta Julià
Labmanager CEK floor 5
Pepa Ros
Labmanager CEK floor 3
M. Isabel Sánchez
Labmanager CEK floor 4
Sonia Travé
Labmanager CELLEX floor 1/4
Vicenç Rioja
Labmanager CEK floor -1
and Core Facilities IDIBAPS
Montserrat Rigol
Animal Welfare
Alba Dorado
Sterilization facility

KNOWLEDGE AND TECHNOLOGY TRANSFER (KTT)
Elisenda Vendrell
Head
Nuncio Cifariello
Sílvia Cufí
Teresa Lloret

Board of Governors*

* at December 31

The Board of Governors' main responsibilities are: to supervise IDIBAPS actions, budget and results; to make key scientific decisions in consultation with the Scientific Advisory Board, and to evaluate the implementation of the strategic plan.

CHAIRMAN
Francesc Subirada
General Director, Direcció General de Recerca, Departament d'Economia i Coneixement, Generalitat de Catalunya

VICE-CHAIRMAN
José Carlos Fernández-Checa
Director, Instituto de Investigaciones Biomédicas de Barcelona (IIBB-CSIC)

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Institutional Coordinator, Consejo Superior de Investigaciones Científicas (CSIC) in Catalonia

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Dean of the School of Medicine, Universitat de Barcelona

Ramon Gomis
Director, IDIBAPS

Josep Maria Campistol
General Manager, Hospital Clínic de Barcelona

Antoni Castells
Medical Director, Hospital Clínic de Barcelona

SECRETARY
Lluís Rovira
Director, CERCA

Scientific Advisory Board

The Scientific Advisory Board is comprised of external scientific leaders, many of which work abroad, who advise IDIBAPS on different scientific and strategic issues affecting its activities.

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Jesús Ávila
Centro de Biología Molecular Severo Ochoa (CBM), Madrid

BOARD MEMBERS

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Harvard University, Cambridge

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King's College London

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Hospital Clínico de Salamanca

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

Antonio Vidal-Puig
School of Clinical Medicine, University of Cambridge

Fernando Arenzana-Seisdedos
Institut Pasteur, Paris

Angel Pellicer
NYU School of Medicine, New York

Steering Committee

The Steering Committee is responsible for the supervision of the progress achieved by the five IDIBAPS research areas, the recruitment of new scientists within the framework of different programmes, and the evaluation of IDIBAPS training programmes.

CHAIRMAN

Ramon Gomis
Director, IDIBAPS

Elías Campo
Director of Research, Hospital Clínic de Barcelona and Director, Fundació Clínic per a la Recerca Biomèdica

Josep Maria Llovet
Head of the IDIBAPS Group "Translational research in hepatic oncology"

Anna Planas
Coordinator of the IDIBAPS Research Area 4

Rosa Vilavella
Managing Director

SECRETARY

Marga Nadal
Strategy Director

Internal Advisory Committee

On a daily basis, IDIBAPS' director is assessed by an Internal Advisory Committee formed by IDIBAPS researchers. This committee helps the director implement the strategic decisions made by the Board of Governors.

CHAIRMAN
Ramon Gomis
Director, IDIBAPS

STEERING COMMITTEE MEMBERS
Elías Campo
Director of Research, Hospital Clínic de Barcelona
Director, Fundació Clínic per a la Recerca Biomèdica

Josep Maria Llovet
Head of the IDIBAPS Group "Translational research in hepatic oncology"

Anna Planas
Coordinator of the IDIBAPS Area 4

INSTITUTIONAL REPRESENTATIVES
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Doctors' Representatives, Hospital Clínic de Barcelona

Guadalupe Mengod
Deputy Director, Instituto de Investigaciones Biomédicas de Barcelona (IIBB-CSIC)

TRAINING COORDINATOR
Neus Agell
Vice-Dean of School of Medicine, Universitat de Barcelona

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Josep Maria Miró, Coordinator
Maria Cinta Cid, Representative

AREA 2
Ramón Farré, Coordinator
Joan Albert Barberà, Representative

AREA 3
Jordi Bruix, Coordinator
Francesc Balaguer, Representative

AREA 4
Anna Planas, Coordinator
Josep Dalmau, Representative

AREA 5
Dolors Colomer, Coordinator
Aleix Prat, Representative

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CIBERes Scientific Director

Montserrat Batlle
Works Committee President

Jaume Bosch
CIBERehd Scientific Director

Francesc Cardellach
Dean of the School of Medicine, Universitat de Barcelona

José Carlos Fernández-Checa
Director, Instituto de Investigaciones Biomédicas de Barcelona (IIBB-CSIC)

Josep M. Gatell
National Coordinator of the RETIC on AIDS

Francesc Graus
Cellex building representative

Joan Rodés
Member of the IDIBAPS Scientific Council

Antonio Sisó
CAPSE-GESCLINIC Research Coordinator

Cristina Suñol
Director, Instituto de Investigaciones Biomédicas de Barcelona (IIBB-CSIC)

SECRETARY
Marga Nadal

Mentoring Committee

The Mentoring Committee supports researchers in their tenure track in order to improve their scientific productivity, international visibility and leadership skills. Each researcher meets the committee once a year and receives an Evaluation Summary Report summarizing their strengths and weaknesses.

CHAIRMAN
Joan Rodés

COMMITTEE MEMBERS
Maria Cinta Cid
Area 1

Ramón Farré
Area 2

Cristina Fillat
Area 3

Maria V. Sánchez-Vives
Area 4

Rafael Oliva
Area 5

SECRETARY
Gemma Llaverias
Scientific coordination, IDIBAPS

Biosafety Committee

Created in 2012 the Biosafety Committee gives advice to IDIBAPS researchers on matters related to biosafety issues. It is also responsible for evaluating the projects that involve the use of genetically modified organisms (GMOs) and biological or chemical agents carried out in IDIBAPS facilities.

CHAIRWOMAN
Cristina Fillat
Researcher

COMMITTEE MEMBERS
Xavier Aliaga
Department of Infrastructure

Josep Canals
Researcher

María José Méndez
Occupational Safety and Health Service

Sofia Pérez del Pulgar
Researcher

Montserrat Rigol
IDIBAPS Animal Welfare Manager

María Sonsoles Sánchez
Researcher

SECRETARY
Sandra Piquer
Lab Manager Coordinator

Works Council

The IDIBAPS Works Council was established in 2013 for the first time. The members of the Works Council were designed after election by all the IDIBAPS employees. It is responsible for representing IDIBAPS employees and being the interface between them and the IDIBAPS Direction.

CHAIRWOMAN
Montserrat Batlle
Researcher

Maite Cazorla
Labmanager

Ana Paula Dantas
Researcher

Mario Ezquerra
Researcher

Begoña Fernández
Technician

Mireya Fuentes
Technician

Manel Garabito
Researcher

Jordi Gracia-Sancho
Researcher

Cristina Lopez
Specialist Technician

Anna Novials
Group Leader

Carmen Peralta
Group Leader

Joan Marc Servitja
Researcher

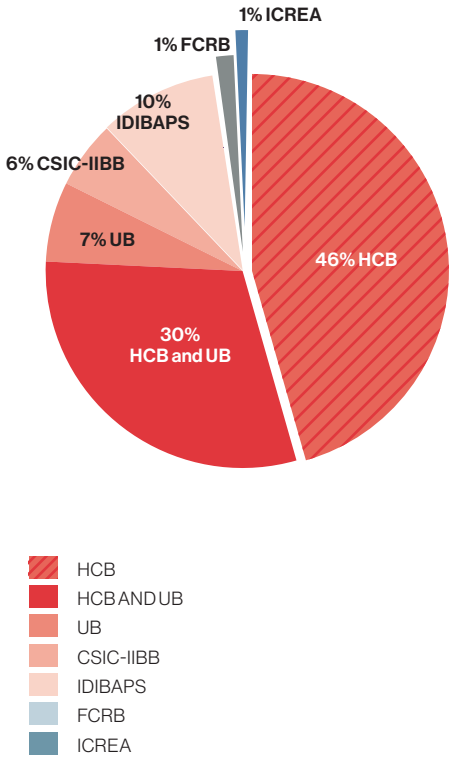
SECRETARY
Josefa Ros
Labmanager

IDIBAPS Researchers

IDIBAPS is firm in its belief that by investing in quality researchers, the benefits for the institute are multiple; from increased research capacity, to increased scientific impact and increased international recognition, thus helping towards its overall goal of becoming a European Centre of Excellence. The following table shows the distribution of IDIBAPS 487 accredited investigators:

IDIBAPS researchers by Institution

HCB	222
HCB and UB	147
UB	32
CSIC-IIBB	27
IDIBAPS	47
FCRB	7
ICREA	5
Total	**487**



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 through the Catalan Ministry of Economy and Knowledge that aims to recruit top scientists for the Catalan R&D system. Currently IDIBAPS has five ICREA Research Professors:

Dr. Antonio Postigo

Group of Regulation of Gene Expression in Cell Differentiation and Cancer

Dr. Postigo's group investigates the molecular mechanisms involved in the regulation of gene expression during normal cell differentiation and in cancer, focusing on the ZEB family of transcription factors. ZEB1 and ZEB2 modulate cell differentiation, maintain stemness in normal and cancer stem cells and participate in several stages of tumor initiation and progression. Thus, ZEB factors are essential effectors of the pro-oncogenic effects of several pathways involved in cancer, namely, Wnt, TGFbeta, Notch and Ras. ZEB1 and ZEB1 cooperate with gain-of-function mutations of these pathways in oncogenic transformation, induction of epithelial-mesenchymal transition (EMT) and tumor invasiveness and metastasis.

The group uses a wide number of vitro techniques and in vivo models to address two main research lines:

- Study the role of ZEB1 and ZEB2 in the regulation of normal differentiation in epithelial, skeletal muscle and hematopoietic cells

- Study of the mechanisms by which ZEB1 and ZEB2 regulate tumorigenesis, cancer cell stemness and EMT during cancer progression in colorectal and breast carcinomas.

Research of the group at IDIBAPS has been funded by public (Spanish Ministry of Economy and Competitiveness, the European Union, Catalan Agency for Universities and Research) and private (Leukemia Research Foundation, Spanish Association Against Cancer-AECC, O. Torres Foundation, AVON Cosmetics SAU, La Caixa Foundation, and the Academy of Medical Sciences of Catalonia and the Balearic Islands) grants.

Dr. Albert Pol

Cell compartments and Signaling Group

The initial aim of the group is to characterize - in health and in disease- the cellular processes that are regulated or altered due to lipid accumulation within the cells. Lipid droplets (LDs) are ubiquitous dynamic organelles that store and supply lipids for energy metabolism, membrane synthesis, and production of essential lipid-derived molecules. Interest in the organelle's cell biology has exponentially increased over the last decade due to the link between LDs and human disease and the discovery of new and unexpected functions of LDs in immunity, protein degradation or cellular stress. Many diseases arise from a central role of bioenergetics in cell biology and thus it is not surprising that altered LD accumulation frequently correlates with disease. In healthy cells, a small population of LDs is present at all times, though these organelles become abundant in response to pathological conditions such as obesity, fatty liver, and arteriosclerosis but also in diseases not obviously related to lipids, such as cardiomyopathies, neuropathies, viral hepatitis or cancer. Globally, these disorders affect over half of the population worldwide.







Dr. Maria V. Sánchez-Vives
Cortical networks and EVENT Lab (Virtual Environments in Neuroscience and Technology)

Dr. Sánchez-Vives joined the IDIBAPS in 2008 and is the head of the Systems Neurosciences Group of the IDIBABS, acknowledged by the AGAUR as a Consolidated Research Group.

Understanding how the brain processes information and how brain activity is generated and modulated in neuronal networks is crucial for intervening in cerebral function when the latter has been altered. Neuron connectivity and the cellular and synaptic properties conform brain activity, and the latter at the same time has effects upon the network. The objective of the Dr. Sánchez-Vives' group is to determine how these processes take place, particularly as regards the generation of brain rhythms: how information is generated, synchronized or encoded. These activity patterns are altered under pathological conditions, and their restoration may contribute to recover function. The models of diseases in genetically modified mice allow us to carry out such studies.

Another line of research of the group is referred to the integration of information in the brain cortex, resulting in body representation. They use virtual reality and brain-computer interfaces with a view to understanding and acting upon these processes. At present, and within the setting of a project integrated in the European Union, the group is studying the usefulness of body representation in virtual reality for the treatment of pain and the restoration of motor function.

Dr. Josep Dalmau
Autoimmunity against synaptic antigens

The Autoimmunity Against Synaptic Antigens team is led by Dr. Josep Dalmau i Obrador, ICREA Research Professor of the IDIBAPS and Professor of Neurology at the University of Pennsylvania in Philadelphia. Dr. Dalmau is a clinical neurooncologist trained and working as Associate Professor of Neurology in the Memorial Sloan-Kettering Cancer Center in New York.

Dr. Dalmau's research focuses on a group of diseases located at the intersection of autoimmunity, cancer and synaptic proteins. This includes the description of new syndromes, the associated immune mechanisms, isolation of the target antigens, and the development of diagnostic tests and treatment strategies. In the last 10 years Dr. Dalmau's group has discovered a new category of autoimmune processes that cause alterations of memory, behaviour and cognition, and which may lead to psychosis. These processes are associated with autoimmune responses against synaptic proteins and receptors. Once the antigens are identified, the studies are directed to determine the cellular and molecular mechanisms whereby the antibodies alter the function of the synaptic proteins and receptors and produce the symptoms. These studies have had an impact on many medical disciplines and on neuroscience since they offer a link between immune processes and synaptic activity related to memory, behaviour, psychosis, epilepsy and neuron degeneration.

Dr. Josep M. Llovet
Translational research group in Liver Oncology

The Translational research group in Liver Oncology was created in 2006 by Dr. Josep M. Llovet, ICREA Research Professor of the BCLC Group, Liver Unit-IDIBAPS, Professor of Medicine at the Mount Sinai School of Medicine and Director of the Master in Translational Medicine of University of Barcelona. The group is composed of 12 people from the IDIBAPS and leads an International HCC Genomic Consortium with about 30 investigators.

The main achievements of the group are:

a. **Grants:** we have received a total funding ~ 21M€ in the context of 76 projects including FP7-2010-Health (Proposal No: 259744-2; HEPTROMIC), H2020 (Proposal No: 667273-2; HEP-CAR) and National Institute of Health (NIH-NIDDK R01 (1R01DK07698). the Spanish Association against Cancer (Asociación Española contra el Cancer, AECC), several grants form MINECO (SAF 2010, 2013) and in 2014 it has been acknowledged as a Consolidated Research Group by the Catalan Government
b. **Awards:** In 2009 the group received the AACR-Landon International Innovator Award. Dr. Llovet has been President of the International Liver Cancer Association (ILCA; 2012-13), received the Hans Popper International award (2012), Josep Trueta award (2013) and the AASLD Fellowship award (2015).
c. **Track record of publications:** A total of 160 publications with more than 49,000 citations reporting scientific advancements in 1) Definition of a molecular classification of hepatocellular carcinoma and cholangiocarcinoma. 2) Identification of key oncogenes in hepatocellular carcinoma, such as FGF19and c-MET, UHGRF1 and the signalling

IDIBAPS 80/20 Program



pathway of IGFR1, Wnt and Notch. 3) Definition of the immune class of HCC, 4) Discovery of novel oncogenes in cholangiocarcinoma (FGFR2-PPHLN1; IDH). 5) Leadership of EASL-EORTC Guidelines: Dr Llovet has been working as Chair (2012) or panellist (2018) of the EASL Guidelines of management of HCC and ICC Guidelines. 6) Reviews of pathogenesis and management of hepatocellular carcinoma and cholangiocarcinoma in main journals (Nature Reviews, Lancet, Gastroenterology)

With the final mission to strengthen translational clinical research IDIBAPS launched this program in 2013. The 80/20 researchers are consolidated clinical investigators from Hospital Clinic and IDIBAPS with no reductions in the care load due to management positions within the Hospital organization and strategic research projects to develop. The beneficiaries of this program release 30 hours devoted to weekly care activities (80% of a full-time dedication) to dedicate to research. It consists in a 3-year position extendable for additional 2 years prior positive evaluation.

Dr. Maria Cinta Cid
Systemic vasculitis

Maria Cinta Cid Xutglà leads a clinical and translational research team composed by 8 investigators (including doctors and trainees) aimed to investigate mechanisms involved in the development of vascular inflammation and remodelling in systemic vasculitis with the ultimate goal of identifying biomarkers of disease activity and prognostic significance and identifying/testing therapeutic targets. The team is composed by investigators with clinical training and investigators with biomedical and biotechnological background. These goals are pursuit through characterization of clinical cohorts with longitudinal follow-up and well-defined relevant outcomes (development of vaso-occlusive complications or aneurysms, relapses reflecting persistent disease activity), collection of patient samples (involved tissue, serum, plasma, DNA, PBMC), development of original functional models (culture of artery sections in 3D-matrix, co-culture systems, isolation of myointimal cells from involved vessels) to assess the impact of manipulation of pathways of interest and investigation of specific mechanisms involved in vascular inflammation and remodelling. The participation of the team in international networks facilitates return to the bedside with innovative clinical trials, in which the team has often served as national coordinators. These trials are mainly aimed to identify more efficient and safer treatments but, at the same time, they serve as proof of concept of some of the hypothesis generated.





Dr. Rafael Oliva
Molecular biology of reproduction and development

The germinal cell line is essential for normal fertility and development, but the mechanisms involved in its regulation and function are not yet fully understood. Dr. Rafael Oliva's research is focused on the genomics, proteomics and epigenenomics of the male germinal cell line and aims to contribute to uncover the fundamental mechanisms needed for male fertility and to develop clinically relevant diagnostic and prognostic biomarkers. These research lines on Reproductive Biology, together with the study of the Genetics of Endocrine disorders and the study of the Mechanisms involved in redifferentiation of cancer cells, constitute the objectives of our Molecular Biology of reproduction and development group.

The research activities are supported by a European collaborative project in Reproductive Biology (www.reprotrain.eu) coordinated by IDIBAPS and by national projects. The 80/20 program represent a unique opportunity to substantially stimulate our research lines and to increase the projection of our group as it provides the time required to coordinate the European research activities involving the analysis and integration of the omics data derived from our projects and to implement its translation from the bench to the clinic.

Dr. Dolors Colomer
Physiopathology and molecular bases in hematology

Dolors Colomer Pujol leads a translational research team composed by investigators with biomedical and biotechnological background, aimed to identify new therapeutic strategies in lymphoid malignancies, mainly in chronic lymphocytic leukemia (CLL) and mantle cell lymphoma (MCL). The identification of novel recurrent somatic mutations with predicted functional impact, offers new potential clinical approaches for these diseases. Preclinical studies and clinical trials with therapies directed against well-defined targets in combination with other relevant biomarkers will accelerate the development of drugs and therapeutic strategies.

Our research is based in in vitro studies using primary samples as well as in vivo models to identify new promising therapies for CLL and MCL patients. The group has designed several experimental models that recreate the influence of the microenvironment in the antitumoral properties of a candidate drug.

These research activities are supported by national competitive grants and international private projects.The group has an important collaboration with pharmaceutical and biotech companies committed to the co-development of new compounds with academic groups. Furthermore, using a multidisciplinary approach including systems biology, molecular and cellular biology, preclinical animal models, pharmacology and clinical oncology we aim to generate highly relevant and innovative knowledge to translate into novel diagnostic and therapeutic approaches. These studies based on high-throughput genomics, advanced computing, systems biology, functional studies and clinical analysis of patients will allow the validation of rational and effective therapeutic targets for the treatment of lymphoid malignancies, which could be translated bench-to-beside to the clinic.

IDIBAPS 50/50 Program





With the final mission to strengthen translational clinical research, IDIBAPS and Hospital Clinic of Barcelona started in 2012 this pioneering program designed to facilitate the combination of research and clinical activity. The 50/50 researchers are young medical staff specialists (MD) with a strong research career (PhD) built up, at least in part, in the most prestigious foreign research centers. These junior group leaders are called to be the future clinical research group leaders that this institution will need.

Dr. Felicia Alexandra Hanzu

Endocrine disorders: crosstalk between molecular and metabolic determinants

Dr. Hanzu´s group studies the crosstalk between molecular and metabolic determinants in endocrine pathologies, respectively the molecular determinants underlying physiopathological mechanisms of endocrine tumors. The aim is to translate knowledge from the basic research, in endocrine tumors, into the clinical practice by focusing on the development of new treatment strategies.

Adrenal hormones secreted in an autonomous manner, as in endocrine tumors, determine disruption of the endocrine circadian rhythms inducing aberrant systemic tissue responses. Visceral adipose tissue, one of the targets of cortical and medulla adrenal hormones, has a primordial role in the development of cardiometabolic diseases.

The endocrine tumors group is studying the impact of adrenal hormone secreting tumours on the visceral adipose tissue plasticity, on the secreted adipokines and their effect on the endothelium. Patients with endogenous hypercortisolism present an increased risk of cardiovascular disease even after cure. The understanding of the epigenetic mechanisms, underlying the altered cardiometabolic memory, is a further goal of this group.

The group started up in 2012, after Dr. Hanzu was incorporated to IDIBAPS and Hospital Clinic.

Milestones of her scientific formation are the Rio Hortega fellowship and her trainings in translational research at the Free University of Brussels and the University of Medicine Munich.

Dr. Ignacio Revuelta

Translational research in posttransplant neoplasia

The Translational Research group in Posttransplant Neoplasia led by Ignacio Revuelta started up at the IDIBAPS in January 2012 after his stay at Harvard Medical School in Boston.

Cancer is a main cause of mortality in transplant population, and cancer rates are higher compared with the general population. Several pathogenic factors have been involved in oncogenesis and metastasis development in transplant patients.

The group has been studying and characterizing the behavior of posttransplant neoplasia. However, knowledge about oncogenesis and metastasis development is still unresolved. Cancer released extracellular vesicles could be a potent tool for intercellular communication between primary tumor, tumor microenvironment and host organs, allowing tumoral progression, angiogenesis and pre- metastatic niche activation.

In contrary to tumor immunity, the allogenic immune approach is necessary in kidney transplantation to avoid rejection. The mechanism of endothelial graft injury through the donor- specific antibodies-related complement activation comes late, so it is crucial to understand the mechanisms modifying cellular responses in the endothelium. Exosomes from immune cells may induce the endothelium by the regulation of certain inflammatory cytokines, and are released only in an earlier humoral immune response. However, molecular and functional different subpopulations of exosomes produce differential effects on gene expression program in recipient cells.

The study of exosomes in transplant field could help to combat the opposite approachs of the immune system in the development of posttransplant neoplasia and the avoidance rejection- allogenic intrinsic mechanism related to the transplant, therefore generate tolerance without increase risk of malignancies.







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

Pulmonary arterial hypertension (PAH) is a disease of small pulmonary arteries, characterized by gradual obliteration of the arterial lumen due to the enlargement of the vessel wall. It is currently considered as an uncontrolled proliferative process in pulmonary arteries. It results in a progressive increase of pulmonary vascular resistance (PVR) and, finally, right ventricular failure and death. While vasoconstriction contributes, especially in earlier stages, the obstructive vascular remodelling is the major cause of the elevated PVR and ultimately the right heart failure. Recent therapeutic advances increase survival and improve quality of life of patients with PAH. However, currently available drugs act primarily as vasodilators and do not alter the disease process or the structural lesions in the pulmonary arteries.

Therefore, there is a need to identify new signalling pathways in the pathogenesis of PAH, which may represent different more appropriate therapeutic targets. With the 50/50 program started in 2013 Dr. Blanco's group aims going from the bench to the bed side studying with cells, animal models and also human samples potential biomarkers of the disease activity and progression; as well as potential new drugs to reverse the proliferative remodelling phenotype in PAH.

Dr. Gisela Sugranyes
Multimodal neuroimaging in high risk and early psychosis.

Dr. Sugranyes' group was established in 2013 with the aim to understand the neural mechanisms underlying the development of psychotic disorders in children and adolescents. Specifically, it aims to identify structural and functional neural correlates which characterize youth at high risk for psychosis and during the early phase of the disorder. It also aims to explore the relationship between neuroimaging measures and clinical and neuropsychological phenotypes, in addition to the interaction with specific genotypes. Particular focus is given to the interaction between illness-related changes and processes associated to normative child and adolescent neurodevelopment, given the age range of this sample. On a translational level, priority is given to the identification of factors predicting transition to psychosis and functional outcomes, in addition to identification of treatment targets.

Dr. Carlos Fernández de Larrea
Mechanisms of progression in monoclonal gammopathies.

Dr. Fernández de Larrea's group is focused on a comprehensive study on patients with multiple myeloma in complete remission, in order to investigate whether or not immune restoration is associated with the emergence of oligoclonal bands and to a continued response, and to search common features that these patients can share with those with long-lasting stable monoclonal gammopaties of undetermined significance (MGUS). For this purpose, a wide spectrum of biological studies in peripheral blood and bone marrow are performed in patients after transplantation or induction chemotherapy only, in comparison with patients with active myeloma. The importance of immune attack against malignant plasma cells in monoclonal gammopathies and the role of immune checkpoints in this balance are being explored.

The "evolving" pattern of progression from asymptomatic myeloma (smoldering MM) to symptomatic forms, already described in our institution, is analyzed with new approaches, as well the possibility of targeting c-MYC as a mechanism of control in relapsed or refractory disease. Translational research into the biology of extramedullary progression with plasmacytomas in multiple myeloma and in the early and accurate diagnosis of systemic AL amyloidosis are ongoing.



Dr. Eduard Guasch
Arrhythmias and physical activity.

The Arrhythmias and physical activity group, led by Dr. Eduard Guasch, was officially established in 2015 under the IDIBAPS 50/50 program. Main research topics include the study of the etiology, pathophysiology and therapy of cardiac atrial and ventricular arrhythmias through a multifactorial approach involving animal models, ex vivo and in vitro techniques and studies in humans. In this regard, the group has developed a special interest in the study of extreme intensity exercise as an emerging etiologic factor for arrhythmias such as atrial fibrillation and right ventricular tachycardia, driving to the exploration of further unknown deleterious cardiovascular conditions of "excessive" doses of exercise.



Dr. Sara Llufriu
Advanced imaging in neuroimmunological diseases (ImaginEM).

The main objective of our team is to understand the basis of disease evolution in multiple sclerosis and other neuroimmunological diseases, through the use of advanced magnetic resonance techniques. We aim to identify imaging biomarkers of physical and cognitive disability and of response to conventional and new therapies. We also develop technical improvements in order to use them in the translational research to the patient. To achieve these goals we are using tools such as diffusion tensor imaging and multivoxel spectroscopy, sequences that are able to detect in vivo changes in neurological tissues.

Research and Innovation Outputs

Scientific publications

Since its creation in 1996, IDIBAPS has shown constant growth of the main research outcomes: scientific publications, translation of knowledge and innovation, and capacity to get research funds.

Indicators are divided into three groups intended to reflect output (number of publications), quality (total impact factor, mean impact factor and %Q1) and intramural collaboration (% of publications carried out by one, two or more IDIBAPS teams). In 2016 these figures were as follows:

	OUTPUT	TOTAL IF	Mean IF	%Q1
Original articles	1.025	5.880	5,74	69%
Reviews	224	1.124	5,02	49%
Editorials	42	271	6,45	74%
Clinical guidelines	39	230	5,91	64%
Case reports	38	133	3,51	37%
Letters	100	918	9,18	75%
Consortium publications	50	579	11,58	74%

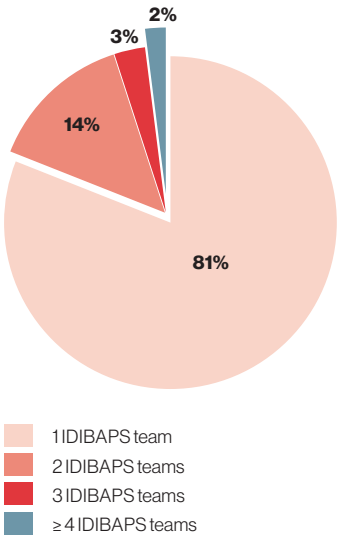


FIGURE TITLE

2016 intra-mural collaboration original articles.

FIGURE LEGEND

Distribution of the original articles authored by members of one, two, three and four IDIBAPS teams.

FIGURE TITLE

2016 publication outputs

FIGURE LEGEND

2016 number and quality of the publications.
Output – Total number of documents published in scholarly journals indexed in the ISI Web of Science.
Total IF – Accumulated impact factor of all the scientific publications.
Mean IF – Mean impact factor of all the scientific publications.
%Q1 – % of publications published in journals ranked in the first quartile (top 25%) of their category as ordered by the 2015 Journal Citation Reports.

SOURCE

2015 Journal Citation Reports, ISI Web of Science (Thomson Reuters, Inc.).

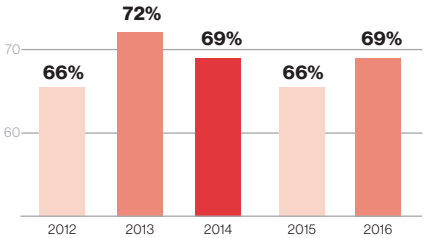


FIGURE TITLE

Evolution of the %Q1.

FIGURE LEGEND

Only original articles were taken into consideration. % of publications published in journals ranked in the first quartile (top 25%) of their category as ordered by the 2015 Journal Citation Reports.

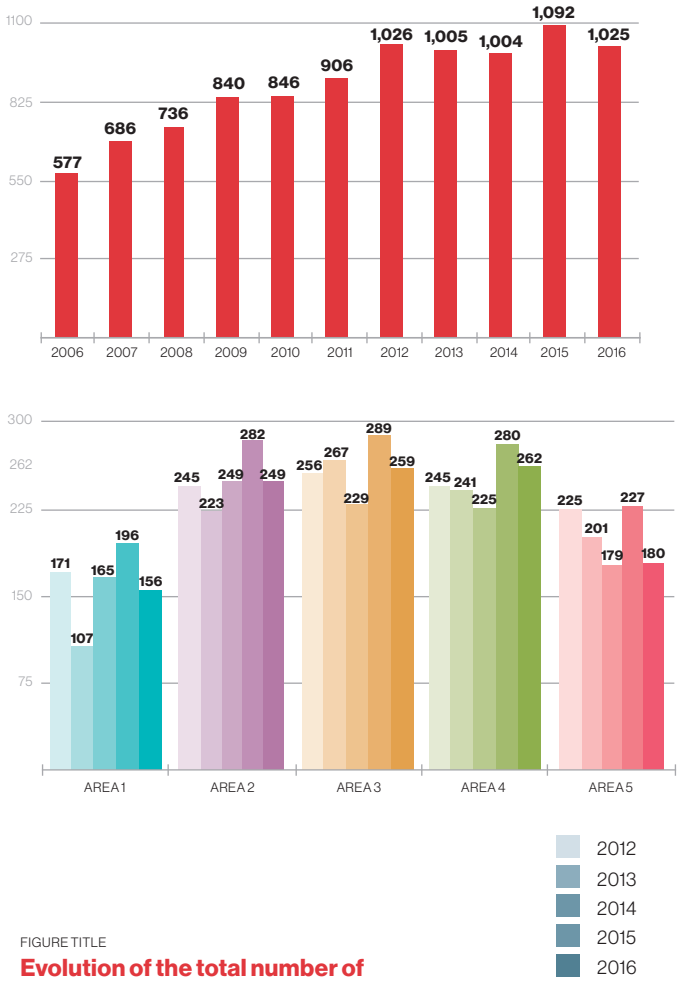


FIGURE TITLE

Evolution of the total number of original articles and the total number of original articles per area.

FIGURE LEGEND

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

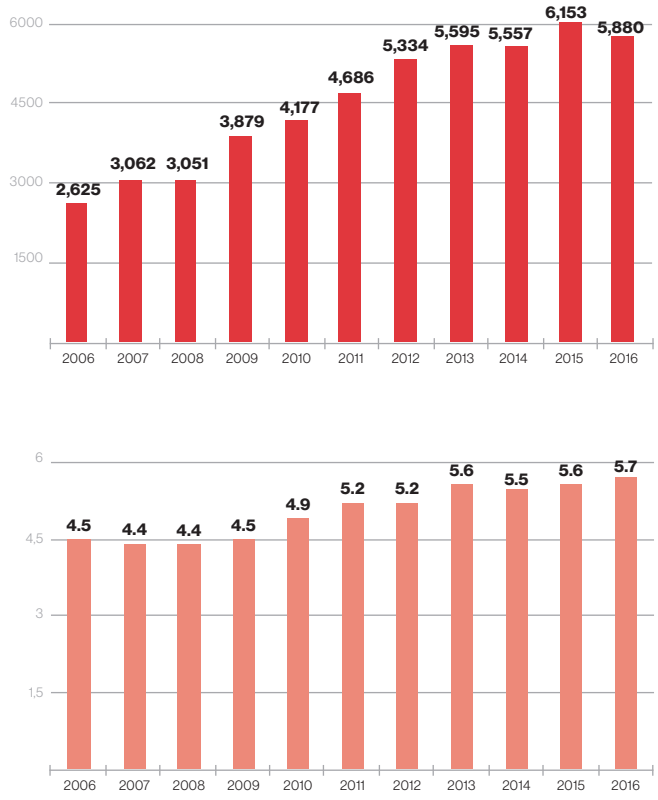


FIGURE TITLE

Evolution of the total impact factor and the mean impact factor.

FIGURE LEGEND

Only original articles were taken into consideration.

SOURCE

2015 Journal Citation Reports, ISI Web of Science (Thomson Reuters, Inc.).

The following table shows the peer-reviewed publications from IDIBAPS in the highest impact factor journals (IF>10). It is noteworthy that the list reflects the 130 original articles published in 42 of the most relevant scientific journals during 2016.

JOURNAL	IF	TOTAL ORIGINAL ARTICLES
N Engl J Med	59,558	2
Lancet	44,002	5
Nature	38,138	2
JAMA	37,684	2
Cell	28,710	1
Lancet Oncol	26,509	3
Lancet Neurol	23,468	2
Cancer Cell	23,214	3
Cell Stem Cell	22,387	1
Lancet Infect Dis	21,372	1
J Clin Oncol	20,982	2
Brit Med J	19,697	1
Nat Phys	18,791	1
Gastroenterology	18,187	8
J Am Coll Cardiol	17,759	2
Circulation	17,047	1
JAMA Oncol	16,559	1
Lancet Diabetes Endocrinol	16,320	1
Sci Transl Med	16,264	1
Lancet Resp Med	15,328	1
Eur Heart J	15,064	3
Eur Urol	14,976	1
Gut	14,921	12
Plos Med	13,585	1
Am J Psychiat	13,505	1
Mol Psychiatr	13,314	1
Am J Respir Crit Care Med	13,118	4
J Clin Invest	12,575	1
J Allergy Clin Immunol	12,485	4
Ann Rheum Dis	12,384	5
Leukemia	12,104	7
Blood	11,847	10
Hepatology	11,711	11
Alzheimers Dement	11,619	4
J Natl Cancer Inst	11,370	2
Acta Neuropathol	11,360	2
Nat Commun	11,329	4
J Exp Med	11,240	1
J Hepatol	10,590	10
Am J Gastroenterol	10,383	3
Brain	10,103	1
Genes Dev	10,042	1

Find below the 53 original articles with main contributing authors from IDIBAPS published in high impact factor journals (IF>10). They are sorted by impact factor.

AUTHORS	TITLE	REFERENCE	GROUPS INVOLVED
Panes J; Garcia-Olmo D; Van Assche G; Colombel JF; Reinisch W; Baumgart DC; Dignass A; Nachury M; Ferrante M; Kazemi-Shirazi L; Grimaud JC; de la Portilla F; Goldin E; Richard MP; Leselbaum A; Danese S; ADMIRE CD Study Group Collaborators	**Expanded allogeneic adipose-derived mesenchymal stem cells (Cx601) for complex perianal fistulas in Crohn's disease: A phase 3 randomised, double-blind controlled trial.**	Lancet. 388(10051):1281-1290	2.9
Sabate, M; Brugaletta, S; Cequier, A; Iniguez, A; Serra, A; Jimenez-Quevedo, P; Mainar, V; Campo, G; Tespili, M; Den Heijer, P; Bethencourt, A; Vazquez, N; Van Es, G A; Backx, B; Valgimigli, M; Serruys, P W	**Clinical outcomes in patients with ST-segment elevation myocardial infarction treated with everolimus-eluting stents versus bare-metal stents (EXAMINATION): 5-year results of a randomised trial**	Lancet. 387(10016):357-366	5.1; 5.4; 5.7; 5.8
Clemente-Casares X; Blanco J; Ambalavanan P; Yamanouchi J; Singha S; Fandos C; Tsai S; Wang J; Garabatos N; Izquierdo C; Agrawal S; Keough MB; Yong VW; James E; Moore A; Yang Y; Stratmann T; Serra P; Santamaria P	**Expanding antigen-specific regulatory networks to treat autoimmunity**	Nature. 530(7591):434-440	1.3; 2.6
Martinez-Lapiscina EH, Arnow S, Wilson JA, Saidha S, Preiningerova JL, Oberwahrenbrock T, Brandt AU, Pablo LE, Guerrieri S, Gonzalez I, Outteryck O, Mueller AK, Albrecht P, Chan W, Lukas S, Balk LJ, Fraser C, Frederiksen JL, Resto J, Frohman T, Cordano C, Zubizarreta I, Andorra M, Sanchez-Dalmau B, Saiz A, Bermel R, Klistorner A, Petzold A, Schippling S, Costello F, Aktas O, Vermersch P, Oreja-Guevara C, Comi G, Leocani L, Garcia-Martin E, Paul F, Havrdova E, Frohman E, Balcer LJ, Green AJ, Calabresi PA, Villoslada P; IMSVISUAL consortium	**Retinal thickness measured with optical coherence tomography and risk of disability worsening in multiple sclerosis: A cohort study**	Lancet Neurol . 15(6):574-584	3.5
Queirós, AC; Beekman, R; Vilarrasa-Blasi, R; Duran-Ferrer, M; Clot, G; Merkel, A; Raineri, E; Russiñol, N; Castellano, G; Bea, S; Navarro, A; Kulis, M; Verdaguer-Dot, N; Jares, P; Enjuanes, A; Calasanz, MJ; Bergmann, A; Vater, I; Salaverria, I; van de Werken, HJG; Wilson, WH; Datta, A; Flicek, P; Royo, R; Martens, J; Gine, E; Lopez-Guillermo, A; Stunnenberg, HG; Klapper, W; Pott, C; Heath, S; Gut, IG; Siebert, R; Campo, E; Martin-Subero, JI	**Decoding the DNA Methylome of Mantle Cell Lymphoma in the Light of the Entire B Cell Lineage**	Cancer Cell. 30(5):806-821	1.3
Manns, M; Samuel, D; Gane, EJ; Mutimer, D; Mccaughan, G; Buti, M; Prieto, M; Calleja, JL; Peck-Radosavljevic, M; Mullhaupt, B; Agarwal, K; Angus, P; Yoshida, EM; Colombo, M; Rizzetto, M; Dvory-Sobol, H; Denning, J; Arterburn, S; Pang, PS; Brainard, D; Mchutchison, JG; Dufour, JF; Van Vlierberghe, H; Van Hoek, B; Forns, X	**Ledipasvir and sofosbuvir plus ribavirin in patients with genotype 1 or 4 hepatitis C virus infection and advanced liver disease: a multicentre, open-label, randomised, phase 2 trial**	Lancet Infect Dis. 16(6):685-697	3.13
B Sancristobal, B Rebollo, P Boada, MV Sanchez-Vives and J Garcia-Ojalvo	**Collective Stochastic Coherence in Recurrent Neuronal Networks**	Nat Phys. 12(9):881–887	3.6
Abraldes, JG; Villanueva, C; Aracil, C; Turnes, J; Hernandez-Guerra, M; Genesca, J; Rodriguez, M; Castellote, J; Garcia-Pagan, JC; Torres, F; Calleja, JL; Albillos, A; Bosch, J; BLEPS Study Group	**Addition of Simvastatin to Standard Therapy for the Prevention of Variceal Rebleeding Does Not Reduce Rebleeding but Increases Survival in Patients With Cirrhosis**	Gastroenterology. 150(5):1160-1170. e3	3.5
Colombel, JF; Ordas, I; Ullman, T; Rutgeerts, P; Chai, A; O'Byrne, S; Lu, TT; Panes, J	**Agreement Between Rectosigmoidoscopy and Colonoscopy Analyses of Disease Activity and Healing in Patients With Ulcerative Colitis**	Gastroenterology. 150(2):389-395. e3	3.4
Calderon-Gómez, E; Bassolas-Molina, H; Mora-Buch, R; Dotti, I; Planell, N; Esteller, M; Gallego, M; Marti, M; Garcia-Martin, C; Martinez-Torro, C; Ordas, I; Singh, S; Panes, J; Benitez-Ribas, D; Salas, A	**Commensal-Specific CD4(+) Cells From Patients With Crohn's Disease Have a T-Helper 17 Inflammatory Profile**	Gastroenterology. 151(3):489-500. e3	3.7

Gambato, M; Perez-Del-Pulgar, S; Hedskog, C; Svarovskia, ES; Brainard, D; Denning, J; Curry, MP; Charlton, M; Caro-Pérez, N; Londono, MC; Koutsoudakis, G; Forns, X	**Hepatitis C Virus RNA Persists in Liver Explants of Most Patients Awaiting Liver Transplantation Treated With an Interferon-Free Regimen**	Gastroenterology. 151(4):633-636. e3	3.6
Martinez-Quetglas I, Pinyol R, Dauch D, Torrecilla S, Tovar V, Moeini A, Alsinet C, Portela A, Rodriguez-Carunchio L, Solé M, Lujambio A, Villanueva A, Thung S, Esteller M, Zender L, Llovet JM	**IGF2 Is Up-regulated by Epigenetic Mechanisms in Hepatocellular Carcinomas and Is an Actionable Oncogene Product in Experimental Models**	Gastroenterology. 151(6):1192-1205	3.11
Calderone, V; Gallego, J; Fernandez-Miranda, G; Garcia-Pras, E; Maillo, C; Berzigotti, A; Mejias, M; Bava, FA; Angulo-Urarte, A; Graupera, M; Navarro, P; Bosch, J; Fernandez, M; Mendez, R	**Sequential Functions of CPEB1 and CPEB4 Regulate Pathologic Expression of Vascular Endothelial Growth Factor and Angiogenesis in Chronic Liver Disease**	Gastroenterology. 150(4):982-997. e30	3.7
Aleix Prat, Maggie C. U. Cheang; Patricia Galván; Paolo Nuciforo; Laia Paré; Barbara Adamo; Montserrat Muñoz; Margarida Viladot; Michael F. Press, Robert Gagnon; Catherine Ellis, Stephen Johnston	**Prognostic Value of Intrinsic Subtypes in Hormone Receptor-Positive Metastatic Breast Cancer Treated With Letrozole With or Without Lapatinib**	JAMA Oncol. 2(10):1287-1294	3.4; 3.9
Estruch, R; Martinez-Gonzalez, MA; Corella, D; Salas-Salvado, J; Fito, M; Chiva-Blanch, G; Fiol, M; Gomez-Gracia, E; Aros, F; Lapetra, J; Serra-Majem, L; Pinto, X; Buil-Cosiales, P; Sorlí, JV; Munoz, MA; Basora-Gallisa, J; Lamuela-Raventós, RM; Serra-Mir, M; Ros, E	**Effect of a high-fat Mediterranean diet on bodyweight and waist circumference: a prespecified secondary outcomes analysis of the PREDIMED randomised controlled trial**	Lancet Diabetes Endocrinol. 4(8):666-76	3.7
Kuck KH, Fürnkranz A, Chun KR, Metzner A, Ouyang F, Schlüter M, Elvan A, Lim HW, Kueffer FJ, Arentz T, Albenque JP, Tondo C, Kühne M, Sticherling C, Brugada J; FIRE AND ICE Investigators	**Cryoballoon or radiofrequency ablation for symptomatic paroxysmal atrial fibrillation: Reintervention, rehospitalization, and quality-of-life outcomes in the FIRE and ICE trial**	Eur Heart J. 37(38):2858-2865	3.6
Reig O; Marin-Aguilera M; Carrera G; Jimenez N; Pare L; Garcia-Recio S; Gaba L; Pereira MV; Fernandez P; Prat A; Mellado B	**TMPRSS2-ERG in Blood and Docetaxel Resistance in Metastatic Castration-resistant Prostate Cancer**	Eur Urol. 70(5):709-713	1.3; 2.6
Dotti I; Mora-Buch R; Ferrer-Picón E; Planell N; Jung P; Masamunt MC; Leal RF; De Carpi JM; Llach J; Ordás I; Batlle E; Panes J; Salas A	**Alterations in the epithelial stem cell compartment could contribute to permanent changes in the mucosa of patients with ulcerative colitis**	Gut. pii: gutjnl-2016-312609	3.4
Carballal, S; Rodriguez-Alcalde, D; Moreira, L; Hernandez, L; Rodriguez, L; Rodriguez-Moranta, F; Gonzalo, V; Bujanda, L; Bessa, X; Poves, C; Cubiella, J; Castro, I; Gonzalez, M; Moya, E; Oquinena, S; Clofent, J; Quintero, E; Esteban, P; Pinol, V; Fernandez, F J; Jover, R; Cid, L; Lopez-Ceron, M; Cuatrecasas, M; Lopez-Vicente, J; Leoz, M L; Rivero-Sánchez, L; Castells, A; Pellise, M; Balaguer, F; Gastrointestinal Oncology Group of the Spanish Gastroenterological Association.	**Colorectal cancer risk factors in patients with serrated polyposis syndrome: a large multicentre study**	Gut. 65(11):1829-1837	3.5; 3.6
Jauregui-Amezaga, A; Rovira, M; Marin, P; Salas, A; Pino-Donnay, S; Feu, F; Elizalde, J I; Fernandez-Aviles, F; Martinez, C; Gutierrez, G; Rosinol, L; Carreras, E; Urbano, A; Lozano, M; Cid, J; Suarez-Lledo, M; Mensa, J; Rimola, J; Rodriguez, S; Masamunt, M C; Comas, D; Ruiz, I; Ramirez-Morros, A; Gallego, M; Ordas, I; Panes, J; Ricart, E	**Improving safety of autologous haematopoietic stem cell transplantation in patients with Crohn's disease**	Gut. 65(9):1456-1462	3.6
Blaya, D; Coll, M; Rodrigo-Torres, D; Vila-Casadesús, M; Altamirano, J; Llopis, M; Graupera, I; Perea, L; Aguilar-Bravo, B; Diaz, A; Banales, JM; Claria, J; Lozano, JJ; Bataller, R; Caballeria, J; Gines, P; Sancho-Bru, P	**Integrative microRNA profiling in alcoholic hepatitis reveals a role for microRNA-182 in liver injury and inflammation**	Gut. 65(9):1535-1545	3.5; 3.6
Morales-Ibanez, O; Affo, S; Rodrigo-Torres, D; Blaya, D; Millan, C; Coll, M; Perea, L; Odena, G; Knorpp, T; Templin, MF; Moreno, M; Altamirano, J; Miquel, R; Arroyo, V; Gines, P; Caballeria, J; Sancho-Bru, P; Bataller,	**Kinase analysis in alcoholic hepatitis identifies p90RSK as a potential mediator of liver fibrogenesis**	Gut. 65(5):840-851	3.6
Carballal, S; Maisterra, S; Lopez-Serrano, A; Gimeno-Garcia, AZ; Vera, MI; Marin-Garbriel, JC; Diaz-Tasende, J; Marquez, L; Alvarez, MA; Hernandez, L; De Castro, L; Gordillo, J; Puig, I; Vega, P; Bustamante-Balen, M; Acevedo, J; Penas, B; Lopez-Ceron, M; Ricart, E; Cuatrecasas, M; Jimeno, M; Pellise, M	**Real-life chromoendoscopy for neoplasia detection and characterisation in long-standing IBD**	Gut. gutjnl-2016-312332	3.3

Quintero, E; Carrillo, M; Leoz, ML; Cubiella, J; Gargallo, C; Lanas, A; Bujanda, L; Gimeno-García, AZ; Hernandez-Guerra, M; Nicolas-Perez, D; Alonso-Abreu, I; Morillas, JD; Balaguer, F; Muriel, A; Oncology Group of the Asociación Española de Gastroenterología (AEG).	**Risk of Advanced Neoplasia in First-Degree Relatives with Colorectal Cancer: A Large Multicenter Cross-Sectional Study**	Plos Med. 13(5):e1002008	3.6
Ferres-Coy, A; Galofre, M; Pilar-Cuellar, F; Vidal, R; Paz, V; Ruiz-Bronchal, E; Campa, L; Pazos, A; Caso, J R; Leza, J C; Alvarado, G; Montefeltro, A; Valdizan, E M; Artigas, F; Bortolozzi, A	**Therapeutic antidepressant potential of a conjugated siRNA silencing the serotonin transporter after intranasal administration**	Mol Psychiatr. 21(3):328-338	1.6
Molina, R; Marrades, RM; Auge, JM; Escudero, JM; Vinolas, N; Reguart, N; Ramirez, J; Filella, X; Molins, L; Agusti, A	**Assessment of a Combined Panel of Six Serum Tumor Markers for Lung Cancer**	Am J Respir Crit Care Med. 193(4):427-437	5.12
Faner, R; Cruz, T; Casserras, T; Lopez-Giraldo, A; Noell, G; Coca, I; Tal-Singer, R; Miller, B; Rodriguez-Roisin, R; Spira, A; Kalko, SG; Agusti, A	**Network Analysis of Lung Transcriptomics Reveals a Distinct B Cell Signature in Emphysema**	Am J Respir Crit Care Med. 193(11):1242-53	3.5
Machado-Carvalho, L; Martin, M; Torres, R; Gabasa, M; Alobid, I; Mullol, J; Pujols, L; Roca-Ferrer, J; Picado, C	**Low E-prostanoid 2 receptor levels and deficient induction of the IL-1beta/IL-1 type I receptor/COX-2 pathway: Vicious circle in patients with aspirin-exacerbated respiratory disease**	J Allergy Clin Immunol . 137(1):99-107.e7	4.9
Corbera-Bellalta, M; Planas-Rigol, E; Lozano, E; Terrades-Garcia, N; Alba, M A; Prieto-Gonzalez, S; Garcia-Martinez, A; Albero, R; Enjuanes, A; Espigol-Frigole, G; Hernandez-Rodriguez, J; Roux-Lombard, P; Ferlin, W G; Dayer, J M; Kosco-Vilbois, M H; Cid, M C	**Blocking interferon gamma reduces expression of chemokines CXCL9, CXCL10 and CXCL11 and decreases macrophage infiltration in ex vivo cultured arteries from patients with giant cell arteritis**	Ann Rheum Dis. 75(6):1177-1186	3.4
Brito-Zerón P, Kostov B, Solans R, Fraile G, Suárez-Cuervo C, Casanovas A, Rascón FJ, Qanneta R, Pérez-Alvarez R, Ripoll M, Akasbi M, Pinilla B, Bosch JA, Nava-Mateos J, Díaz-López B, Morera-Morales ML, Gheitasi H, Retamozo S, Ramos-Casals M; SS Study Group, Autoimmune Diseases Study Group (GEAS), Spanish Society of Internal Medicine (SEMI)	**Systemic activity and mortality in primary Sjögren syndrome: Predicting survival using the EULAR-SS Disease Activity Index (ESSDAI) in 1045 patients**	Ann Rheum Dis. 75(2):348-355	3.9; 5.9
Palomero, J; Vegliante, M C; Eguileor, A; Rodriguez, M L; Balsas, P; Martinez, D; Campo, E; Amador, V	**SOX11 defines two different subtypes of mantle cell lymphoma through transcriptional regulation of BCL6**	Leukemia. 30(7):1596-1599	3.3
Nadeu F, Delgado J, Royo C, Baumann T, Stankovic T, Pinyol M, Jares P, Navarro A, Martín-García D, Beà S, Salaverria I, Oldreive C, Aymerich M, Suárez-Cisneros H, Rozman M, Villamor N, Colomer D, López-Guillermo A, González M, Alcoceba M, Terol MJ, Colado E, Puente XS, López-Otín C, Enjuanes A, Campo E	**Clinical impact of clonal and subclonal TP53, SF3B1, BIRC3, NOTCH1 and ATM mutations in chronic lymphocytic leukemia**	Blood. 127(17):2122-30	3.5
Schmidt, J; Gong, S; Marafioti, T; Mankel, B; Gonzalez-Farre, B; Balague, O; Mozos, A; Cabecadas, J; Van Der Walt, J; Hoehn, D; Rosenwald, A; Ott, G; Dojcinov, S; Egan, C; Nadeu, F; Ramis-Zaldivar, JE; Clot, G; Barcena, C; Perez-Alonso, V; Endris, V; Penzel, R; Lome-Maldonado, C; Bonzheim, I; Fend, F; Campo, E; Jaffe, ES; Salaverria, I; Quintanilla-Martinez, L	**Genome-wide analysis of pediatric-type follicular lymphoma reveals low genetic complexity and recurrent alterations of TNFRSF14 gene**	Blood. 128(8):1101-11	1.3; 3.10
Palomo, M; Mir, E; Rovira, M; Escolar, G; Carreras, E; Diaz-Ricart, M	**What is going on between defibrotide and endothelial cells? Snapshots reveal the hot spots of their romance**	Blood. 127(13):1719-1727	3.5
Pauta, M; Rotllan, N; Fernandez-Hernando, A; Langhi, C; Ribera, J; Lu, M; Boix, L; Bruix, J; Jimenez, W; Suarez, Y; Ford, D A; Baldan, A; Birnbaum, M J; Morales-Ruiz, M; Fernandez-Hernando, C	**Akt-mediated FoxO1 inhibition is required for liver regeneration**	Hepatology. 63(5):1660-1674	3.6
Villanueva, C; Albillos, A; Genesca, J; Abraldes, J G; Calleja, J L; Aracil, C; Banares, R; Morillas, R; Poca, M; Penas, B; Augustin, S; Garcia-Pagan, J C; Pavel, O; Bosch, J	**Development of hyperdynamic circulation and response to beta-blockers in compensated cirrhosis with portal hypertension**	Hepatology. 63(1):197-206	3.6; 5.7; 5.8
Escorsell À, Pavel O, Cárdenas A, Morillas R, Llop E, Villanueva C, Garcia-Pagán JC, Bosch J; Variceal Bleeding Study Group	**Esophageal balloon tamponade versus esophageal stent in controlling acute refractory variceal bleeding: A multicenter randomized, controlled trial.**	Hepatology. 63(6):1957-67	2.3; 3.4

Aguero, F; Forner, A; Manzardo, C; Valdivieso, A; Blanes, M; Barcena, R; Rafecas, A; Castells, L; Abradelo, M; Torre-Cisneros, J; Gonzalez-Dieguez, L; Salcedo, M; Serrano, T; Jimenez-Perez, M; Herrero, J I; Gastaca, M; Aguilera, V; Fabregat, J; Del Campo, S; Bilbao, I; Romero, C J; Moreno, A; Rimola, A; Miro, J M	**Human immunodeficiency virus infection does not worsen prognosis of liver transplantation for hepatocellular carcinoma**	Hepatology. 63(2):488-498	3.3
Sapisochin, G; Facciuto, M; Rubbia-Brandt, L; Marti, J; Mehta, N; Yao, F; Vibert, E; Cherqui, D; Grant, DR; Hernandez-Alejandro, R; Dale, C; Cucchetti, A; Pinna, A; Hwang, S; Lee, S; Agopian, V; Busuttil, R; Rizvi, S; Heimbach, J; Montenovo, M; Reyes, J; Cesaretti, M; Soubrane, O; Reichman, T; Seal, J; Tw Kim, P; Klintmalm, G; Sposito, C; Mazzaferro, V; Dutkowski, P; Clavien, PA; Toso, C; Majno, P; Kneteman, N; Saunders, C; Bruix, J	**Liver transplantation for 'very early' intrahepatic cholangiocarcinoma. international retrospective study supporting a prospective assessment**	Hepatology. 64(4):1178-1188	3.4
Noronha Ferreira C; Seijo S; Plessier A; Silva-Junior G; Turon F; Rautou P-E; Baiges A; Bureau C; Bosch J; Hernández-Gea V; Valla D; Garcia-Pagan JC	**Natural history and management of esophagogastric varices in chronic noncirrhotic, nontumoral portal vein thrombosis**	Hepatology. 63(5):1640-1650	3.6; 3.10
Ferrer-Fàbrega J; Forner A; Liccioni A; Miquel R; Molina V; Navasa M; Fondevila C; Garcia-Valdecasas JC; Bruix J; Fuster J	**Prospective validation of ab initio liver transplantation in hepatocellular carcinoma upon detection of risk factors for recurrence after resection**	Hepatology. 63(3):839-849	4.2
Claria, J; Stauber, RE; Coenraad, MJ; Moreau, R; Jalan, R; Pavesi, M; Amoros, A; Titos, E; Alcaraz-Quiles, J; Oettl, K; Morales-Ruiz, M; Angeli, P; Domenicali, M; Alessandria, C; Gerbes, A; Wendon, J; Nevens, F; Trebicka, J; Laleman, W; Saliba, F; Welzel, TM; Albillos, A; Gustot, T; Benten, D; Durand, F; Gines, P; Bernardi, M; Arroyo, V	**Systemic inflammation in decompensated cirrhosis. Characterization and role in acute-on-chronic liver failure**	Hepatology. 64(4):1249-1264	3.6
Fernandez-Varo, G; Oro, D; Cable, E E; Reichenbach, V; Carvajal, S; de la Presa, B G; Wisniewski, K; Gines, P; Harris, G; Jimenez, W	**Vasopressin 1a receptor partial agonism increases sodium excretion and reduces portal hypertension and ascites in cirrhotic rats**	Hepatology. 63(1):207-216	5.7
Gispert JD, Suárez-Calvet M, Monté GC, Tucholka A, Falcon C, Rojas S, Rami L, Sánchez-Valle R, Lladó A, Kleinberger G, Haass C, Molinuevo JL	**Cerebrospinal fluid sTREM2 levels are associated with gray matter volume increases and reduced diffusivity in early Alzheimer's disease**	Alzheimers Dement. 12(12):1259-1272	5.1; 5.7; 5.8
Podlesniy P; Llorens F; Golanska E; Sikorska B; Liberski P; Zerr I; Trullas R	**Mitochondrial DNA differentiates Alzheimer from Creutzfeldt-Jakob disease**	Alzheimers Dement. 12(5):546-555	5.1
Orta-Mascaro, M; Consuegra-Fernandez, M; Carreras, E; Roncagalli, R; Carreras-Sureda, A; Alvarez, P; Girard, L; Simoes, I; Martínez-Florensa, M; Aranda, F; Merino, R; Martinez, VG; Vicente, R; Merino, J; Sarukhan, A; Malissen, M; Malissen, B; Lozano, F	**CD6 modulates thymocyte selection and peripheral T cell homeostasis**	J Exp Med. 213(8):1387-97	5.1; 5.8
Oro, D; Yudina, T; Fernandez-Varo, G; Casals, E; Reichenbach, V; Casals, G; Gonzalez De La Presa, B; Sandalinas, S; Carvajal, S; Puntes, V; Jimenez, W	**Cerium oxide nanoparticles reduce steatosis, portal hypertension and display antiinflammatory properties in rats with liver fibrosis**	J Hepatol. 64(3):691-698	1.1
Cerini, F; Vilaseca, M; Lafoz, E; Garcia-Irigoyen, O; Garcia-Caldero, H; Tripathi, DM; Avila, M; Reverter, JC; Bosch, J; Gracia-Sancho, J; Garcia-Pagan, JC	**Enoxaparin reduces hepatic vascular resistance and portal pressure in cirrhotic rats**	J Hepatol. 64(4):834-842	1.2
Ariza, X; Graupera, I; Coll, M; Sola, E; Barreto, R; Garcia, E; Moreira, R; Elia, C; Morales-Ruiz, M; Llopis, M; Huelin, P; Sole, C; Fabrellas, N; Weiss, E; Nevens, F; Gerbes, A; Trebicka, J; Saliba, F; Fondevila, C; Hernández-Gea V, Fernández J, Bernardi M, Arroyo V, Jiménez W, Deulofeu C, Pavesi M, Angeli P, Jalan R, Moreau R, Sancho-Bru P, Ginès P	**Neutrophil gelatinase-associated lipocalin is a biomarker of acute-on-chronic liver failure and prognosis in cirrhosis**	J Hepatol. 65(1):57-65	1.2; 1.6; 2.3
Sola, E; Kerbert, AJ; Verspaget, HW; Moreira, R; Pose, E; Ruiz, P; Cela, R; Morales-Ruiz, M; Lopez, E; Graupera, I; Sole, C; Huelin, P; Navarro, A A; Ariza, X; Jalan, R; Fabrellas, N; Benten, D; de Prada, G; Durand, F; Jimenez, W; van der Reijden, JJ; Fernandez, J; Van Hoek, B; Coenraad, MJ; Gines, P	**Plasma copeptin as biomarker of disease progression and prognosis in cirrhosis**	J Hepatol. 65(5):914-920	4.10

Lencioni R, Llovet JM, Han G, Tak WY, Yang J, Guglielmi A, Paik SW, Reig M, Kim DY, Chau GY, Luca A, del Arbol LR, Leberre MA, Niu W, Nicholson K, Meinhardt G, Bruix J	**Sorafenib or placebo plus TACE with doxorubicin-eluting beads for intermediate stage HCC: The SPACE trial**	J Hepatol. 64(5):1090-8	4.3; 4.4
Reig, M; Marino, Z; Perello, C; Inarrairaegui, M; Ribeiro, A; Lens, S; Diaz, A; Vilana, R; Darnell, A; Varela, M; Sangro, B; Calleja, JL; Forns, X; Bruix, J	**Unexpected early tumor recurrence in patients with hepatitis C virus -related hepatocellular carcinoma undergoing interferon-free therapy: a note of caution**	J Hepatol. 65(4):719-726	4.3; 5.4; 5.5
Marin-Jimenez, I; Nos, P; Domenech, E; Riestra, S; Gisbert, JP; Calvet, X; Cortes, X; Iglesias, E; Huguet, JM; Taxonera, C; Fernandez, R; Carpio, D; Gutierrez, A; Guardiola, J; Laria, LC; Sicilia, B; Bujanda, L; Cea-Calvo, L; Romero, C; Rincon, O; Julia, B; Panes, J	**Diagnostic Performance of the Simple Clinical Colitis Activity Index Self-Administered Online at Home by Patients With Ulcerative Colitis: CRONICA-UC Study**	Am J Gastroenterol. 111(2):261-268	4.2

Translation of knowledge and innovation

Clinical Guidelines

At IDIBAPS we are focused to benefit patients and society by getting valuable products to market. At IDIBAPS we have the expertise to undertake all aspects of negotiations required when dealing with commercial organisations and can also advise on the best plan of action for anyone who is exploring the option of setting up a new company. The Institute currently manages 51 patent families and 7 registered software, and we have signed 37 license agreements with several industry partners.

As a general perspective of IDIBAPS' impact on society, it is worth mentioning that every year our researchers participate in the elaboration of international clinical guides. These guidelines have a tremendous impact in patients' care and medical practice.

The list below reflects the participation of IDIBAPS researchers in 39 clinical guidelines published in 2016.

AUTHORS	TITLE	REFERENCE	Q; IF	GROUPS INVOLVED
Molinuevo JL, Cami J, Carne X, Carrillo MC, Georges J, Isaac MB, Khachaturian Z, Kim SY, Morris JC, Pasquier F, Ritchie C, Sperling R, Karlawish J	**Ethical challenges in preclinical Alzheimer's disease observational studies and trials: Results of the Barcelona summit**	Alzheimers Dement. 12(5):614-622	D1; 11.619	T3
Vitolo U, Seymour JF, Martelli M, Illerhaus G, Illidge T, Zucca E, Campo E, Ladetto M; ESMO Guidelines Committee	**Extranodal diffuse large B-cell lymphoma (DLBCL) and primary mediastinal B-cell lymphoma: ESMO Clinical Practice Guidelines for diagnosis, treatment and follow-up**	Ann Oncol. 27(suppl 5):v91-v102	D1; 9.269	5.1
Yates M, Watts RA, Bajema IM, Cid MC, Crestani B, Hauser T, Hellmich B, Holle JU, Laudien M, Little MA, Luqmani RA, Mahr A, Merkel PA, Mills J, Mooney J, Segelmark M, Tesar V, Westman K, Vaglio A, Yalçındağ N, Jayne DR, Mukhtyar C	**EULAR/ERA-EDTA recommendations for the management of ANCA-associated vasculitis**	Ann Rheum Dis. 75(9):1583-94	D1; 12.384	1.2
Gossec L, Smolen JS, Ramiro S, de Wit M, Cutolo M, Dougados M, Emery P, Landewé R, Oliver S, Aletaha D, Betteridge N, Braun J, Burmester G, Cañete JD, Damjanov N, FitzGerald O, Haglund E, Helliwell P, Kvien TK, Lories R, Luger T, Maccarone M, Marzo-Ortega H, McGonagle D, McInnes IB, Olivieri I, Pavelka K, Schett G, Sieper J, van den Bosch F, Veale DJ, Wollenhaupt J, Zink A, van der Heijde D	**European League Against Rheumatism (EULAR) recommendations for the management of psoriatic arthritis with pharmacological therapies: 2015 update**	Ann Rheum Dis. 75(3):499-510	D1; 12.384	1.1
Arrieta F, Iglesias P, Pedro-Botet J, Tebar FJ, Ortega E, Nubiola A, Pardo JL, Maldonado GF, Obaya JC, Matute P, Petrecca R, Alonso N, Sarabia E, Sanchez-Margalet V, Aleman JJ, Navarro J, Becerra A, Duran S, Aguilar M, Escobar-Jimenez F	**Diabetes mellitus and cardiovascular risk: Working group recommendations of Diabetes and Cardiovascular Disease of the Spanish Society of Diabetes (SED, 2015)**	Aten Primaria. 48(5):325-336	Q3; 1.098	3.14
Ferri C, Ramos-Casals M, Zignego AL, Arcaini L, Roccatello D, Antonelli A, Saadoun D, Desbois AC, Sebastiani M, Casato M, Lamprecht P, Mangia A, Tzioufas AG, Younossi ZM, Cacoub P; ISG-EHCV coauthors	**International diagnostic guidelines for patients with HCV-related extrahepatic manifestations. A multidisciplinary expert statement**	Autoimmun Rev. 15(12): 1145-1160	D1; 8.49	1.2
Klionsky DJ, Abdelmohsen K, Abe A, et al.	**Guidelines for the use and interpretation of assays for monitoring autophagy (3rd edition)**	Autophagy. 12(1):1-222	Q1; 9.108	5.8; 2.8; 3.4; 3.9
Manzano J, Salgado M, Maurel J, Martinez E, Macarulla T, Laquente B, Gonzalez E, Feliu J, Dotor E, Vera R	**SEOM Clinical Guideline for the treatment of pancreatic cancer (2016)**	Clin Transl Oncol. 18(12):1172-1178	Q3; 2.075	5.13
Aguilar-Salmeron R, Martinez-Sanchez L, Broto-Sumalla A, de Gamarra-Martinez EF, Garcia-Pelaez M, Nogue-Xarau S	**Recommendations for stocking and using antidotes in hospitals of varying levels of complexity**	Emergencias. 28(1):45-54	Q1; 2.917	1.7

Spaander MC, Baron TH, Siersema PD, Fuccio L, Schumacher B, Escorsell À, Garcia-Pagán JC, Dumonceau JM, Conio M, de Ceglie A, Skowronek J, Nordsmark M, Seufferlein T, Van Gossum A, Hassan C, Repici A, Bruno MJ	**Esophageal stenting for benign and malignant disease: European Society of Gastrointestinal Endoscopy (ESGE) Clinical Guideline.**	Endoscopy. 48(10):939-48	D1; 5.634	3.6
Polo Rodriguez R, Lozano F, González de Castro P, Jiménez MA, Miró O, Ramón Blanco J, Moreno D, Dueñas C, Muñoz Platón E, Fernández Escribano M, Sanz Sanz J, Fumaz C, Santos I, García F, Téllez MJ, González Montero R, Vals Jimenez MV, Losa J, Valle Robles ML, Iribarren J, Ortega E	**Executive summary of the consensus document on post-exposure prophylaxis against HIV, HBV and HCV in adults and children**	Enferm Infecc Microbiol Clin. 34(2):122-31	Q3; 1.53	1.7
Iribarren JA, Rubio R, Aguirrebengoa K, Arribas JR, Baraia-Etxaburu J, Gutiérrez F, Lopez Bernaldo de Quirós JC, Losa JE, Miró JM, Moreno S, Pérez Molina J, Podzamczer D, Pulido F, Riera M, Rivero A, Sanz Moreno J, Amador C, Antela A, Arazo P, Arrizabalaga J, Bachiller P, Barros C, Berenguer J, Caylá J, Domingo P, Estrada V, Knobel H, Locutura J, López Aldeguer J, Llibre JM, Lozano F, Mallolas J, Malmierca E, Miralles C, Miralles P, Muñoz A, Ocampo A, Olalla J, Pérez I, Pérez Elías MJ, Pérez Arellano JL, Portilla J, Ribera E, Rodríguez F,Santín M, Sanz Sanz J, Téllez MJ, Torralba M, Valencia E, Von Wichmann MA; GESIDA/SEIMC Writing Committee	**Executive summary: Prevention and treatment of opportunistic infections and other coinfections in HIV-infected patients: May 2015**	Enferm Infecc Microbiol Clin. 34(8):517-23	Q3; 1.53	1.3
Galiè N, Humbert M, Vachiery JL, Gibbs S, Lang I, Torbicki A, Simonneau G, Peacock A, Vonk Noordegraaf A, Beghetti M, Ghofrani A, Gomez Sanchez MA, Hansmann G, Klepetko W, Lancellotti P, Matucci M, McDonagh T, Pierard LA, Trindade PT, Zompatori M, Hoeper M, Aboyans V, Vaz Carneiro A, Achenbach S, Agewall S, Allanore Y, Asteggiano R, Paolo Badano L, Barberà JA, Bouvaist H, Bueno H, Byrne RA, Carerj S, Castro G, Erol Ç, Falk V, Funck-Brentano C, Gorenflo M, Granton J, Iung B, Kiely DG, Kirchhof P, Kjellstrom B, Landmesser U, Lekakis J, Lionis C, Lip GY, Orfanos SE, Park MH, Piepoli MF, Ponikowski P, Revel MP, Rigau D, Rosenkranz S, Völler H, Luis Zamorano J	**2015 ESC/ERS Guidelines for the diagnosis and treatment of pulmonary hypertension: The Joint Task Force for the Diagnosis and Treatment of Pulmonary Hypertension of the European Society of Cardiology (ESC) and the European Respiratory Society (ERS).**	Eur Heart J. 37(1):67-119	D1; 8.332	2.7
Aliberti S, Masefield S, Polverino E, de Soyza A, Loebinger MR, Menendez R, Ringshausen FC, Vendrell M, Powell P, Chalmers JD	**Research priorities in bronchiectasis: a consensus statement from the EMBARC Clinical Research Collaboration**	Eur Heart J. 48(3):632-647	D1; 8.332	2.6
Garbe C, Peris K, Hauschild A, Saiag P, Middleton M, Bastholt L, Grob JJ, Malvehy J, Newton-Bishop J, Stratigos AJ, Pehamberger H, Eggermont AM; European Dermatology Forum (EDF).; European Association of Dermato-Oncology (EADO).; European Organisation for Research and Treatment of Cancer (EORTC)	**Diagnosis and treatment of melanoma. European consensus-based interdisciplinary guideline - Update 2016**	Eur J Cancer. 63():201-217	Q1; 6.163	5.5
Berrocal A, Espinosa E, Marín S, Malvehy J, Moreno D, Lozano MD, Martin-Algarra S, Lopez JA, Conill C, Rodriguez-Peralto JL	**Spanish Multidisciplinary Melanoma Group (GEM) guidelines for the management of patients with advanced melanoma**	Eur J Dermatol. 25(5):392-403	Q2; 2.069	5.5
Peñalver FJ, Delgado J, Loscertales J, Sastre JL, Peña A, Olave MT, Osorio S, de la Fuente A, Salar A, Grande C, Pérez Ceballos E, Debén G, Echeveste A, Casado F, de la Rubia J, Lahuerta JJ, Mateos MV	**Recommendations on the clinical use of bendamustine in lymphoproliferative syndromes and multiple myeloma**	Eur J Haematol. 96(5):532-40	Q3; 2.544	5.7
Brito-Zerón P, Theander E, Baldini C, Seror R, Retamozo S, Quartuccio L, Bootsma H, Bowman SJ, Dörner T, Gottenberg JE, Mariette X, Bombardieri S, de Vita S, Mandl T, Ng WF, Kruize AA, Tzioufas A, Vitali C, Buyon J, Izmirly P, Fox R, Ramos-Casals M; Eular Sjögren Syndrome Task Force	**Early diagnosis of primary Sjogren's syndrome: EULAR-SS task force clinical recommendations**	Expert Rev Clin Immunol. 12(2):137-156	Q3; 2.596	1.2

Ballbè M, Gual A, Nieva G, Saltó E, Fernández E; Tobacco and Mental Health Working Group	**Deconstructing myths, building alliances: a networking model to enhance tobacco control in hospital mental health settings**	Gac Sanit. 30(5):389-92	Q3; 1.509	4.7
Ryom L, Boesecke C, Gisler V, Manzardo C, Rockstroh JK, Puoti M, Furrer H, Miro JM, Gatell JM, Pozniak A, Behrens G, Battegay M, Lundgren JD	**Essentials from the 2015 European AIDS Clinical Society (EACS) guidelines for the treatment of adult HIV-positive persons**	HIV Med. 17(2):83-88	Q2; 3.341	1.3
Lopez-Jaramillo, P; Coca, A; Sanchez, R; Zanchetti, A	**Hypertension Guidelines: Is It Time to Reappraise Blood Pressure Thresholds and Targets? Position Statement of the Latin American Society of Hypertension**	Hypertension. 68(2):257-262	D1; 6.35	2.4
Wormald PJ, Hoseman W, Callejas C, Weber RK, Kennedy DW, Citardi MJ, Senior BA, Smith TL, Hwang PH, Orlandi RR, Kaschke O, Siow JK, Szczygielski K, Goessler U, Khan M, Bernal-Sprekelsen M, Kuehnel T, Psaltis A.	**The International Frontal Sinus Anatomy Classification (IFAC) and Classification of the Extent of Endoscopic Frontal Sinus Surgery (EFSS)**	Int Forum Allergy Rhinol. 6(7):677-96	Q1; 2.35	2.8
Dirschka T, Gupta G, Micali G, Stockfleth E, Basset-Séguin N, Del Marmol V, Dummer R, Jemec GB, Malvehy J, Peris K, Puig S, Stratigos AJ, Zalaudek I, Pellacani G	**Real-world approach to actinic keratosis management: practical treatment algorithm for office-based dermatology**	J Dermatol Treat. 28(5):431-442	Q2; 1.857	5.5
European Association for the Study of the Liver (EASL)	**EASL Clinical Practice Guidelines on the management of benign liver tumours**	J Hepatol. 65(2):386-98	D1; 10.59	3.5
European Association for the Study of the Liver	**EASL Clinical Practice Guidelines: Liver transplantation**	J Hepatol. 64(2):433-485	D1; 10.59	3.3
Garcia-Pagàn JC, Buscarini E, Janssen HL, Leebeck FW, Plessier A, Rubbia-Brandt L, Senzolo M, Schouten JN, Tripodi A, Valla DC	**EASL Clinical Practice Guidelines: Vascular diseases of the liver.**	J Hepatol. 64(1):179-202	D1; 10.59	3.6
Moss JG, Belli AM, Coca A, Lee M, Mancia G, Peregrin JH, Redon J, Reekers JA, Tsioufis C, Vorwerk D, Schmieder RE	**Executive summary of the joint position paper on renal denervation of the Cardiovascular and Interventional Radiological Society of Europe and the European Society of Hypertension**	J Hypertens. 34(12):2303-2304	Q1; 5.062	2.4
Onwubere B, Coca A, Damasceno A, Kadiri S, Kruger R, Lemogoum D, M'Buyamba-Kabangu JR, Okpechi I, Poulter N, Rayner B, Seedat YK, Schutte AE, Touyz RM	**Report of the International Society of Hypertension Teaching Seminar organized by the International Society of Hypertension Africa Regional Advisory Group: Maputo, Mozambique, 2016**	J Hypertens. 34(10):2105-7	Q1; 5.062	2.4
Stergiotou I, Borobio V, Bennasar M, Goncé A, Mula R, Nuruddin M, Soler A, Borrell A	**Transcervical chorionic villus sampling: a practical guide**	J Matern-Fetal Neonatal Med. 29(8):1244-51	Q3; 1.674	3.2
Goodwin GM, Haddad PM, Ferrier IN, Aronson JK, Barnes T, Cipriani A, Coghill DR, Fazel S, Geddes JR, Grunze H, Holmes EA, Howes O, Hudson S, Hunt N, Jones I, Macmillan IC, McAllister-Williams H, Miklowitz DR, Morriss R, Munafò M, Paton C, Saharkian BJ, Saunders K, Sinclair J, Taylor D, Vieta E, Young AH	**Evidence-based guidelines for treating bipolar disorder: Revised third edition recommendations from the British Association for Psychopharmacology**	J Psychopharmacol. 30(6):495-553	Q1; 3.637	4.7
Svensson LG, Gillinov AM, Weisel RD, Keshavjee S, Bacha EA, Moon MR, Cameron DE, Sugarbaker DJ, Adams DH, Gaynor JW, Coselli JS, Del Nido PJ, Jones D, Sundt TM, Cohn LH, Pomar JL, Lytle BW, Schaff HV	**The American Association for Thoracic Surgery Consensus Guidelines: Reasons and purpose**	J Thorac Cardiovasc Surg. 151(4):935-9.e1	D1; 3.494	2.1
Sharma A, Bhatt DL, Calvo G, Brown NJ, Zannad F, Mentz RJ	**Heart failure event definitions in drug trials in patients with type 2 diabetes**	Lancet Diabetes Endocrinol. 4(4):294-296	D1; 16.32	T3
Graus F, Titulaer MJ, Balu R, Benseler S, Bien CG, Cellucci T, Cortese I, Dale RC, Gelfand J, Geschwind M, Glaser CA, Honnorat J, Höftberger R, Iizuka T, Irani SR, Lancaster E, Leypoldt F, Prüss H, Rae-Grant A, Reindl M, Rosenfeld MR, Rostasy K, Saiz A, Venkatesan A, Vincent A, Wandinger K-P, Waters P, Dalmau J	**A clinical approach to diagnosis of autoimmune encephalitis**	Lancet Neurol. 15(4):391-404	D1; 23.468	4.10

Roncador G, Engel P, Maestre L, Anderson AP, Cordell JL, Cragg MS, Šerbec VČ, Jones M, Lisnic VJ, Kremer L, Li D, Koch-Nolte F, Pascual N, Rodríguez-Barbosa JI, Torensma R, Turley H, Pulford K, Banham AH	**The European antibody network's practical guide to finding and validating suitable antibodies for research**	mAbs. 8(1):27-36	Q1; 4.161	1.4
Forner A, Reig M, Varela M, Burrel M, Feliu J, Briceño J, Sastre J, Martí-Bonmati L, Llovet JM, Bilbao JI, Sangro B, Pardo F, Ayuso C, Bru C, Tabernero J, Bruix J	**Diagnosis and treatment of hepatocellular carcinoma. Update consensus document from the AEEH, SEOM, SERAM, SERVEI and SETH**	Med Clin. 146(11):511.e1-511.e22	Q2; 1.267	3.5
Capdevila JA, Guembe M, Barberan J, de Alarcon A, Bouza E, Farinas MC, Galvez J, Goenaga MA, Gutierrez F, Kestler M, Llinares P, Miro JM, Montejo M, Munoz P, Rodriguez-Creixems M, Sousa D, Cuenca J, Mestres CA	**2016 Expert consensus document on prevention, diagnosis and treatment of short-term peripheral venous catheter-related infections in adult**	Rev Esp Quimioter. 29(4):230-238	Q4; 1.014	1.3
Montejo AL, Arango C, Bernardo M, Carrasco JL, Crespo-Facorro B, Cruz JJ, del Pino J, Garcia Escudero MA, Garcia Rizo C, Gonzalez-Pinto A, Hernandez AI, Martin Carrasco M, Mayoral Cleries F, Mayoral van Son J, Mories MT, Pachiarotti I, Ros S, Vieta E	**Spanish consensus on the risks and detection of antipsychotic drug-related hyperprolactinaemia**	Rev Psiquiatr Salud Ment. 9(3):158-173	Q3; 1.65	4.7
Khalil A, Rodgers M, Baschat A, Bhide A, Gratacos E, Hecher K, Kilby M D, Lewi L, Nicolaides K, Oepkes D, Reed K, Raine-Fenning N, Salomon L J, Sotiradis A, Thilaganathan B, Ville Y	**ISUOG Practice Guidelines: The Role of Ultrasound in Twin Pregnancy**	Ultrasound Obstet Gynecol. 47(2):247-263	D1; 4.254	3.2
Garriga M, Pacchiarotti I, Kasper S, Zeller SL, Allen MH, Vázquez G, Baldaçara L, San L, McAllister-Williams H, Fountoulakis K, Courtet P, Naber D, Chan EW, Fagiolini A, Möller HJ, Grunze H, Llorca PM, Jaffe RL, Yatham LN, Hidalgo Mazzei D, Passamar M, Messer T, Bernardo M, Vieta E	**Assessment and management of agitation in psychiatry: Expert consensus**	World J Biol Psychiatry. 17(2):86-128	Q1; 4.159	4.7

Clinical Trials

The IDIBAPS constitutes the ideal setting for completing a number of the crucial steps in the development of new medical products. Basic biomedical research and applied clinical research, together with specialized healthcare practice, are aspects of IDIBAPS that may be very useful for the development of drugs and medical devices.

The adjacent graphics summarize the number of active clinical trials in 2016.

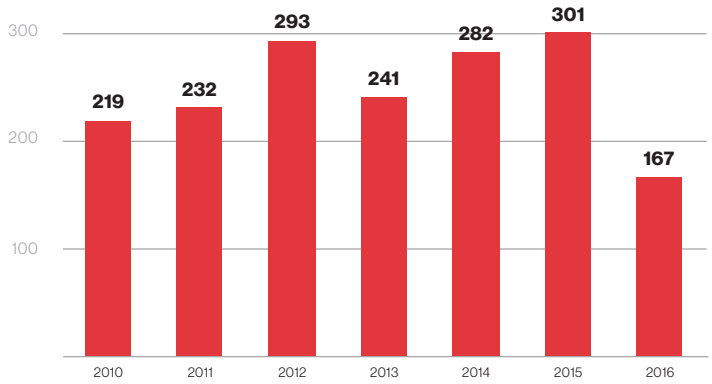


FIGURE TITLE
New clinical trials

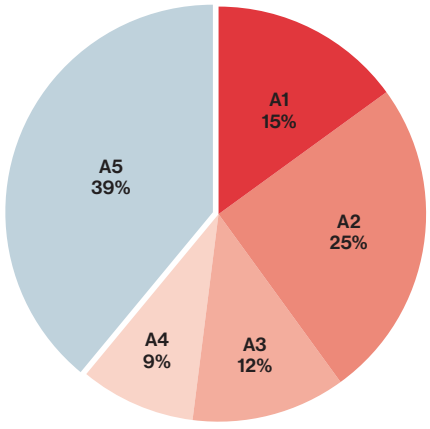


FIGURE TITLE
Active clinical trials by research area

- A1
- A2
- A3
- A4
- A5

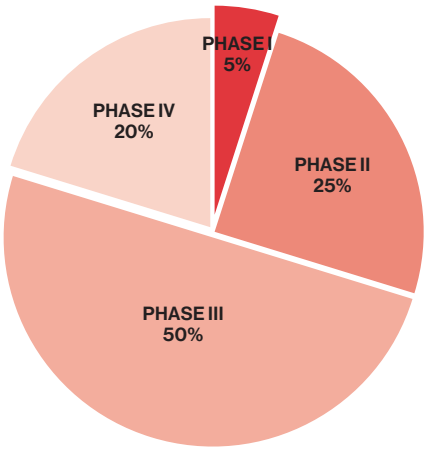


FIGURE TITLE
Number of clinical trials with active recruitment: 484

- PHASE I: 24
- PHASE II: 120
- PHASE III: 242
- PHASE IV: 98

New observational/non comparative phase IV studies: 54

Patents

Patent applications filed during 2016 are listed below:

European patent applications

TITLE
A medical system and a device based on microwave technology for prevention and diagnosis of diseases
OWNERS
IDIBAPS, others
IDIBAPS INVENTORS
Maria Gloria Fernàndez
PATENT NUMBER (APPLICATION DATE)
EP16152033 (20/01/2016)

TITLE
Nucleic acid constructs and vectors for oncoselective expression of a transgene
OWNERS
IDIBAPS, others
IDIBAPS INVENTORS
Cristina Fillat; Eneko Villanueva
PATENT NUMBER (APPLICATION DATE)
EP16382108 (11/03/2016)

TITLE
Ceria nanoparticles for use in the treatment of hepatocellular carcinoma
OWNERS
IDIBAPS, others
IDIBAPS INVENTORS
Wladimiro Jiménez Povedano;
PATENT NUMBER (APPLICATION DATE)
EP16163838 (05/04/2016)

TITLE
In vitro method for identifying pancreatic cancer or intraductal papillary mucinous neoplasm of the pancreasantiviral
OWNERS
IDIBAPS, others
IDIBAPS INVENTORS
Antoni Castells Garangou;
PATENT NUMBER (APPLICATION DATE)
EP16382182 (26/04/2016)

TITLE
A computer implemented method to identify the ventricular arrhythmogenic substrate in myocardial scar or fibrotic tissue and computer programs thereof
OWNERS
IDIBAPS, others
IDIBAPS INVENTORS
Antonio Berruezo Sánchez
PATENT NUMBER (APPLICATION DATE)
EP16002222 (17/10/2016)

TITLE
Combined cd6 therapy for treatment of infectious diseases and related inflammatory processes
OWNERS
IDIBAPS, others
IDIBAPS INVENTORS
Antonio Berruezo Sánchez
PATENT NUMBER (APPLICATION DATE)
EP16382540 (18/11/2016)

US patent applications

TITLE
Evaluation of Mantle Cell Lymphoma and Methods Related Thereto
OWNERS
IDIBAPS, others
IDIBAPS INVENTORS
Elias Campo
PATENT NUMBER (APPLICATION DATE)
US 62325213 (20/04/2016)

PCT extension applications

TITLE
Método in vitro y kit para el pronóstico o predicción de la respuesta al tratamiento con agentes antipsicóticos por parte de pacientes que han sufrido un primer episodio psicótico
OWNERS
IDIBAPS, others
IDIBAPS INVENTORS
Miguel Bernardo Arroyo
REGISTRATION
Spanish patent: P201530918 (26/06/2015)
PCT extension: PCT/ES2016/070473 (23/06/2016)

TITLE
Motor Training
OWNERS
IDIBAPS, others
IDIBAPS INVENTORS
M. Victoria Sanchez
REGISTRATION
European patent: EP15382406 (31/07/2015)
PCT extension: PCT/EP2016/068201 (29/07/2016)

TITLE
Physiological Response
OWNERS
IDIBAPS, others
IDIBAPS INVENTORS
M. Victoria Sanchez
REGISTRATION
European patent: EP15382405 (31/07/2015)
PCT extension: PCT/EP2016/068205 (29/07/2016)

TITLE
Methods for differentiating cells into hepatic stellate cells
OWNERS
IDIBAPS, others
IDIBAPS INVENTORS
Pau Sancho; Mar Coll; Luis Perea
REGISTRATION
UK patent: GB1521179 (01/12/2015)
PCT extension: PCT/EP2016/079464 (01/12/2016)

TITLE
Method for the sub-classification of patients suffering from Parkinson disease
OWNERS
IDIBAPS, others
IDIBAPS INVENTORS
Eduardo Tolosa
REGISTRATION
European patent: EP15382635 (17/12/2015)
PCT extension: PCT/EP2016/081736 (19/12/2016)

TITLE
Her2 as a predictor of response to dual her2 blockade in the absence of cytotoxic therapy
OWNERS
IDIBAPS, others
IDIBAPS INVENTORS
Aleix Prat
REGISTRATION
PCT extension: PCT/EP2016/080056 (07/12/2016)

License Agreements

National phase applications

TITLE
Bioreactor for cell co-culture
OWNERS
IDIBAPS, others

IDIBAPS INVENTORS
Jordi Gracia-Sancho; Carmen Peralta; Jaume Bosch
PCT NUMBER
PCT/EP2015/054683
INTERNATIONAL SITUATION (APPLICATION DATE)
European Union, US (5/03/2015)

TITLE
A computer implemented method for identifying channels from representative data in a 3D volume and a computer program product implementing the method
OWNERS
IDIBAPS, others
IDIBAPS INVENTORS
Antonio Berruezo; Josep Brugada; Lluis Mont
PCT NUMBER
PCT/IB2015/000730
INTERNATIONAL SITUATION (APPLICATION DATE)
European Union, US (22/05/2015)

The license agreements signed during 2016 are listed below:

COMPANY
ReadyCell
PRINCIPAL INVESTIGATOR
Dr. Jordi Gràcia-Sancho
LICENSED
Know how

COMPANY
HCB/CDB
PRINCIPAL INVESTIGATOR
Dr. Francesc Graus
LICENSED
Know how

Spin-Off Companies

The new knowledge generated at IDIBAPS usually completes its cycle when transferred to the industry. In other cases the link with the centre is maintained through the creation of spin-off companies. Spin-off companies created by IDIBAPS researchers are:

Virtual Bodyworks (2015)
Spin-off company promoted by Dr. Maria Victoria Sánchez-Vives that has developed applications for immersive virtual reality technologies aimed to improve the training and rehabilitation of people with emotional-cognitive limitations, and neurological and orthopaedic injuries.
http://www.neurotransvirtual.com

Aelix Therapeutics (2015)
Spin-off company promoted by Dr. Josep M. Gatell that has developed therapeutic vaccines and immunotherapies to treat HIV infection.
http://www.aelixtherapeutics.com

Transplant Biomedicals (2014)
Spin-off company promoted by Dr. Carmen Peralta, Dr. Anna Novials and Dr. Jordi Gracia-Sancho for the preservation and transport of organs and biological products.
www.transplantbiomed.com

Immunnovative Developments S.L. (2010)
Spin-off company promoted by Dr. Francisco Lozano for the development of new biological therapies for the prevention and treatment of inflammatory disorders with an immune basis.
www.immunnovative.com

Bionure (2009)
Spin-off company promoted by by Dr. Pablo Villoslada for the development of new neuroprotective drugs for the treatment of multiple sclerosis and other neurological diseases.
www.bionure.com

Transmural Biotech (2009)
Spin-off company promoted by Dr. Eduard Gratacós for the development and commercialization of different diagnostic devices in the gynaecology field.
www.transmuralbiotech.com

Research projects

The IDIBAPS collaboration network is wide reaching, spanning the five continents and more than 40 countries. IDIBAPS' researchers participate in hundreds of national and international consortia:

- **IDIBAPS participates in both the Spanish Biomedical Research Centre (CIBER) and the Research Centre for Neurological Diseases Foundation (CIEN FOUNDATION) from the Instituto de Salud Carlos III (ISCIII).** In the CIBER, IDIBAPS research groups are involved in all of its eight thematic areas (CIBER-BBN, CIBERDEM, CIBEREHD, CIBERER, CIBERES, CIBERESP, CIBEROBN and CIBERSAM). A total number of 28 research groups from IDIBAPS participate in these national networks, and 1 of them is coordinated by an IDIBAPS researcher: CIBER of Hepatic and Gastrointestinal Diseases (CIBEREHD).

- **21 IDIBAPS research groups also participate in 12 National Networks from ISCIII.** 2 of these national networks are coordinated by IDIBAPS: AIDS and Multiple Sclerosis National Networks.

- Funding of the European Framework Programmes **(7th Framework Programme or Horizon 2020)** or other bodies such as the **Consumers, Health, Agriculture and Food Executive Agency (Chafea)** allows IDIBAPS research groups to participate in 66 international collaborative projects from which 10 are coordinated.

- **ERA-NET** is an instrument that implements one substantial call through **shared management between the European Commission and Member States.** The European Commission contributes to the call with funds and the Member States can contribute financially in cash or in kind. 12 IDIBAPS research groups are involved in ERA-NETs calls and 2 are coordinated.

- IDIBAPS' researchers also participate in **many international consortia** such as: Colorectal Cancer Genetics (COGENT), International Cancer Genome Consortium (ICGC), International Consortium for inflammatory bowel disease genetics, European Clinical Research Infrastructures Network (ECRIN), Hepatoellular Carcinoma International (HCC) Genomic Consortium, and the European Infrastructure for Translational Medicine (EATRIS).

Research Funding

The funding obtained from public and private institutions is one of the main driving forces of research 2016 that make the excellence of the IDIBAPS possible. The table below shows the large number of new projects initiated in 2016:

It is worth to mention that many projects as well as IDIBAPS facilities and equipments have been co-funded by the European Regional Development Fund (ERDF).

	NUMBER OF PROJECTS
COMPETITITVE PUBLIC FUNDING	**92**
Catalan institutions	**5**
Agència per la competitivitat de l'empresa (ACCIÓ)	4
Agència de Gestió d'Ajuts Universitaris i de Recerca (AGAUR)	1
Spanish institutions	**71**
Instituto de Salud Carlos III (ISCIII)	49
Ministerio de Economía y Competitividad (MINECO)	22
International institutions	**16**
European Commission	15
National Institutes of Health (NIH)	1

COMPETITIVE PRIVATE FUNDING	**33**
Catalan institutions	**11**
Fundació La Marató de TV3	9
Fundació Academia de Ciències Mèdiques i de la Salut de Catalunya i Balears	2
Spanish institutions	**11**
GILEAD Sciencies	4
Fundacion de Investigacion Medica Mutua Madrileña	2
Asociación Española de Gastroenterología (AEG)	1
Fundacion Tatiana Perez de Guzman el Bueno	1
Sociedad Española de Reumatología Pediátrica (SERPE)	1
Fundación Alicia Koplowitz	1
Fundación Sociedad Española de Oncología Médica (SEOM)	1
International institutions	**11**
Michael J. Fox Foundation for Parkinson	2
Worldwide Cancer Research	2
European Society of Anaesthesiology (ESA)	1
European Society of Clinical Microbiology and Infectious Diseases (ESCMID)	1
GILEAD Sciencies	1
CHDI Foundation	1
Merck KGaA	1
NARSAD	1
The Marfan Foundation	1

Spanish Biomedical Networks

In the last years much of the economical effort from the Instituto de Salud Carlos III (Spanish Ministry of Economy and Competitiveness) has been focused in the consolidation of the Spanish National Research Networks, an initiative that includes the Networked Biomedical Research Centres (Centros de Investigación Biomédica en Red, CIBERs) and the Cooperative Research Topic Networks (Redes Temáticas de Investigación Cooperativa en Salud, RETICs).

These structures represent a modern and cooperative way of understanding biomedical research and have achieved excellent results. IDIBAPS participates in most of these virtual research structures and leads three of them, as described below:

CIBER FOR HEPATIC AND DIGESTIVE DISEASES (Centro de Investigación Biomédica en Red de Enfermedades Hepáticas y Digestivas, CIBERehd)

DIRECTOR

Dr. Jordi Bruix,
IDIBAPS team leader
www.ciberehd.org

CIBERehd was created in 2006, and in 2016 it consisted of 50 groups (42 regular groups and 7 linked clinical groups) from 26 organisations throughout Spain.

The main objectives of the CIBER for Hepatic and Digestive Diseases are as follows:

- To prime excellence research in liver and digestive diseases at the national and international level, while reinforcing the interaction between the best Spanish groups.
- To take an approach preferably leaning more towards translational research, encouraging the accomplishment of results that can be transferred into clinical practice and into biotechnological applications.
- To act as a mobilising and invigorating agent nationwide and become a benchmark in international cooperation.

The scientific activity of the CIBERehd is accomplished through ambitious research programs and strategic actions. These are complemented by the training programme, the scientific and technological platforms and the availability of common resources, such as tissue and sera collections.

The CIBERehd has 4 major research programs:

P1. Liver damage mechanisms/evolution into advanced cirrhosis and transplant
P2. Gastrointestinal physiopathology: inflammatory bowel disease and motility disorders
P3. Epidemiology, prevention and treatment of hepatitis virus infection
P4. Hepatic and Digestive Oncology

AIDS RESEARCH NETWORK (Red de Investigación en Sida, RIS)

DIRECTOR

Dr. Josep Maria Gatell,
IDIBAPS team leader
www.retic-ris.net

The AIDS Research Network was created in 2003, and established the bases for driving original and innovative research in the field of AIDS.

The AIDS network is composed by 19 core research groups, 17 associate clinical groups and includes groups with different experience in virology, immunology, and cellular and molecular biology.

The AIDS network aims to address original problems through novel technological approaches. A series of large scale projects have been defined. The strategies used to reach the established objectives are based on references which can only be addressed through network-based effort and the creation of different platforms. A large cohort has been defined, corresponding to different groups of patients of homogeneous characteristics which allows us to evaluate the efficacy of new treatment protocols and intervention strategies, and to carry out studies on toxicity, resistance and pathogenesis. The particular characteristics of the HIV epidemic in our country allows the study of certain pathologies associated to HIV infection, such as hepatitis C coinfection.

European Projection



SPANISH MULTIPLE SCLEROSIS NETWORK (Red Española de Esclerosis Múltiple, REEM)

DIRECTOR

Dr. Pablo Villoslada, IDIBAPS group leader
www.reem.es

REEM (Spanish Multiple Sclerosis Network) is a thematic Network of Cooperative Research of the Institute of Health Carlos III from 2008, the Ministry of Economy and Competitiviness where we investigate the causes of the treatment of Multiple Sclerosis through the collaboration of groups throughout Spain with the aim of improving the quality of life of people suffering from this disease.

Specifically, our objectives are:

1. Develop a cooperative research program on the causes (etiology), diagnosis and treatment of Multiple Sclerosis through collaboration between research groups in Spain.
2. Promote shared resources for different centers and for the National Health System like clinical databases and samples (biobanks) to enable the completion of scientific studies of high quality and relevant resources.
3. Train researchers in the knowledge of Multiple Sclerosis, through courses, conferences and stages in laboratories.
4. Improve therapies and quality of life of more than 2 million people with the disease worldwide.

IDIBAPS researchers are currently participating in 66 projects funded by the European Commission (from FPVII, H2020, Chafea and others). From these 66 projects: 10 are consortiums coordinated by IDIBAPS researchers, in 48 of them IDIBAPS researchers participate as partners, and 8 are monocontract (1 ERC Consolidator grant, 6 Marie Słodowska-Curie projects and 1 initiative belonging to the EU Health programme).

In 2016, Dr. Jaime de la Rocha earned the first ERC Consolidator grant at IDIBAPS with the project entitled: Neural circuit dynamics underlying expectation and their impact on the variability of perceptual choices.

The collaborative 10 European projects led by IDIBAPS researchers are presented below:

ALICE RAP - Addictions and Lifestyles In Contemporary Europe - Reframing Addictions Project
Dr. Antoni Gual
2011 - 2016
Call: CE_FP7-SSH-2010-1
Official code: 266813

iHIVarna - Therapeutic TriMix / mRNA based Vaccine in Chronic HIV-1 Infected Patients Receiving Antiretroviral Therapy
Dr. Felipe Garcia
2013 - 2017
Call: CE-FP7-HEALTH-IN1-13
Official code: 602570

CORTICONIC - Computations and Organization of Retes Through the Interaction of Computational, Optical and Neurophysiological Investigations of the Cerebral
Dr. Maria Victoria Sánchez Vives
2013 - 2016
Call: CE-FP7-ICT-2011-9
Official code: 600806

e-ENERCA - New e-Health Services for the European Reference Network on Rare Anaemias
Dr. Juan Luis Vives-Corrons
2013 - 2016
Call: CE_SANCO_12
Official code: 295882

EuCOLONGENE – Cooperation Studies on Inherited Susceptibility to Colorectal Cancer
Dr. Sergi Castellví
2013 - 2017
Call: CE-COST-2012
Official code: OC-2012-1-11711

CLEVER - Contrast-enhanced uLtrasound for livEr-disease eValuation: development and validation of a novel E-Health-software for Risk-stratification
Dr. Jaume Bosch
2013 - 2017
Call: CE_PEOPLE-2013-IAPP
Official code: 612273

LEADER - Looking at Economic Analyses of Drugs and Economic Recession
Dr. Antoni Gual
2015 - 2016
Call: CE-JUST-2013-DPIP-AG
Official code: JUST/2013/DPIP/AG/4755

SloW-Dyn. Dinámica de las oscilaciones lentas: experimentos, análisis, modelos e intervenciones terapéuticas.
Dr. Maria Victoria Sanchez Vives
2015-2018
call: FlaG-ERA ministerio de Economía y Competividad (MINECO)
official code: PCIN-2015-162-C02-01

Sys4MS: Cuidado personalizado de salud en la Esclerosis Múltiple usando herramientas de medicina de sistemas.
Dr. Pablo Villoslada
2016-2019
call: ERANET 2015
official code: ID43

Coordinated international initiatives

PRIORS: Neural circuit dynamics underlying expectation and their impact on the variability of perceptual choices.
Dr. Jaime de la Rocha
2016-2021
Call: ERC ERC-2015-CoG
Official code: 683209

CHRONIC LYMPHOCYTIC LEUKEMIA (CLL) GENOME PROJECT

SCIENTIFIC DIRECTORS

Dr. Elías Campo, IDIBAPS team leader, and Dr. Carlos López-Otín, University of Oviedo
www.cllgenome.es

The Chronic Lymphocytic Leukemia (CLL) Genome Project aims to generate a comprehensive catalogue of genomic alterations involved in the development and progression of the disease. This information will improve our ability to diagnose and categorize the patients and will promote the advance in new therapeutic approaches.

The CLL Genome Project, as a contributing member of the International Cancer Genome Consortium (ICGC), has the purposes of creating diagnostic tools, discovering therapeutic targets and developing new strategies that will allow a customized therapy for CLL in order to make it more precise and effective.

The overall objective of the CLL Genome Project is to generate a comprehensive catalogue of genomic alterations in 500 independent tumors, including clinical, biological, and epidemiological information. The ultimate goal is to decipher the enormous diversity and complexity of the changes in the human cancer genome, mostly still unknown, which are responsible for the development and progression of the different types of the disease with the aim of improving its prevention, diagnosis and treatment.

Scientific Facilities

The task developed by IDIBAPS and its researchers is only possible thanks to tough work, enthusiasm and also research infrastructures such as the Esther Koplowitz and the CELLEX Research Centers, as well as the Scientific Core Facilities.

Traditionally, IDIBAPS researchers were distributed in spaces within the three scientific institutions forming the consortium. Some of the research lines summarized in this Report are still developed in these institutions, but today IDIBAPS researchers have two new reference facilities were all the research areas interact and grow together.

CEK, Esther Koplowitz Research Center

The Esther Koplowitz Research Center (CEK) building is a wonderful example of public and private co-responsibility, since it benefits from the participation of the Generalitat de Catalunya, the Ministerio de Economía y Competitividad, and the Instituto de Salud Carlos III, as well as from the support of other donors such as the Fundación Esther Koplowitz, Fundació Privada Cellex, Acció Sardà Farriol para la Investigación en Diabetes and Laboratorios Esteve.

Inaugurated by the end of 2010 and with space for more than 350 researchers, the CEK building receives international scientists and PhD students, fostering the exchange of experience and professional synergies. The building includes a ground floor, mezzanine and five floors with a total area of 6,500 m2 on the ground. In the basement three underground floors offer a total area of 2,485 m2, including space for scientific core facilities and a parking. In 2011 it reached its full operating capacity.

The CEK building homes 18 of the IDIBAPS teams, including an enormous range of research lines.

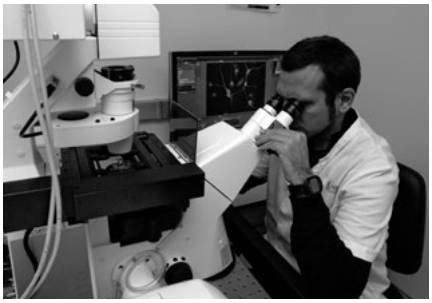
CELLEX Biomedical Research Center

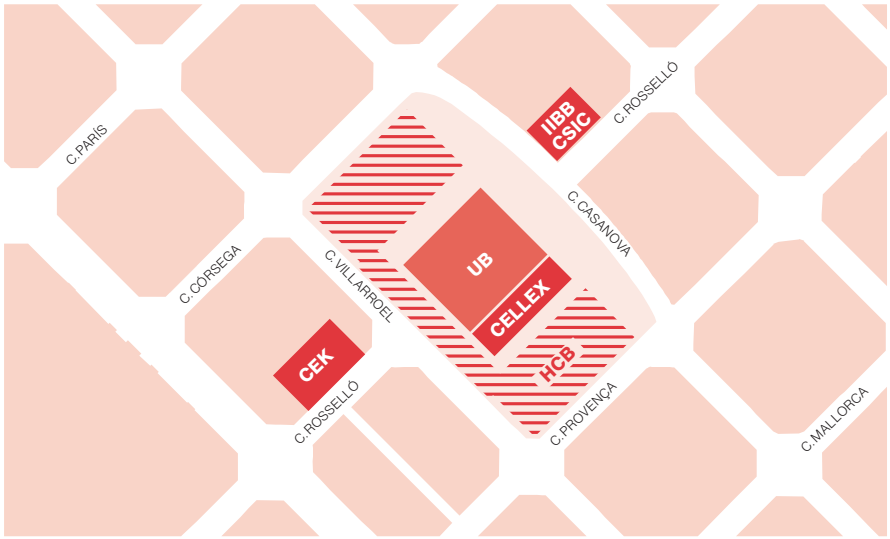
The CELLEX Biomedical Research Center is a space with five floors equipped for last generation biomedical research located in the UB School of Medicine. Thanks to the collaboration between the public and private sectors 5,150 m2 of laboratories, scientific and technological services and other spaces were reformed and equipped to support the research developed at IDIBAPS and the University of Barcelona. The new facilities were inaugurated in January 2013.

The renovation and adaptation of these areas is mainly the result of a donation from the CELLEX Foundation to the University of Barcelona, which offers to IDIBAPS four floors with laboratories for biomedical research. IDIBAPS added around one million euros to complete the purchase of scientific equipment. Part of the contribution of the IDIBAPS has been funded with ERDF funds from the Generalitat de Catalunya and the rest comes from specific calls by the Instituto de Salud Carlos III.

These IDIBAPS facilities home over 200 researchers from 18 different research teams. It is a space equipped with the latest technology and comforts, and it respects the original external centenary architecture of the UB School of Medicine.







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Scientific Core Facilities

Biobank of Hospital Clínic - IDIBAPS

Excellent biomedical research requires the use of high-cost techniques and equipment. IDIBAPS promotes the setting up of common core facilities to support research to be used by all researchers, with the purpose of improving the performance and profitability of investments and efficiency in the use of available resources.

IDIBAPS has 6 scientific core facilities of its own, mostly located in the CEK building:

- **Biobank of Hospital Clínic – IDIBAPS**
- **Bioinformatics**
- **Medical Statistics**
- **Cytometry and Cell Sorting**
- **Functional Genomics**
- **Magnetic Resonance Imaging**







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LOCATION

NEUROLOGICAL TISSUE BANK
UB School of Medicine

TUMOUR BANK
CEK building
HCB building

BLOOD AND FLUID BANK
CEK building

FOR FURTHER INFORMATION
www.clinicbiobanc.org
biobanc@idibaps.org

PEOPLE
Dr. Anna Bosch (IDIBAPS)
SCIENTIFIC COORDINATOR
Dr. Joan Albert Barberà (HCB)
Director
Meritxell Rufet (IDIBAPS)
Assistant Manager

NEUROLOGICAL TISSUE BANK
Dr. Ellen Gelpí (IDIBAPS)
Manager
Dr. Raquel Sánchez-Valle (HCB)
Clinical Coordinator
Dr. Oriol Grau (IDIBAPS)
Neurologist Brain Donor Program
Sara Charif (IDIBAPS)
Laboratory Technician
Verónica Santiago (IDIBAPS)
Laboratory Technician
Abel Muñoz (IDIBAPS)
Autopsy Assistant
Leire Etxarri (IDIBAPS)
Autopsy Assistant

TUMOUR BANK
Dr. Miriam Cuatrecasas (HCB)
Scientific Coordinator
Dr. Raquel Bermudo (IDIBAPS)
Technical Coordinator
Laura Gelabert (IDIBAPS)
Laboratory Technician
Mónica Marín (HCB)
Laboratory Technician
Mercedes Gonzalez-Ruiz (IDIBAPS)
Laboratory Technician
Ángela Martín (IDIBAPS)
Informed Consent Manager
Diagnosis consultants (HCB)
Histopathological evaluation of samples

BLOOD AND FLUID BANK
Dr. Verónica Fernandez (IDIBAPS)
Manager
Anna Morales (IDIBAPS)
Laboratory Technician
Regina Cañaveras (IDIBAPS)
Laboratory Technician
Roser Mas (IDIBAPS)
Laboratory Technician
Mercedes Gonzalez-Ruiz (IDIBAPS)
Laboratory Technician

DESCRIPTION

The Biobank is a centralised core facility for coordinating the collection, processing, storage and transfer of human biological samples to promote biomedical research at the highest standard. All the procedures performed at the Biobank are carried out under ISO9001 certification.

The Biobank's catalogue of samples is formed by the samples collected by three large banks, all of which have extensive experience in research with human samples and which are available for scientific purposes for the consolidation of personalised medicine:

1. **Neurological Tissue Bank**
   A nervous tissue repository (brain and spinal cord) created from donations from deceased donors with or without neurological conditions, helping to facilitate research into neurological illnesses in order to improve diagnoses and enhance patient care.

2. **Tumour Bank and Anatomical Pathology Collections**
   A repository of tumoural and non-tumoural tissue samples from patients affected by a neoplasia, as well as tissue samples from other diseases, all surplus to diagnostic requirements from the Pathology Department in Hospital Clínic. This material is essential to providing current large-scale tissue research projects with the samples they require.

3. Blood and Fluid Bank
This repository contains samples of, among others, metabolic, inflammatory bowel, oncological, digestive, psychiatric and maternal and foetal diseases. It houses a large range of samples of scientific interest, primarily DNA, serum and plasma, which are provided by doctors' surgeries and laboratories where blood and fluid are taken for lab tests and blood and fluid donation.

SERVICES

The Biobank of Hospital Clínic – IDIBAPS offers a wide variety of human biological samples along with technical services. The scientific community may make full use of the bank's equipment and professional staff to achieve their most ambitious goals. The work of the biobank goes beyond simply providing samples; they offer support to researchers during the various stages of projects requiring the use of biological samples.

Human Biological Sample Provision
- Brain and spinal cord tissue from deceased donors affected by neurologic diseases.
- Frozen and paraffin-embedded tissues representing the most common neoplasms and paraffin-embedded samples from a wide variety of diseases.
- DNA, serum, plasma, urine and PBMCs from different diseases as well as from control donors.

Technical and Scientific Advice
- Creation and management of new collections.
- Methodology (technical guidance).
- Experimental design with human and animal tissue samples.
- Design and interpretation of immunohistochemical studies.
- Quality management programmes.
- Harmonization of quality procedures for the handling of DNA samples.
- Technical assessment for the handling of the Biobank equipment (laser microdissector, multiobserver microscope equipped with software for morphometric analysis).

Private Collections Management
- Collection management for multicentre studies.
- Storage of pre-existing collections.

Histological Techniques
- Processing of frozen and paraffin-embedded tissues (macroscopy, cryopreservation, paraffin blocks, histological sections).
- Histological staining.
- Definitive neuropathological diagnosis of neurological diseases.
- Laser microdissection.
- Tissue microarray construction (TMA).
- Slide scan and morphometric analysis.

Cellular Techniques
- Purification and cryopreservation of mononuclear cells.
- Immortalization of B lymphocytes.
- Erythrocyte isolation from whole blood.
- Cell counting.

Molecular Techniques
- DNA extraction from peripheral blood.
- DNA/RNA/protein extraction from tissue (frozen and paraffin- embedded).
- WGA.
- Serum and plasma isolation.
- Immunohistochemistry.

EQUIPEMENT

- -20ºC, -80ºC and -150ºC freezers with safety systems.
- Vapour phase liquid nitrogen tanks.

Neurological Tissue Bank
- Biological safety cabinets for processing brain tissue in the fresh state.
- Microtomes and equipment for formalin fixation and paraffin embedding (Leica Microsystems).
- Cryostat (Leica Microsystems).
- Gas filtration cabinet.
- Automated immunostainer (DAKO autostainer plus).
- Refrigerator and -20ºC freezer for preserving fungibles.
- Autoclave for sterilising autopsy material.

Tumour Bank
- Equipment for preparing tissue microarrays (TMAs): TMA Master (3Dhistech) (UB Faculty of Medicine / FEDER)
- Laser microdissector system LMD7000 (Leica Microsystems)
- Microtomes and cryostat (Leica Microsystems)
- Coverslipper for glass slides
- Tissue processor (Leica Microsystems)
- Bond Max III for automated immunohistochemistry (Leica Microsystems)
- Digital slide scanner Pannoramic Desk (3Dhistech)
- Multiobserver microscope BX43 with a 12Mpx photographic camera and the morphometric analysis software CellSens Dimension (Olympus)
- "QIAcube" for automatization of QIAGEN spin column protocols (DNA, RNA, Protein extraction from different sample origin)

Blood and Fluid Biobank
- Programmable freezer with a controlled freezing ramp.
- "Chemagic MSM1®" automated device for obtaining DNA from large volumes of blood.
- "QIAcube" for automatization of QIAGEN spin columns (DNA, RNA, Protein extraction from different sample origin
- "Tecan EvO150®" automated stations for sample aliquoting.
- TC Automated Cell Counter (Bio Rad).
- Cabinets for isolating cells under sterile conditions.
- Cell immortalisation platform.
- Computer systems for managing samples and related data.
- Epoch Micro-Volume Spectrophotometer System.
- Trinean DropSense96 UV/VIS droplet reader.

PUBLICATIONS

The Core Facility has been cited in the acknowledgments of 17 publications.

Publications in collaboration with IDIBAPS teams / I.F.: 77.580

Originals

1. Vilas D, Iranzo A, Tolosa E, Aldecoa I, Berenguer J, Vilaseca I, Martí C, Serradell M, Lomeña F, Alós L, Gaig C, Santamaria J, Gelpi E. **Assessment of α-synuclein in submandibular glands of patients with idiopathic rapid-eye-movement sleep behaviour disorder: a case-control study.** *Lancet Neurol.* 15(7):708-718 IF: 23.468

2. Carballal S, Maisterra S, López-Serrano A, Gimeno-García AZ, Vera MI, Marín-Garbriel JC, Díaz-Tasende J, Márquez L, álvarez MA, Hernández L, De Castro L, Gordillo J, Puig I, Vega P, Bustamante-Balén M, Acevedo J, Peñas B, López-Cerón M, Ricart E, Cuatrecasas M, Jimeno M, Pellisé M; EndoCAR group of the Spanish Gastroenterological Association and Spanish Digestive Endoscopy Society. **Real-life chromoendoscopy for neoplasia detection and characterisation in long-standing IBD.** *Gut.* pii: gutjnl-2016-312332 IF: 14.921

3. Verheijen J, Van den Bossche T, van der Zee J, Engelborghs S, Sanchez-Valle R, Lladó A, Graff C, Thonberg H, Pastor P, Ortega-Cubero S, Pastor MA, Benussi L, Ghidoni R, Binetti G, Clarimon J, Lleó A, Fortea J, de Mendonça A, Martins M, Grau-Rivera O, Gelpi E, Bettens K, Mateiu L, Dillen L, Cras P, De Deyn PP, Van Broeckhoven C, Sleegers K. **A comprehensive study of the genetic impact of rare variants in SORL1 in European early-onset Alzheimer's disease.** *Acta Neuropathol.* 132(2):213-24 IF: 11.360

4. Gelpi E, Höftberger R, Graus F, Ling H, Holton JL, Dawson T, Popovic M, Pretnar-Oblak J, Högl B, Schmutzhard E, Poewe W, Ricken G, Santamaria J, Dalmau J, Budka H, Revesz T, Kovacs GG. **Neuropathological criteria of anti-IgLON5-related tauopathy.** *Acta Neuropathol.* 132(4):531-43 IF: 11.360

5. Sierra M, Gelpi E, Martí MJ, Compta Y. **Lewy- and alzheimer-type pathologies in midbrain and cerebellum across the Lewy body disorders spectrum.** *Neuropathol Appl Neurobiol.* 42(5):451-62 IF: 4.483

6. Aldecoa I, Atares B, Tarragona J, Bernet L, Sardon JD, Pereda T, Villar C, Mendez MC, Gonzalez-Obeso E, Elorriaga K, Alonso GL, Zamora J, Planell N, Palacios J, Castells A, Matias-Guiu X, Cuatrecasas M. **Molecularly determined total tumour load in lymph nodes of stage I-II colon cancer patients correlates with high-risk factors. A multicentre prospective study.** *Virchows Arch.* 469(4):385-94 IF: 2.627

7. Maurel J, López-Pousa A, Calabuig S, Bagué S, Del Muro XG, Sanjuan X, Rubió-Casadevall J, Cuatrecasas M, Martinez-Trufero J, Horndler C, Fra J, Valverde C, Redondo A, Poveda A, Sevilla I, Lainez N, Rubini M, García-Albéniz X, Martín-Broto J, de Alava E. **Phosphorylated-insulin growth factor I receptor (p-IGF1R) and metalloproteinase-3 (MMP3) expression in advanced gastrointestinal stromal tumors (GIST). A GEIS 19 study.** *Clin Sarcoma Res.* 29;6:10 IF: n/a

Editorials

1. Gelpi E. **How neuropathology can contribute to the understanding of dementia.** *Neurodegener Dis Manag.* 6(3):183-6. IF: n/a

Case reports

1. Solla P, Grau O, Gelpi E, Marrosu F, Martí MJ. **Pisa syndrome in a patient with pathologically confirmed Parkinson's disease.** *Neuropathol Appl Neurobiol.* 42(7):654-658 IF: 4.483

2. Grau-Rivera O, Sánchez-Valle R, Bargalló N, Lladó A, Gaig C, Nos C, Ferrer I, Graus F, Gelpi E. **Sporadic MM2-thalamic+cortical Creutzfeldt-Jakob disease: Utility of diffusion tensor imaging in the detection of cortical involvement in vivo.** *Neuropathology.* 36(2):199-204 IF: 1.556

Consortium publications

1. González CA, Sanz-Anquela JM, Companioni O, Bonet C, Berdasco M, López C, Mendoza J, Martín-Arranz MD, Rey E, Poves E, Espinosa L, Barrio J, Torres Má, Cuatrecasas M, Elizalde I, Bujanda L, Garmendia M, Ferrández á, Muñoz G, Andreu V, Paules MJ, Lario S, Ramírez MJ; Study group., Gisbert JP. **Incomplete type of intestinal metaplasia has the highest risk to progress to gastric cancer: results of the Spanish follow-up multicenter study.** *J Gastroenterol Hepatol.* 31(5):953-8 IF: 3.322

In collaboration with other Institutions / I.F.: 13.894

Originals

1. Kovacs GG, Ferrer I, Grinberg LT, Alafuzoff I, Attems J, Budka H, Cairns NJ, Crary JF, Duyckaerts C, Ghetti B, Halliday GM, Ironside JW, Love S, Mackenzie IR, Munoz DG, Murray ME, Nelson PT, Takahashi H, Trojanowski JQ, Ansorge O, Arzberger T, Baborie A, Beach TG, Bieniek KF, Bigio EH, Bodi I, Dugger BN, Feany M, Gelpi E, Gentleman SM, Giaccone G, Hatanpaa KJ, Heale R, Hof PR, Hofer M, Hortobágyi T, Jellinger K, Jicha GA, Ince P, Kofler J, Kövari E, Kril JJ, Mann DM, Matej R, McKee AC, McLean C, Milenkovic I, Montine TJ, Murayama S, Lee EB, Rahimi J, Rodriguez RD, Rozemüller A, Schneider JA, Schultz C, Seeley W, Seilhean D, Smith C, Tagliavini F, Takao M, Thal DR, Toledo JB, Tolnay M, Troncoso JC, Vinters HV, Weis S, Wharton SB, White CL 3rd, Wisniewski T, Woulfe JM, Yamada M, Dickson DW. **Aging-related tau astrogliopathy (ARTAG): harmonized evaluation strategy.** *Acta Neuropathol.* 131(1):87-102 IF: 11,360

Bioinformatics

2. Stefanits H, Bieńkowski M, Galanski M, Mitulović G, Ströbel T, Gelpi E, Ribalta T, Broholm H, Hartmann C, Kros JM, Preusser M, Hainfellner JA. **KINFix - A formalin-free non-commercial fixative optimized for histological, immunohistochemical and molecular analyses of neurosurgical tissue specimens.** *Clin Neuropathol.* 35(1):3-12 IF: 1.267

Case reports

1. Gelpi E, Höftberger R, Würger T, Kerschbaumer J, Freyschlag CF, Djurdjevic T, Hainfellner JA. **Clinical Neuropathology image 5-2016: Neurofibrillary tangle-rich ganglioglioma.** *Clin Neuropathol.* 35(5):278-9 IF: 1.267

GRANTS FOR RESEARCH IN PROGRESS

Barberà, JA. **Plataforma Red Nacional de Biobancos (RETIC BIOBANCOS).**
Sponsored by: Instituto de Salud Carlos III (ISCIII). PT13/0010/0011
Duration 01/01/2014 - 31/12/2017

Gelpi, E. **Value of p62/ubiquitin aggregates in the cerebellum of adult neurodegenerative disorders as predictors of C9orf72 mutations.**
Sponsored by: Fundación Tatiana Pérez de Guzmán el Bueno, convocatoria Neurociencias.
Duration: 2015-2017

Gelpi, E. P**revalence of Alzheimer-type pathology in non-Alzheimer neurodegenerative pathologies and its implication for the development of biomarkers: a brain bank based post-mortem study.**
Sponsored by: Fundació Marató de TV3.
Duration: 2015-2017

LOCATION
CEK building

FOR FURTHER INFORMATION
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DESCRIPTION

The IDIBAPS Bioinformatics Core Facility is mainly devoted to the analysis and support in the interpretation of data coming from omics high-throughput experiments using complex statistical methodologies in the basic biomedicine research. The benefits of the integration of different types of data are nowadays considered an important improvement in biological/biomedical studies, however, the combination of data coming from the Transcriptomics, Genomics, Proteomics, or Metabolomics fields require huge efforts in the development of specific analysis, tools, and databases.

We are deeply involved in differential expression or classification studies in complex omics data in order to characterize and prioritize the most important features in pathological processes. We are focused on the analysis of differential network studies aiming to understand very complex biological problems to determine key pathogenic factors and the discovery of specific biomarkers for diagnosis. At present, the emerging field of Systems Biology is aimed at analyzing and integrating data from the entire omics field to ultimately create working models of entire biological systems.

SERVICES

Bioinformatics support in different areas of biomedical research, particularly in OMICS technologies; development of new tools and diffusion:

- Consultancy and Analysis: counselling in experimental design; low-level and quality-control analyses; orientation on biostatistical resources; assistance in tools utilisation; intensive analysis of OMICS technology data in collaborative settings; interpretation of results. NGS data analysis.
- Administration of Bioinformatics resources and development of new tools: access to proprietary computer resources on Linux servers (especially in NGS projects); software management; development of customized tools and databases, particularly in web settings.

EQUIPMENT

- 2 rack Servers HP ProLiant DL580 G7 4P Intel® Xeon® E7-4870 10-cores, 2,40GHz, Hyper-Threading Technology (80 threads per node), 30 MB CPU cache, 192 GB RAM. Internal Hard disk: 2 x 300GB 6G SAS 10K SFF. O.S.: 64b Suse Linux Enterprise Server configured with SGE System (Sun Grid Engine).
- Rack Server HP ProLiant DL580 G7 4P Intel® Xeon® E7-4850 10-cores, 2,00GHz, Hyper-Threading Technology (80 threads per node), 24 MB CPU cache, 128 GB RAM. Internal Hard disk: 2 x 300GB 6G SAS 10K SFF. O.S.: 64b Suse Linux Enterprise Server configured with SGE System (Sun Grid Engine).
- Rack Server HP ProLiant DL580 G7 2P Intel® Xeon® E7-4830 8-cores, 2,13GHz, Hyper-Threading Technology (32 threads per node), 24 MB CPU cache, 64 GB RAM. Internal Hard disk: 2 x 300GB 6G SAS 10K SFF. O.S.: 64b Suse Linux Enterprise Server.
- IBM eServer BladeCenter HS21 Server. 1P Intel® Xeon® E5-345 4-cores, 2,33 GHz. 8 MB CPU cache, 16GB RAM. Attached Hard Disk DAS: 500 GB (Raid 5). O.S.: 64b Suse Linux Enterprise Server.
- Rack Server HP ProLiant DL580 G5 4P Intel® Xeon® X7350 4-cores, 2,93GHz, 8 MB CPU cache, 32 GB RAM. Internal Hard disk: 2 x 146GB 6G SAS 10K SFF. O.S.: 64b Red Hat Enterprise Linux Server.
- High Performance Storage System

Medical statistics

(HPSS) for High Performance Computing (HPC) EMC-Isilon, 3 nodes X200, 24 TB (72 Tb, Raid 5), 12GB CPU cache, with internal infiniband connection. Scalability up to 15PB. O.S.: OneFS configured with Parallel NFS.
- External SAS storage HP MSA60, 8 TB 2U Serial Attach SCSI.
- Back up rack-mount tape autoloader - HP LTO-5 Ultrium. Capable up to 24TB of compressed capacity with hp p212/256 smart array controller.

PUBLICATIONS

Publications in collaboration with IDIBAPS teams / I.F.: 18.346

1. Faner R, Cruz T, Casserras T, López-Giraldo A, Noell G, Coca I, Tal-Singer R, Miller B, Rodriguez-Roisin R, Spira A, Kalko SG, Agustí A. **Network Analysis of Lung Transcriptomics Reveals a Distinct B-Cell Signature in Emphysema.** *Am J Respir Crit Care Med.* 193, No 11. IF: 13.118

2. Sole C, Morales-Ruiz M, Fernandez G, Huelin P, Graupera I, Moreira R, de Prada G, Ariza X, Pose E, Fabrellas N, Kalko SG, Jimenez W, Ginès P. **Characterization of Inflammatory Response in Acute-on-Chronic Liver Failure and Relationship with Prognosis.** *Scientific Reports.* 6, Article number: 32341. IF: 5.228

Originals in collaboration with other Institutions / I.F.: 3.057

1. Montero R, Yubero D, Villarroya J, Henares D, Jou C, Rodríguez MA, Ramos F, Nascimento A, Ortez CI, Campistol J, Perez-Dueñas B, O'Callaghan M, Pineda M, Garcia-Cazorla A, Oferil JC, Montoya J, Ruiz-Pesini E, Emperador S, Meznaric M, Campderros L, Kalko SG, Villarroya F, Artuch R, Jimenez-Mallebrera C. **GDF-15 Is Elevated in Children with Mitochondrial Diseases and Is Induced by Mitochondrial Dysfunction.** *Plos One.* 11(2): e0148709. IF: 3.057

LOCATION

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DESCRIPTION

Medical Statistics is an IDIBAPS core facility that provides methodological and statistical support for IDIBAPS research projects and those of allied institutions.

The main objective is to promote clinical research excellence and facilitate resources to achieve this.

The platform's tasks are conducted in compliance with the International Conference of Harmonisation guidelines, European and local laws, as well as with the regulatory recommendations. Standard Operating Procedures (SOPs) are in place to fulfil those standards.

SERVICES

Assessments and consultancy services
Short-term statistical and methodological assessments, including (a) statistical design of studies, (b) sample size calculation, (c) assessment of data collection for the analysis (d) methodological and statistical assessment of research projects.

Sample projects:
- Creation and maintenance of a clinical trials database: (a) creation of the eCRF (electronic cases report form), (b) creation of data management and validation plans and consensus with the research team, (c) traceable data exportation analysis systems.
- Statistical analysis of clinical trials or other projects: (a) creation of and consensus on the most appropriate statistical analysis plans according to the type of data and the study objective, (b) creation of the most suitable statistical program for the study objective, with emphasis on the traceability of results, (c) preparation of statistical reports, and collaboration in writing and supervising articles on monitoring studies.

EQUIPMENT

- The facility is fully equipped with the latest software for statistics and data management, including a) SAS, East, SPSS, R, JMP statistical programs b) nQuery for sample sizes, c) electronic Clinical Trials data collection: MACRO; and d) WinNonLin for PK/PD analysis.

PUBLICATIONS

The Core Facility has been cited in the acknowledgments of 34 publications.

Publications in collaboration with IDIBAPS teams / I.F.: 86.121

Originals

1. Abraldes JG, Villanueva C, Aracil C, Turnes J, Hernandez-Guerra M, Genesca J, Rodriguez M, Castellote J, García-Pagán JC, Torres F, Calleja JL, Albillos A, Bosch J; BLEPS Study Group. **Addition of**

Simvastatin to Standard Therapy for the Prevention of Variceal Rebleeding Does Not Reduce Rebleeding but Increases Survival in Patients With Cirrhosis. *Gastroenterology.* May;150(5):1160-1170. IF: 18.187

2. Lens S, Torres F, Puigvehi M, Mariño Z, Londoño MC, Martinez SM, García-Juárez I, García-Criado Á, Gilabert R, Bru C, Solà R, Sanchez-Tapias JM, Carrión JA, Forns X. **Predicting the development of liver cirrhosis by simple modelling in patients with chronic hepatitis C.** *Aliment Pharmacol Ther.* Feb;43(3):364-74. I.F: 6.320

3. Vilas D, Shaw LM, Taylor P, Berg D, Brockmann K, Aasly J, Marras C, Pont-Sunyer C, Ríos J, Marek K, Tolosa E. **Cerebrospinal fluid biomarkers and clinical features in leucine-rich repeat kinase 2 (LRRK2) mutation carriers.** *Mov Disord.* Jun;31(6):906-14. doi: 10.1002/mds.26591. I.F: 6.010

4. Sabate A, Gutierrez R, Beltran J, Mellado P, Blasi A, Acosta F, Costa M, Reyes R, Torres F. **Impact of pre-emptive fibrinogen concentrate on transfusion requirements in liver transplantation: a multicenter, randomized, double-blind, placebo-controlled trial.** *Am J Transplant.* Aug;16(8):2421-9. I.F: 5.669

5. Vidal M, Vidal-Sicart S, Torres F, Ruiz DM, Paredes P, Pons F. **Correlation between theoretical anatomical patterns of lymphatic drainage and lymphoscintigraphy findings during sentinel node detection in head and neck melanomas.** *Eur J Nucl Med Mol Imaging.* Apr;43(4):626-34. I.F: 5.537

6. Fernández-Nogueira P, Bragado P, Almendro V, Ametller E, Rios J, Choudhury S, Mancino M, Gascón P. **Differential expression of neurogenes among breast cancer subtypes identifies high risk patients.** *Oncotarget.* Feb 2;7(5):5313-26. I.F: 5.008

7. Escorsell A, Torres F, Catalina M, Mas A, Rios J, Guevara M. **Short-term Survival in Acutely Decompensated Cirrhotic Patients.** *J Liver.* 5:1 I.F: 4.434

8. Palacio M, Cobo T, Antolín E, Ramirez M, Cabrera F, Mozo de Rosales F, Bartha JL, Juan M, Martí A, Oros D, Rodríguez A, Scazzocchio E, Olivares JM, Varea S, Ríos J, Gratacós E; PROMISE Collaborative Group. **Vaginal progesterone as maintenance treatment after an episode of preterm labour (PROMISE) study: a multicentre, double-blind, randomised, placebo-controlled trial.** *BJOG.* Nov;123(12):1990-1999 I.F: 4.096

9. Peters SA, Bots ML, Canaud B, Davenport A, Grooteman MP, Kircelli F, Locatelli F, Maduell F, Morena M, Nubé MJ, Ok E, Torres F, Woodward M, Blankestijn PJ; HDF Pooling Project Investigators. **Haemodiafiltration and mortality in end-stage kidney disease patients: a pooled individual participant data analysis from four randomized controlled trials.** *Nephrol Dial Transplant.* Jun;31(6):978-84 I.F: 4.085

10. Oleñik A, Rios J, Mateo C. **Inverted internal limiting membrane flap technique for macular holes in high myopia with axial length ≥30 mm.** *Retina.* Sep;36(9):1688-93. I.F: 3.039

11. Guañabens N, Filella X, Monegal A, Gómez-Vaquero C, Bonet M, Buquet D, Casado E, Cerdá D, Erra A, Martinez S, Montalá N, Pitarch C, Kanterewicz E, Sala M, Surís X, Torres F; LabOscat Study Group. **Reference intervals for bone turnover markers in Spanish premenopausal women.** *Clin Chem Lab Med.* Feb 1;54(2):293-303.I.F: 3.017

12. Gambato M, Crespo G, Torres F, LLovet L, Carrión J, Londoño M, Lens S, Mariño Z, Bartres C, Miquel R, Navasa M, Forns X. **Simple prediction of long-term clinical outcomes in patients with mild hepatitis c recurrence after liver transplantation.** *Transpl Int.* Jun;29(6):698-706. I.F: 2.835

13. Paño B, Macías N, Salvador R, Torres F, Buñesch L, Sebastià C, Nicolau C. **Usefulness of MDCT to Differentiate Between Renal Cell Carcinoma and Oncocytoma: Development of a Predictive Model.** *AJR Am J Roentgenol.* Apr;206(4):764-74. I.F: 2.660

14. Compta Y, Buongiorno M, Bargalló N, Valldeoriola F, Muñoz E, Tolosa E, Ríos J, Cámara A, Fernández M, Martí MJ. **White matter hyperintensities, cerebrospinal amyloid-β and dementia in Parkinson's disease.** *J Neurol Sci.* Aug 15;367:284-90. IF: 2.126

15. Gil V, Miró Ò, Schull MJ, Llorens P, Herrero P, Jacob J, Ríos J, Lee DS, Martín-Sánchez FJ; ICA-SEMES Research Group. **Emergency Heart Failure Mortality Risk Grade score performance for 7-day mortality prediction in patients with heart failure attended at the emergency department: validation in a Spanish cohort.** *Eur J Emerg Med.* Sep 10. I.F: 2.026

16. Costa D, Leiva M, Naranjo C, Ríos J, Peña MT. **Cryopreservation (-20 °C) of feline corneoscleral tissue: histologic, microbiologic, and ultrastructural study.** *Vet Ophthalmol.* Jul;19 Suppl 1:97-104. IF: 1.736

17. Costa D, Leiva M, Coyo N, Laguna F, Ríos J, Peña Gimenez MT. **Effect of topical 1% cyclopentolate hydrochloride on tear production, pupil size, and intraocular pressure in healthy Beagles.** *Vet Ophthalmol.* Nov;19(6):449-453. IF:1.736

18. Secades JJ, Alvarez-Sabín J, Castillo J, Díez-Tejedor E, Martínez-Vila E, Ríos J, Oudovenko N. **Citicoline for Acute Ischemic Stroke: A Systematic Review and Formal Meta-analysis of Randomized, Double-Blind, and Placebo-Controlled Trials.** *J Stroke Cerebrovasc Dis.* Aug;25(8):1984-96. doi: 10.1016/j.jstrokecerebrovasdis.2016.04.010. I.F: 1.599

19. Abraldes JG, Torres F, Bosch J; BLEPS study group. Reply Gastroenterology. 2016 Nov;151(5):1037-1038. doi: 10.1053/j.gastro.2016.09.042. Epub 2016 Oct

6. Claret G, Montañana J, Rios J, Ruiz-Ibán MÁ, Popescu D, Núñez M, Lozano L, Combalia A, Sastre S. **The effect of percutaneous release of the medial collateral ligament in arthroscopic medial meniscectomy on functional outcome.** *Knee. Mar.* 23(2):251-5. IF: 1.446

20. Maduell F, Moreso F, Mora-Macià J, Pons M, Ramos R, Carreras J, Soler J, Torres F; en nombre del grupo del estudio ESHOL. **ESHOL study reanalysis: All-cause mortality considered by competing risks and time-dependent covariates for renal transplantation.** *Nefrologia.* Mar-Apr;36(2):156-163. I.F: 1.207

21. Troya MI, Bonet J, Salinas I, Torres F, Bonal J, Sanmartí A, Romero R. **Early intensive treatment improves outcomes in patients with glomerular hyperfiltration and type 2 diabetes.** *Med Clin (Barc).* Jan 15;146(2):55-60. I.F: 1.267

22. Viu J, Armengou L, Ríos J, Muñoz A, Jose-Cunilleras E. **Simplified strong ion difference approach to acid-base balance in healthy foals.** *J Vet Emerg Crit Care (San Antonio).* Jul;26(4):549-58. IF: 1.122

23. Milla E, Stirbu O, Franco IJ, Hernández SJ, Rios J, Duch S. **Effect of nepafenac on the foveal profile of glaucomatous patients undergoing phacoemulsification.** *Int Ophthalmol.* Oct 22. I.F: 0.959

Consortium publications / IF:55.020

1. Hochberg MC, Martel-Pelletier J, Monfort J, Möller I, Castillo JR, Arden N, Berenbaum F, Blanco FJ, Conaghan PG, Doménech G, Henrotin Y, Pap T, Richette P, Sawitzke A, du Souich P, Pelletier JP; on behalf of the MOVES Investigation Group. **Combined chondroitin sulfate and glucosamine for painful knee osteoarthritis: a multicentre, randomised, double-blind, non-inferiority trial versus celecoxib.** *Ann Rheum Dis.* Jan;75(1):37-44. doi: 10.1136/annrheumdis-2014-206792. I.F: 12.384

2. Mocroft A, Lundgren JD, Ross M, Fux CA, Reiss P, Moranne O, Morlat P, Monforte Ad, Kirk O, Ryom L; Data Collection on Adverse events of Anti-HIV Drugs (D:A:D) Study. **Cumulative and current exposure to potentially nephrotoxic antiretrovirals and development of chronic kidney disease in HIV-positive individuals with a normal baseline estimated glomerular filtration rate: a prospective international cohort study.** *Lancet HIV.* Jan;3(1):e23-32. I.F: 8.364

3. Sabin CA, Reiss P, Ryom L, Phillips AN, Weber R, Law M, Fontas E, Mocroft A, de Wit S, Smith C, Dabis F, d'Arminio Monforte A, El-Sadr W, Lundgren JD; D:A:D Study Group. **Is there continued evidence for an association between abacavir usage and myocardial infarction risk in individuals with HIV? A cohort collaboration.** *BMC Med.* Mar 31;14(1):61. I.F: 8.005

4. Ryom L, Lundgren JD, Ross M, Kirk O, Law M, Morlat P, Smit C, Fontas E, Fux CA, Hatleberg CI, de Wit S, Sabin CA, Mocroft A; D:A:D Study Group. **Renal Impairment and Cardiovascular Disease in HIV-positive Individuals; The D:A:D Study.** *J Infect Dis.* Oct 15;214(8):1212-20. I.F: 6.344

5. Ryom L, Lundgren JD, De Wit S, Kovari H, Reiss P, Law M, El-Sadr W, Monforte AD, Mocroft A, Smith C, Fontas E, Dabis F, Phillips A, Sabin C; D:A:D Study Group. **Use of antiretroviral therapy and risk of end-stage liver disease and hepatocellular carcinoma in HIV-positive persons.** *AIDS.* Jul 17;30(11):1731-43. I.F: 4.407

6. Hatleberg CI, Ryom L, El-Sadr W, Smith C, Weber R, Reiss P, Fontas E, Dabis F, Law M, Monforte AD, De Wit S, Mocroft A, Phillips A, Lundgren JD, Sabin C; D:A:D Study Group. **Improvements over time in short-term mortality following myocardial infarction in the D: A: D Study.** *AIDS.* Jun 19;30(10):1583-96. I.F: 4.407

7. Boettiger DC, Sabin CA, Grulich A, Ryom L, Bonnet F, Reiss P, Monforte AD, Kirk O, Phillips A, Bower M, Fätkenheuer G, Lundgren JD, Law M; Data collection on Adverse events of Anti-HIV Drugs (D:A:D) study group. **Is nelfinavir exposure associated with cancer incidence in HIV-positive individuals?** *AIDS.* Jun 19;30(10):1629-37. I.F: 4.407

8. Achhra AC, Mocroft A, Reiss P, Sabin C, Ryom L, de Wit S, Smith CJ, d'Arminio Monforte A, Phillips A, Weber R, Lundgren J, Law MG; D:A:D Study Group. **Short-term weight gain after antiretroviral therapy initiation and subsequent risk of cardiovascular disease and diabetes: the D:A:D study.** *HIV Med.* Apr;17(4):255-68. I.F: 3.341

9. Friis-Møller N, Ryom L, Smith C, Weber R, Reiss P, Dabis F, De Wit S, Monforte AD, Kirk O, Fontas E, Sabin C, Phillips A, Lundgren J, Law M; D:A:D study group. **An updated prediction model of the global risk of cardiovascular disease in HIV-positive persons: The Data-collection on Adverse Effects of Anti-HIV Drugs (D:A:D) study.** *Eur J Prev Cardiol.* Jan;23(2):214-23. I.F: 3.361

Originals in collaboration with other Institutions / I.F.: 1.736

1. Coyo N, Peña MT, Costa D, Ríos J, Lacerda R, Leiva M. **Effects of age and breed on corneal thickness, density, and morphology of corneal endothelial cells in enucleated sheep eyes.** *Vet Ophthalmol.* Sep;19(5):367-72. I.F: 1,736

Cytometry and cell sorting

LOCATION
CEK building

FOR FURTHER INFORMATION
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PEOPLE
Isabel Crespo (IDIBAPS)
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Technician

DESCRIPTION

Flow cytometry is a technique for multiparametric analysis of particles, such as cells, by suspending them in a stream of fluid and passing them through a LASER. It allows for the simultaneous multiparametric analysis of the physical and/or chemical characteristics of up to thousands of particles per second. Each suspended particle passing through the beam scatters the LASER, and fluorescent chemicals found in the particle or attached to the particle may be excited into emitting light at a longer wavelength than the light source.

Fluorescence-activated cell sorting is a specialised type of flow cytometry. It provides a method for sorting a heterogeneous mixture of biological cells, one cell at a time, based on the specific light-scattering and fluorescent characteristics of each cell. It provides fast, objective and quantitative recording of fluorescent signals from individual cells as well as physical separation of cells of particular interest.

This technology has applications in molecular biology, pathology, immunology, plant biology and marine biology. It has broad application in medicine (especially in transplantation, haematology, tumour immunology and chemotherapy, prenatal diagnosis, genetics, etc.).

The Facility is subdivided into two rooms: FACS analysis and high-resolution images in flow room; and cell sorting room.

SERVICES

- Analysis of population of interest
- Apoptosis
- Cell cycle, proliferation
- Functional analysis
- Stem cells
- Viability
- Analysis of microorganisms
- Multiparameter quantitative trials on soluble molecules and phosphoproteins (CBA and CBA Flex Set), cell signalling
- Cell sorting
- Microparticles
- High resolution microscopy in flow (cell signalling and molecular translocation, internalization, co-localization, cell-cell Interaction, morphology analysis, cell death and autophagy, cell cycle and mitosis, DNA damage and repair)
- Data analysis
- User training

EQUIPMENT

- BD FACSCalibur: 2 LASER, Up to 4 fluorescence.
- BD FACSCantol : 2 LASER, Up to 6 fluorescence.
- BD FACSCantoII: 3 LASER, Up to 8 fluorescence.
- BD LSRFortessa SORP + HTS: 4 LASER, Up to 16 fluorescence.
- BD LSRFortessa SORP: 5 LASER, Up to 18 fluorescence.
- AMNIS ISX: 2 digital cameras, Up to 12 fluorescence channels.
- BD FACSAriaII: 3 LASER, Up to 9 fluorescence.
- BD FACSAria SORP: 5 LASER, Up to 18 fluorescence.
- Magnetic cell sorter autoMACSPro.
- Data analysis: DIvA v8.0, CellQuestPro v6.0.3, ModFit LT v3.2, Flowjo X, FCAPArray v1.0.1, IDEAS V.6.1, SPICE v5.35

PUBLICATIONS

The Core Facility has been cited in the acknowledgments of 2 publications.

Functional genomics

LOCATION
CEK building

FOR FURTHER INFORMATION
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PEOPLE
Dr. Magda Pinyol (IDIBAPS)
Unit manager
Dr. Pedro Jares (HCB-UB)
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Specialist technician
Dr. Helena Suárez(IDIBAPS)
Specialist technician
Laura Plà (IDIBAPS)
Technician
Montse Sánchez (IDIBAPS)
Technician

DESCRIPTION

The unit provides access to different genome-wide protocols, managing samples for genomic projects starting from quantitative and qualitative analysis of nucleic acids up to genome-wide gene expression, genotyping, gene dose analysis and sequencing using different platforms including real-time PCR, microarrays and next generation sequencing.

The Genomic Unit promotes and cooperates in the development of projects that use these genomic technologies.

SERVICES

- Quantification of nucleic acids
- Qualitative analysis of nucleic acids
- Expression analysis by Real-time PCR (Fluidigm)
- Genotyping analysis by Real-time PCR (Fluidigm)
- Digital PCR (Fluidigm)
- Genome-wide expression analysis including mRNA, miRNA (Affymetrix microarrays)
- Genome-wide genotyping analysis including CNV (Affymetrix microarrays)
- High-throughput expression analysis (GeneTitan Affymetrix)
- High-throughput genotyping analysis including GWAS analysis (GeneTitan Affymetrix)
- CGH-Arrays (Agilent)
- Pyrosequencing (Quiagen)
- Generation of NGS libraries (ChipSeq, Generead, Access Array, Illumina libraries, Agilent libraries, ...)
- Next-generation sequencing (Illumina)
- Expression Digital molecular counter, including miRNA and mRNA (Nanostring)
- CNV digital molecular counter (Nanostring)
- DNA, RNA and chromatin shearing (Covaris)

In addition to these services, the Core Facility offers advice on experimental design for different gene expression profile transcriptomic studies, and next generation sequencing.

EQUIPMENT

- NanoDrop (ND1000)
- Qubit
- Bioanalyzer 2100 (Agilent)
- BioMark (Fluidigm)
- GeneChip Affymetrix genetic analysis system
- GeneTitan Affymetrix genetic analysis system
- Microarray Agilent platform
- PyroMark Q96 ID
- MiSeq (Illumina)
- nCounter (Nanostring)
- Covaris

PUBLICATIONS

The Core Facility has been cited in the acknowledgments of 2 publications.

Publications in collaboration with IDIBAPS teams / I.F.: 41.911

1. Queirós AC, Beekman R, Vilarrasa-Blasi R, Duran-Ferrer M, Clot G, Merkel A,Raineri E, Russiñol N, Castellano G, Beà S, Navarro A, Kulis M, Verdaguer-Dot N, Jares P, Enjuanes A, Calasanz MJ, Bergmann A, Vater I, Salaverría I, van de Werken HJ, Wilson WH, Datta A, Flicek P, Royo R, Martens J, Giné E, Lopez-Guillermo A, Stunnenberg HG, Klapper W, Pott C, Heath S, Gut IG, Siebert R, Campo E, Martín-Subero JI. **Decoding the DNA Methylome of Mantle Cell Lymphoma in the Light of the Entire B Cell Lineage.** *Cancer Cell.* 30(5):806-821. IF: 23.214

2. Rovira J, Karube K, Valera A, Colomer D, Enjuanes A, Colomo L, Martínez-Trillos A, Giné E, Dlouhy I, Magnano L, Delgado J, Martínez A, Villamor N, Campo E, López-Guillermo A. **MYD88 L265P Mutations, But No Other Variants, Identify a Subpopulation of DLBCL Patients of Activated B-cell Origin, ExtranodalInvolvement, and Poor Outcome.** *Clin Cancer Res.* 22(11):2755-64. IF: 8.738

3. Montraveta A, Lee-Vergés E, Roldán J, Jiménez L, Cabezas S, Clot G, Pinyol M, Xargay-Torrent S, Rosich L, Arimany-Nardí C, Aymerich M, Villamor N, López-Guillermo A, Pérez-Galán P, Roué G, Pastor-Anglada M, Campo E, López-GuerraM, Colomer D. **CD69 expression potentially predicts response to bendamustine and its modulation by ibrutinib or idelalisib enhances cytotoxic effect in chronic lymphocytic leukemia.** *Oncotarget.* 7(5):5507-20. IF: 5.008

4. Martinez D, Navarro A, Martinez-Trillos A, Molina-Urra R, Gonzalez-Farre B, Salaverria I, Nadeu F, Enjuanes A, Clot G, Costa D, Carrio A, Villamor N, Colomer D, Martinez A, Bens S, Siebert R, Wotherspoon A,

Magnetic resonance imaging

Beà S, Matutes E, Campo E. **NOTCH1, TP53, and MAP2K1 Mutations in Splenic Diffuse Red Pulp Small B-cell Lymphoma Are Associated With Progressive Disease.** *Am J Surg Pathol.* 40(2):192-201. IF: 4.951

Originals in collaboration with other Institutions / I.F.: 24.231

1. Corbera-Bellalta M, Planas-Rigol E, Lozano E, Terrades-García N, Alba MA, Prieto-González S, García-Martínez A, Albero R, Enjuanes A, Espígol-Frigolé G, Hernández-Rodríguez J, Roux-Lombard P, Ferlin WG, Dayer JM, Kosco-Vilbois MH, Cid MC. **Blocking interferon γ reduces expression of chemokines CXCL9, CXCL10 and CXCL11 and decreases macrophage infiltration in ex vivo cultured arteries from patients with giant cell arteritis.** *Ann Rheum Dis.* 75(6):1177-86. IF: 12.384

2. Nadeu F, Delgado J, Royo C, Baumann T, Stankovic T, Pinyol M, Jares P, Navarro A, Martín-García D, Beà S, Salaverria I, Oldreive C, Aymerich M, Suárez-Cisneros H, Rozman M, Villamor N, Colomer D, López-Guillermo A, González M, Alcoceba M,Terol MJ, Colado E, Puente XS, López-Otín C, Enjuanes A, Campo E. **Clinical impact of clonal and subclonal TP53, SF3B1, BIRC3, NOTCH1, and ATM mutations in chronic lymphocytic leukemia.** *Blood.* 127(17):2122-30. IF: 11.847

LOCATION

HCB building
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FOR FURTHER INFORMATION

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PEOPLE

Dr. Núria Bargalló (HCB)
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Anna Calvo (IDIBAPS)
Image Analysis Advisor
Jose Carlos Pariente (IDIBAPS)
Image Analysis Advisor
César Garrido (HCB)
Radiographer
Sandra Pineda (HCB)
Radiographer

DESCRIPTION

The main objectives of this Core Facility are:

- To provide services related to medical imaging techniques for researchers from IDIBAPS and other institutions, and to industries connected with health.
- To perform first-rate basic and clinical research into medical imaging using structural and functional magnetic resonance imaging, magnetic resonance spectroscopy, molecular imaging, other types of medical imaging and image processing.
- Researcher training in techniques and basic research to enable them to conduct experimental and clinical studies, thereby allowing them to explore the advantages of translational research.

SERVICES

- Clinical Imaging Research (3T MRI Unit).
- Experimental Imaging Research (7T MRI Unit).
- Imaging Processing Lab.

EQUIPMENT

Clinical Imaging Research (3T MRI Unit):
- RM 3T- Siemens 3T TRIO, B19 software
- 32 phased-array head coil
- 8 phased-array head coil
- Body coil
- Others phase array coil

Experimental Imaging Research (7T MRI Unit):
- Bruker BioSpec 70/30 (gradient system of 400 mT/m) with Paravision 6.0 software
- Volume coil for mouse body: inner diameter of 35 mm
- Volume coil for rat body: inner diameter of 72 mm
- Volume coil for guinea pig or small rabbit: inner diameter of 154 mm
- Rat brain 2 x 2 surface array coils
- Mouse brain surface coil
- Rat cardiac 4 x 1 surface array coils
- Electric stimulator for fMRI
- Inhalation anaesthetic system including animal monitoring
- 4 PC for image processing and analysis

Image Processing Lab:
- 3 dedicated workstations (1 Mac, 2 linux)
- 7 high performance PC (5 dual windows-linux, 2 windows) for image postprocessing
- 10 standard PC
- Software licences: 10 Matlab, 2 LcModel, 1 AnalyzeDirect

PUBLICATIONS

The Core Facility has been cited in the acknowledgments of 4 publications.

Publications in collaboration with IDIBAPS teams / I.F.: 59.352

Originals

1. Padilla N, Fransson P, Donaire A, Figueras F, Arranz A, Sanz-Cortés M, Tenorio V, Bargallo N, Junqué C, Lagercrantz H, Ådén U, Gratacós E. **Intrinsic Functional Connectivity in Preterm Infants with Fetal Growth Restriction Evaluated at 12 Months Corrected Age.** *Cereb Cortex.* 6. IF: 8.285

2. Uribe C, Segura B, Baggio HC, Abos A, Marti MJ, Valldeoriola F, Compta Y, Bargallo N, Junque C. **Patterns of cortical thinning in nondemented Parkinson's disease patients.** *Mov Disord.* 31(5). IF: 6.010

3. Fernández-Cabello S, Valls-Pedret C, Schurz M, Vidal-Piñeiro D, Sala-Llonch R, Bargallo N, Ros E, Bartrés-Faz D. **White matter hyperintensities and cognitive reserve during a working memory task: a functional magnetic resonance imaging study in cognitively normal older adults.** *Neurobiol Aging.* 48. IF:5.153

4. Eixarch E, Muñoz-Moreno E, Bargallo N, Batalle D, Gratacos E. **Motor and cortico-striatal-thalamic connectivity alterations in intrauterine growth restriction.** *Am J Obstet Gynecol.* 214(6). IF: 4.681

5. Simões RV, Muñoz-Moreno E, Cruz-Lemini M, Eixarch E, Bargalló N, Sanz-Cortés M, Gratacós E. **Brain metabolite alterations in infants born preterm with intrauterine growth restriction: association with structural changes and neurodevelopmental outcome.** *Am J Obstet Gynecol.* 216(1). IF: 4.681

6. Penadés R, Pujol N, Catalán R, Masana G, García-Rizo C, Bargalló N, González-Rodríguez A, Vidal-Piñeiro D, Bernardo M, Junqué C. **Cortical thickness in regions of frontal and temporal lobes is associated with responsiveness to cognitive remediation therapy in schizophrenia.** *Schizophr Res.* 171(1-3). IF: 4.453

7. Batalle D, Muñoz-Moreno E, Tornador C, Bargallo N, Deco G, Eixarch E, Gratacos E. **Altered resting-state whole-brain functional networks of neonates with intrauterine growth restriction.** *Cortex.* 77. IF: 4.314

8. Ortiz AE, Gassó P, Mas S, Falcon C, Bargalló N, Lafuente A, Lázaro L. **Association between genetic variants of serotonergic and glutamatergic pathways and the concentration of neurometabolites of the anterior cingulate cortex in paediatric patients with obsessive-compulsive disorder.** *World J Biol Psychiatry.* 17(5). IF: 4.159

9. Aparicio J, Carreño M, Bargalló N, Setoain X, Rubí S, Rumià J, Falcón C, Calvo A, Martí-Fuster B, Padilla N, Boget T, Pintor L, Donaire A. **Combined18F-FDG-PET and diffusion tensor imaging in mesial temporal lobe epilepsy with hippocampal sclerosis.** *Neuroimage Clin.* 6 (12). IF: 3.857

10. Solé-Padullés C, Castro-Fornieles J, de la Serna E, Calvo R, Baeza I, Moya J, Lázaro L, Rosa M, Bargalló N, Sugranyes G. **Intrinsic connectivity networks from childhood to late adolescence: Effects of age and sex.** *Dev Cogn Neurosci.* 17 IF: 3.963

11. Mas S, Gassó P, Morer A, Calvo A, Bargalló N, Lafuente A, Lázaro L. **Integrating Genetic, Neuropsychological and Neuroimaging Data to Model Early-Onset Obsessive Compulsive Disorder Severity.** *PLoS One.*11(4). IF: 3.057

12. Solé-Padullés C, Castro-Fornieles J, de la Serna E, Romero S, Calvo A, Sánchez-Gistau V, Padrós-Fornieles M, Baeza I, Bargalló N, Frangou S, Sugranyes G. **Altered Cortico-Striatal Connectivity in Offspring of Schizophrenia Patients Relative to Offspring of Bipolar Patients and Controls.** *PLoS One.* 11(2). IF: 3.057

13. Compta Y, Buongiorno M, Bargalló N, Valldeoriola F, Muñoz E, Tolosa E, Ríos J, Cámara A, Fernández M, Martí MJ. **White matter hyperintensities, cerebrospinal amyloid-β and dementia in Parkinson's disease.** *J Neurol Sci.* 15; IF: 2.126

14. Grau-Rivera O, Sánchez-Valle R, Bargalló N, Lladó A, Gaig C, Nos C, Ferrer I, Graus F, Gelpi E. **Sporadic MM2-thalamic+cortical Creutzfeldt-Jakob disease: Utility of diffusion tensor imaging in the detection of cortical involvement in vivo.** *Neuropathology.* 36(2). IF: 1.556

Consortium publications / IF: 4.962

1. Marchitelli R, Minati L, Marizzoni M, Bosch B, Bartrés-Faz D, Müller BW, Wiltfang J, Fiedler U, Roccatagliata L, Picco A, Nobili F, Blin O, Bombois S, Lopes R, Bordet R, Sein J, Ranjeva JP, Didic M, Gros-Dagnac H, Payoux P, Zoccatelli G, Alessandrini F, Beltramello A, Bargalló N, Ferretti A, Caulo M, Aiello M, Cavaliere C, Soricelli A, Parnetti L, Tarducci R, Floridi P, Tsolaki M, Constantinidis M, Drevelegas A, Rossini PM, Marra C, Schönknecht P, Hensch T, Hoffmann KT, Kuijer JP, Visser PJ, Barkhof F, Frisoni GB, Jovicich J. **Test-retest reliability of the default mode network in a multi-centric fMRI study of healthy elderly: Effects of data-driven physiological noise correction techniques.** *Hum Brain Mapp.* 37(6): IF: 4.962

Originals in collaboration with other Institutions / I.F.: 16.032

1. Pina-Camacho L, Del Rey-Mejías Á, Janssen J, Bioque M, González-Pinto A, Arango C, Lobo A, Sarró S, Desco M, Sanjuan J, Lacalle-Aurioles M, Cuesta MJ, Saiz-Ruiz J, Bernardo M, Parellada M; PEPs Group. **Age at First Episode Modulates Diagnosis-Related Structural Brain Abnormalities in Psychosis.** *Schizophr Bull.* 42(2). IF: 7.757

2. Córdova-Palomera A, Tornador C, Falcón C, Bargalló N, Brambilla P, Crespo-Facorro B, Deco G, Fañanás L. **Environmental factors linked to depression vulnerability are associated with altered cerebellar resting-state synchronization.** *Sci Rep.* Nov 28(6). IF: 5.228

3. Roura E, Sarbu N, Oliver A, Valverde S, González-Villà S, Cervera R, Bargalló N, Lladó X. **Automated Detection of Lupus White Matter Lesions in MRI.** *Front Neuroinform.* 12. IF: 3.047

GRANTS FOR RESEARCH IN PROGRESS

Soria G. **Nuevo enfoque para el estudio del Alzheimer: conectómica e imagen metabólica por MRI en la rata TgF344-AD.**
Sponsored by: Instituto de Salud Carlos III (ISCIII) PI14/00595.
Duration: 01/2015 - 12/2017

Soria G. **MRI brain connectomics and metabolic imaging in the TgF344-AD rat: a new approach for the study of Alzheimer's disease.**
Sponsored by: La Marató de TV3 Foundation
Duration: 04/2015 - 03/2018.

Bargallo N. **Utilidad de los estudios de perfusión cerebral obtenidos mediante ASL en pacientes con epilepsia refractaria.**
Sponsored by: Instituto de Salud Carlos III (ISCIII) PI12/00465.
Duration: 01/01/2013-31/12/2016

Training

Doctoral Theses

The PhD training dedication of IDIBAPS is reflected by the large number of doctoral theses that are driven and supported by IDIBAPS researchers.

A list is provided below of the 111 doctoral theses presented during 2016:

The first 15 (EU flag) are doctoral theses that got the european mention:

THESIS AUTHOR	TITLE	THESIS DIRECTORS	
Alba Matas Céspedes	Innovative therapies targeting tumor-microenvironment crosstalk in indolent B-cell non-Hodgkin lymphomas	Pérez Galán P	EU
Alba Sierra Marcos	Usefulness of advanced functional-MRI techniques in the study of the epileptogenic zone in adult patients with drug-resistant neocortical epilepsy	Bargalló N	EU
Arturo Humberto Huerta García	Systemic Inflammatory Response in patients with Community Acquired Pneumonia (CAP) and Chronic Obstructive Pulmonary Disease (COPD) and in Acute Exacerbations of COPD and new other uncommon triggers	Torres A	EU
Brenda Iveth Valenzuela Alcaraz	Cardiovascular assessment in fetuses and children conceived by assisted reproductive technologies	Crispi F, Gratacós E	EU
Diana Hide Alférez	Advances in ischemia and reperfusion injury: effects on liver microcirculation and therapeutic strategies for sinusoidal protection	Bosch J, Gracia-Sancho J	EU
Diego Alberto Hidalgo Mazzei	Application of information and communication technologies (ICTs) in bipolar disorder	Vieta E, Colom F	EU
Ester Planas Rigol	Endothelial and myointimal cell functions related to vascular inflammation and remodeling in Giant-Cell Arteritis. Contribution of interleukin-23p19, interleukin-35 and endothelin-1	Cid MC	EU
Guillermo Luis Cuervo Requena	Candidemia in hospitalized adults: current challenges and strategies of management	Carratalá J, Garcia Vidal C	EU
Juan José Uriarte Díaz	Multiscale lung tissue mechanics in a mouse model of Marfan syndrome	Navajas D, Farré R	EU
Laura Sanchis Ruiz	Characterization of heart failure with preserved ejection fraction in the outpatient setting: improvement in prognosis assessment and applicability of new echocardiographic techniques	Falces C, Sitges M	EU
Mattia D'andola	Modulation of emergent cortical activity and perturbational complexity index by electromagnetic fields	Sanchez Vives MV	EU
Nelly Fabiola Padilla Gomes	Brain imaging in preterm infants with and without intrauterine growth restriction	Junqué C, Gratacós E	EU
Patricia Fernández Nogueira	Fibroblast role in the acquisition and maintenance of breast cancer resistance to anti-HER2 therapies. Identification of novel compensatory tyrosine kinase receptors	Gascón P, Almendro V	EU
Sandra Torres Núñez	Role of mitochondrial cholesterol in Niemann Pick type C disease and drug-induced liver injury	Garcia-Ruiz C, Fernandez-Checa JC	EU
Silvia Alonso Lana	El Trastorno Bipolar: Cambios cerebrales asociados con el estado de ánimo y el deterioro cognitivo	Pomarol E, Vieta E	EU
Albert Ferrés Coy	Modulación post-transcripcional de genes expresados en neuronas serotonérgicas de ratón como nuevas dianas terapéuticas en depresión	Artigas F, Bortolozzi A	
Albert Francés i Comalat	Estudi inmunohistoquímic de marcadors de resposta al dany del DNA en el carcinoma de cèl·lules transicionals	Alcaraz A, Lloreta J	
Alfons Garcia Piñero	El Síndrome de Kallman: Correlación fenotipo-genotípica	Mullol J, Alobid I	

Alicia Valiente Gómez	**Caracterización clínica y biológica de la esquizofrenia con predominio de síntomas negativos**	Bernardo M, Pomarol E
Amaia Ercilla Eguiarte	**New mechanisms involved in the DNA replication stress response of non-transformed human cells**	Agell N
Amaya Sagasta	**Marcadores moleculares de lesión cervical premaligna en mujeres con infección por el Virus del Papiloma Humano**	Del Pino M, Ordi J
Ana Cristina Alves Queirós	**Unraveling the epigenome of Chronic Lymphocytic Leykemia and Mantle Cell Lymphoma**	Martín Subero JI, Campo E
Ana García Melero	**Anexina A6 regula el transporte intracelular del colesterol a través de Rab7 y TBC1D15**	Enrich C, Rentero C
Ana María de Hollanda Ramírez	**Adaptación metabólica y variabilidad en la pérdida de peso tras la cirugía bariátrica**	Vidal J
Ana Mato Berciano	**Estrategias terapéuticas frente al cáncer de páncreas basadas en adenovirus oncolíticos eficaces sobre la población de células madre tomorales y su combinación con quimioterapia**	Fillat C
Anna Cordeiro Santanach	**ARNs no codificants petits en Limfoma de Hodgkin: Regulació epigenètica de microRNAs i importància de la via PIWI/piRNA**	Monzó M, Navarro A
Antonio José Rodríguez De Jesús	**Impacto clínico y seguridad de la ultrasonografía endoscópica (USE) y de la punción aspirativa guiada por USE (USE-PAAF) en las lesiones quísticas del páncreas**	Fernández-Esparrach G, Gines MA
Aranzazu Jauregui Amezaga	**Cell therapy for Crohn's disease**	Panes J, Ricart E
Arnoldo Anacleto Guerrero Chapa	**Diagnóstico, costes y decisión terapéutica de poligrafía respiratoria domiciliaria en pacientes sin alta sospecha de apnea obstructiva del sueño o con comorbilidad. Polisomnografía hospitalaria en comparación con tres noches de poligrafía respiratoria dom**	Montserrat JM
Bachar Kudsieh	**Reposicionamiento y fijación transescleral en el sulcus con suturas de poliéster de lentes intraoculares luxadas a cavidad vítrea mediante vitrectomía 23-Gauge: evaluación de una técnica quirúrgica**	Casaroli-Marano R
Carmen Maria Lucena Pozo	**Complicaciones pulmonares en el trasplante de progenitores hematopoyéticos**	Agustí C, Torres A
Carolina Fuenzalida Inostroza	**La coordinación asistencial y la educación para la salud son factores clave en el tratamiento de los pacientes con fibrilación auricular**	Coll-Vinent B
Christopher Cabib	**Alteraciones de la excitabilidad refleja y del control motor en esclerosis múltiple**	Valls J
Clara Esteban Jurado	**Identificación y caracterización de nuevos genes de predisposición al cáncer colorrectal familiar**	Castellví-Bel S, Lozano JJ
Claudio Attardo Parrinello	**Identification of human sperm proteome abnormalities in infertile patients**	Oliva R
Daniel Martínez Hernández	**Mecanismos de progresión y transformación en linfomas de células B de bajo grado: alteraciones citogénicas y moleculares**	Campo E, Martínez Pozo A
Daniel Rodrigo Torres	**Paper de les cèl·lules progenitores hepàtiques en l'hepatitis alcohòlica i la regeneració hepàtica**	Sancho Bru P
David Soriano Castell	**RAC1 y calmodulina regulan la dinámica de membrana durante la endocitosis independiente de clatrina**	Tebar F
Denise Oró Bozzini	**Nuevos tratamientos contra la hipertensión portal en la cirrosis hepática experimental: 1. Nanopartículas de óxido de cerio y 2. Agonismo parcial del receptor V1a de la vasopresina**	Jiménez W
Dolores Vilas Rolan	**Caracterización clínica, bioquímica y de neuroimagen de la enfermedad de Parkinson asociada a mutaciones del gen LRRK2 y de su fase prodrómica**	Tolosa E
Eduard Tornero Dacasa	**Early prosthetic joint infections treated with debridement and implant retention: Risk factors for failure and importance of selection of antibiotic regimen**	Soriano À, García S

Elisabet Aguilera Xiol	**New strategies to prevent endotracheal tube biofilm-associated pulmonary infections**	Torres A
Eneko Villanueva Verdejo	**Nuevas estrategias de control post-transcripcional en el desarrollo de adenovirus oncolíticos**	Fillat C
Enric Reverter Segura	**Avenços en l'estudi de la hipertensió portal i en la definició del pronòstic de l'hemorràgia digestiva per varius esofàgiques en la cirrosi hepática**	Bosch J, Garcia-Pagan JC
Ester Bonfill Teixidor	**Mecanismes implicats en l'activació clàssica o alternativa de les cèl·lules microglials: paper en la isquèmia cerebral**	Planas AM
Eva Rivas Ferreira	**Pulmonary gas exchange and severe obesity: bariatric surgery effects**	Rodriguez Roisin R, Agustí A
Felipe Bisbal Van Bylen	**Nuevas aplicaciones de la resonancia magnética para la estratificación de riesgo y personalización del tratamiento en pacientes con fibrilación auricular**	Mont L
Felipe Julio Ramírez García	**Caracterización ecográfica e inmunohistológica de la sinovitis subclínica en pacientes con artritis reumatoide en remisión clínica: implicaciones pronósticas**	Cañete JD, Sanmarti R
Ferran Torner Rubies	**Estudio mediante elementos finitos de prótesis tumorales de rodilla en niños y adolescentes**	Segur JM
Francesco Mannara	**Animal modeling of autoimmune disorders of the central nervous system associated with antibodies against neuronal surface antigens**	Graus F, Dalmau J
Francisco Javier Torres Mata	**Caracterització de la fibromiàlgia i factors pronòstics de resposta al tractament**	Valdés M
Gemma Sansa Fayos	**Factors de confusió en el diagnòstic de narcolepsia**	Santamaria J
Gemma Vall Boada.	**Estructura de la psicopatología de la personalitat, impacte clínic i eficacia biológica**	Gutiérrez F, Obiols J
Gustavo Henrique Santos Pereira	**Investigación de nuevos aspectos clínicos y terapéuticos del síndrome hepato-renal en la cirrosis hepática**	Ginès P, Guevara M
Iban Aldecoa Ansorregui	**Caracterización de la estadificación molecular en carcinoma de colon. Correlación clínico-histológica**	Cuatrecasas M, Castells A
Ignasi Moran Castany	**Discovery of novel genes and genetic regulatory mechanisms through integrative genomic, epigenetic and transcriptional analysis in human pancreatic islet cells**	Ferrer J
Inmaculada Ribera Cortada	**Papel del factor de transcripción SOX11 en la caracterización del linfoma de células del manto**	Campo E
Irma Hoyo Ulloa	**Estudio de los infiltrados pulmonares en pacientes con trasplante de órgano sólido (TOS). Factores de riesgo, pronóstico y diferencias según esquemas de profilaxis e inmunosupresión**	Moreno A
Jesus Aibar Gallizo	**Factores asociados al fracaso multiorgánico en la sepsis**	Nicolas JM, Castro P
Jordi Blasco Andaluz	**Efecto de la vertebroplastia en la calidad de vida y el dolor en pacientes con fractura vertebral osteoporótica. Estudio aleatorizado con seguimiento a 12 meses**	Peris P, Macho JM
Judit Garcia Villoria	**Deficiencia de 2-metil-3-hidroxibutiril-coa deshidrogenasa (MHBD o HSD10) e implicaciones en la enfermedad de Alzheimer**	Ribes A
Judith Gallego Blanco	**Quantification of dopaminergic neurotransmission SPECT studies with 123I-labelled radioligands**	Ros D, Cot A
Julio Jiménez Grez	**Perinatal interventions to modulate lung development**	Deprest J, Gratacos E
Leslie Matalonga Borrel	**Búsqueda de nuevas estrategias y agentes terapéuticos en enfermedades metabólicas hereditarias**	Ribes A, Gort L

Lluís Peri Cusí	**Desenvolupament de la nefrectomia NOTES híbrida transvaginal**	Alcaraz A, Musquera M
Marc Bonnin Vilaplana	**SAHS en els infarts cerebrals: topografies relacionades presència de Cheyne-Stokes i eficàcia d'un tractament precoç**	Montserrat JM
Marc Orta Mascaró	**Implicacions funcionals i terapèutiques de les interaccions moleculars mitjançades per CD5 i CD6 en les repostes immunitàries**	Lozano F
Marc Ruiz Martinez	**Estudio del gen YKT6 y miRNAs asociados en la liberación de exosomas en pacientes quirúrgicos de cáncer de pulmón**	Monzó M, Navarro A
Maria Angeles Rodríguez Pérez	**Valoración ecográfica prenatal del cono medular fetal**	Puerto B, Comas C
Maria Isabel Alvarez Mora	**Patologías asociadas a la premutación del gen FMR1**	Milà M, Rodríguez-Revenga Bodi, L
Maria J. Vidal Losada	**Caracterización Molecular de los Tumores Fibroepiteliales de la glándula mamaria**	Prat A
Maria Luisa Benito Serrano	**Importancia de la atención primaria en la mejora de la calidad asistencial de los pacientes con fibrilación auricular**	Coll-Vinent B
Maria Panelo	**Cuantificación del calcio valvular aórtico**	Mont L
Maria Quesada Franco	**Estudio sobre intentos de suicidio graves ingresados en un hospital general: aspectos sociodemográficos y clínicos**	Braqueihais M, Pintor L
Maria Rosa Escoda Turon	**Anàlisi de diferents aspectes clínics, evolutius i de qualitat assistencial en malalts diagnosticats d'insuficiència cardíaca aguda en els serveis d'urgències hospitalaris durant el període 2007-2014**	Miró Ò, Martin FJ
Marta Cherubini	**Study of mitochondrial dysfunction mechanisms in Huntington's disease striatal degeneration**	Ginés S
Marta Consuegra Fernández	**Estudio de la función inmunomoduladora de CD6 en distintos modelos de estimulación antigénica in vivo e in vitro**	Lozano F, Martínez Florensa M
Marta Cuenca Lopera	**Role of the immunoreceptor CD229 (Ly9) in humoral immunity**	Engel P
Marta Pulido Salgado	**Deleció condicional de C/EBPß a les cèl·lules de la microglia. Nova eina per a l'estudi i la modulació de l'activació glial en models de neurodegeneració**	Saura J, Solà C
Maurizio Riga	**Modulación de receptores serotoninérgicos corticales por psicofármacos. Implicaciones en esquizofrenia y depresión**	Celada P, Artigas F
Miguel Gárriz Vera.	**Personalidad, resultado biográfico y afrontamiento**	Gutiérrez F
Mireia Dalmases Cleries	**Efectos del envejecimiento en las alteraciones neurocognitivas en la apnea obstructiva del sueño: mecanismos y tratamiento con CPAP**	Montserrat JM
Mónica Alexandra Vidal González	**Reproducibilidad y correlación anatómica de la linfogammagrafía en la detección del ganglio centinela en pacientes con melanoma cutáneo maligno**	Pons F, Vidal Sicart S
Mónica B. Jiménez Castro	**El papel del AMPc, del retículo endoplasmático y de las adipocitoquinas en el trasplante hepático**	Peralta C
Monica Guerrero Pérez	**Factors predictius, pronòstics i resposta inflamatòria del fracàs de tractament a les Aguditzacions de la Malaltia Pulmonar Obstructiva Crònica (AMPOC) i del reingrés als 30 dies de l'alta hospitalària**	Torres A, Soler N
Montserrat Cardona Ollé	**Beneficis de la revascularització percutània de les oclusions coronàries totals cròniques en pacients amb fracció d'ejecció ventricular esquerra reduïda**	Martín Yuste V, Sabaté M
Narcís Masoller Casas	**Estudi del desenvolupament cerebral en els fetus afectes de cardiopatia congénita**	Gratacós E, Martínez-Crespo JM

Natalia Nuño Lámbarri	**La sobrecarga hepática del colesterol agrava el daño inducido por la colestasis obstructiva mediante la inducción de extrés oxidante. UAM Méjico**	Gómez Quiroz LE, Fernandez-Checa JC
Nazaret Cobos Trigueros	**Factores de riesgo de adquisición de pseudomonas aeruginosa y comparación de dos estrategias de uso de antibióticos (rotación frente a mezcla) en pacientes críticos: Impacto en las adquisión de microorganismos resistentes y desenlaces clínicos**	Martínez JA
Nikolina Nakic	**Genetic and epigenetic regulation of gene expression in pancreatic islets**	Ferrer J
Noelia Campillo Agulló.	**Cellular Responses to Intermittent Hypoxia: a Lab-on-a-Chip Approach**	Navajas D, Almendros I
Noelia Paco Zamora	**Fosforilación de KRAS y localización en microdominios de membrana. Relevancia en la oncogénesis**	Agell N, Jaumot M
Nuria Bujan Murlà	**Estudis bioquímics i moleculars en pacients amb deficiències mitocondrials i de coenzim Q10**	Briones P, Artuch R
Núria Coll Bonfill	**Mecanismes moleculars i expressió de miRNAs durant la diferenciació de la cèl·lula muscular llisa en el remodelat vascular**	Barbera JA
Omar Gustavo Sued	**Infección aguda/reciente por el VIH-1. Características clínicas, virológicas e inmunológicas y efectos del tratamiento inmunomediado**	Miró JM
Pablo Bellot Garcia	**Alteraciones inmunológicas y hemodinámicas asociadas a la traslocación bacteriana estimada por la presencia de fragmentos de ADN bacteriano en pacientes con cirrosis hepática**	Bosch J, García-Pagán JC
Patricia Molina Martínez.	**Desarrollo de modelos celulares para estudios terapéuticos en la Enfermedad de Alzheimer**	Sanfeliu C, Lladó A
Paul Augusto Espinoza Madrid	**Valoración de la expresión inmunohistoquímica en microarrays tisulares de rack1, 4ebp1, p53 y ki-67 en tumores colorrectales con correlación clínico patológica**	Cuatrecasas M, Ramón y Cajal Agüeras S
Rosa Maria Casas Rodríguez	**Efecto anti-inflamatorio e inmunomodulador de una intervención con dieta mediterránea sobre los marcadores de inflamación de la pared vascular y de la placa inestable. Estudio PREDIMED**	Estruch R, Sacanella E
Rubén Corpas Expósito.	**Mecanismos de neuroprotección mediante la modulación de SIRT1**	Sanfeliu C
Sabela Lens García	**Historia natural de la infección crónica por Hepatitis C e impacto del tratamiento en pacientes con cirrosis o manifestaciones extrahepáticas**	Forns X
Santiago Fernández Fernández	**Utilidad de la neuroimagen funcional multimodal en el estudio de la epilepsia focal fármacoresistente**	Carreño M, Valls-Solé J
Sergio Prieto González	**Afectación de gran vaso en la arteritis de células gigantes detectada mediante técnicas de imagen. Prevalencia, relevancia clínica, utilidad diagnóstica y biomarcadores séricos**	Cid MC
Sonia Pajares	**Estudios de biomarcadores y de posibles terapias en la deficiencia del transportador de creatina y en la enfermedad de Niemann-Pick tipo C**	Ribes A
Verónica García Alonso	**Papel de PGE2 en la inflamación, remodelación y conversión de los adipocitos blancos a células beige en el tejido adiposo blanco**	Clària J
Víctor Manuel Parra Morales	**Estudio del mecanismo del precondicionamiento del miocardio inducido por ejercicio en el perro. Participación del canal de potasio mitocondrial sensible a ATP, lón calcio y NADPH oxidasa**	Pomar JL

Xavier Ariza Solé	**Biomarcadors urinaris a la cirrosi hepàtica. Implicacions en la insuficiència renal i en la síndrome d'Acute-on-Chronic Liver Failure**	Gines P
Xavier Bargalló Castelló	**Introducción del CAD (computer-aided detection) en un programa de detección precoz de cáncer de mama**	Santamaría G, Ayuso C
Xavier Borrat Frigola	**Sedació en l'endoscòpia digestiva: definició de la combinació farmacològica òptima, desenvolupament de sistemes de control i estudi de la variabilitat en la resposta farmacològica mitjançant l'anàlisi farmacogenètica**	Fàbregas N, Gambus PL
Yamina Seamari	**Spatio-tenporal structure of spontaneous slow-wave oscillation and identification of Up and Down cortical states in simultaneous intra- and extracellular recordings in vivo**	Sanchez Vives MV, Narvaez Bueno JA
Yefimenko Nosova	**Novel regulation of AMPA receptors function by interacting protein CPT1C**	Soto, D

IDIBAPS Research Seminars

The institutional seminars consisted in five separate programs, the so-called IDIBAPS Seminars, the IDIBAPS In-House Seminars, the IDIBAPS Core Facility Seminars, the Neurosciences seminar and the Campus Clínic Cancer Seminar. The last two were launched in 2016.

They are all integrated into three quarterly programs (winter, spring and fall) with an average of 50 seminars per year (twice as much as the previous year). The overall objective is to promote lively discussion and debate about the latest research news on every field.

- **IDIBAPS Seminars**. With a clear translational vocation, these seminars are imparted by top scientists of international prestige who are invited to share their most recent scientific findings.

- **IDIBAPS In-House Seminars.** Imparted by IDIBAPS researchers, especially those who have just published high impact results on their scientific field or those holding a tenure-track position. The main objective of this program is to share in-house knowledge and encourage the establishment of intramural collaborations.

- **IDIBAPS Core Facility Seminars.** The program aims to become a tool to introduce new techniques and services offered by the IDIBAPS Core Facilities (Biobank, Bioinformatics, Medical statistics, Cytometry and cell sorting, Functional genomics and Medical imaging).

- **Neuroscience Seminars:** Given by IDIBAPS researchers at different career stages, these seminars aim to strengthen and build internal collaborations in the field of neurosciences.

- **Campus Clinic Cancer Seminars:** This program aims to bring together in-house researchers working in the field of cancer to pool their expertise and establish synergies.



Institutional projects

SIMPACT, Synergies in International Management and Promotion Activities for a Common Success Leadership Strategy in R&D&I

IDIBAPS has its own Strategic Plan (2013-2017) focusing on the enhancement of its excellence in research and valorisation of research results; its international activity; its research career; its core facilities and infrastructures; its research organisation; its communication and dissemination; and, its fundraising policy. In order to advance towards the accomplishment of the strategic goals of this plan, in 2016, 3 institutional projects have been implemented. The management units are the ones responsible for the implementation and coordination of these projects, under the command of the Direction.

COORDINATION
Marga Nadal
Strategy Director
Gemma Llaverias
Scientific Coordination office
Camille Evard and Gemma Pascual
Institutional Initiatives office

SIMPACT is the 3-year collaborative project (2015-2018) between IDIBAPS and FCRB funded by the Ministry of Economy and Competitiveness (MINECO). The project expects to increase the participation, success and leadership of both institutions in the global arena. It is a promising opportunity to become a European and international referent institute in translational research.

OBJECTIVES

- Increase the visibility and recognition of the institute internationally.
- Improve the quality of the institutional management support in European Projects.
- Create new synergies and long-term collaborations with actors of the industrial sector.

ACHIEVEMENTS

The European project's figures from both IDIBAPS and FCRB are:

- 201 research projects presented to international competitive calls (19 coordinated).
- 26 research projects approved and granted (4 coordinated).
- An ERC consulting support has helped to achieve the first granted ERC Consolidator Grants at IDIBAPS.

Other accomplishments among others are:

- The IDIBAPS has increased its international network of collaborators leading to the presentation of 2 institutional European grant proposals (1 coordinated).
- The research community has been invited to attend several in-house infodays and workshops to gain international competitiveness..

HRS4R, Human Resources Strategy for Researchers

COORDINATION
Gemma Llaverias
Scientific coordination
Camille Evard
International unit

FOR FURTHER INFORMATION
www.idibaps.org/research-career/

The Human Resources Strategy for Researchers (HRS4R) supports institutions in the implementation of the European Charter for Researchers and the Code of Conduct for the Recruitment of Researchers in their policies and practices. These adopted documents by the European Commission comprise a set of general principles and requirements which specifies the roles, responsibilities and entitlements of researchers as well as of employers and/or funders of researchers.

In 2015, the IDIBAPS was awarded by the European Commission with the logo "HR Excellence in Research". This recognition identifies the research institute as a provider and supporter of a stimulating and favorable working environment within the European Research Area.

IDIBAPS HRS4R Action Plan (2015-2018)
The IDIBAPS HRS4R Action Plan focuses on the following areas in line with the Charter & Code:

I. Ethical and professional aspects
II. Recruitment
III. Working conditions and social security
IV. Supervision

OBJECTIVES

- Improve the management of the talent through supporting the career development of the researchers
- Provide the early stage and young researchers with appropriate tools to further develop their capacities and skills
- Offer recruitments more open, transparent and competitive to upgrade the management and evaluation of job positions
- Promote a working environment to allow researchers getting more involved in the design and implementation of the IDIBAPS policies and practices

ACTIONS

The proposed 3-year action plan includes 27 individual actions summarised in the following table together with their goals:

ACTIONS	GOALS
Design a welcome pack and a welcome day	**Introduce IDIBAPS to the new employees**
Establish a standard protocol and templates for the promotion evaluation processes	**Assess researcher's professional development on a regular basis and in a transparent manner**
Implement improvements of the current recruitment practices	**Ensure to offer open, transparent and merit-based recruitments by standardization**
Increase the knowledge of the ÒResearch Career at IDIBAPSÓ among the researchers	**Spread the ÒResearch Career at IDIBAPSÓ to the whole research community**
Establish a committee to solve complaints and appeals	**Mediate the differences arisen between the predoctoral and postdoctoral researchers and their mentors**
Increase the involvement of the research areas in the decision-making bodies	**Promote the participation of the research community in the decision-making process**
Design a training programme proposed by a newly established training committee	**Offer training to predoctoral and postdoctoral researchers about non-scientific complementary skills**
Run a mentoring programme directed to predoctoral researchers	**Facilitate the successful achievement of the PhD degree in a reasonable time**

ACHIEVEMENTS

In 2016, the issues tackled in the institution have been:

1. The design and launching of the Stepping-stone training programme. It seeks to provide predoctoral and postdoctoral researchers at IDIBAPS with non-scientific tools and skills which are key for the development of their careers. It includes 12 topics such as oral communication skills, grant writing, research integrity, conflict management, among others.
   (More information at: http://www.idibaps.org/research-career/en_steppingstone.html)
2. The standardisation of the process implemented for the promotion evaluations of tenure-track researchers (R2B) to the following career step (R3). This includes a complete revision and adaptation of the templates used during these evaluations.
3. The definition of the contents of a Welcome Pack to be delivered to all new members of the IDIBAPS research community. This guide will help new employees to find practical information related to the institute as well as its facilities and services.

HR EXCELLENCE IN RESEARCH

Commitment to Society





By informing the public about advancements made in biomedical research and healthcare innovation, IDIBAPS shows its dedication to people, based upon the principle that a well-informed person is a healthier person. The main actions implemented in 2016 are:

"A LA RECERCA DE LA SALUT"

Since 2014, IDIBAPS has built a permanent collaboration with "Centre Cívic Urgell" a local civic centre. Through the organization of different lectures and conferences entitled "A la recerca de la salut", IDIBAPS researchers have the chance to spread their research achievements outside the scientific milieu while becoming informed of the social reality of the district. There are 9 conferences per year.

ESCOLAB

escolab.bcn.cat/en

IDIBAPS participated in Escolab 2016, an initiative of the Barcelona City Council that encourages students in secondary education to discover the world of research as well as to find their scientific vocation. Escolab is an initiative of the Barcelona Science Program of the Culture Institut and the Education Institut of the Barcelona City Council, and benefits from the participation of research centres which offer different activities.

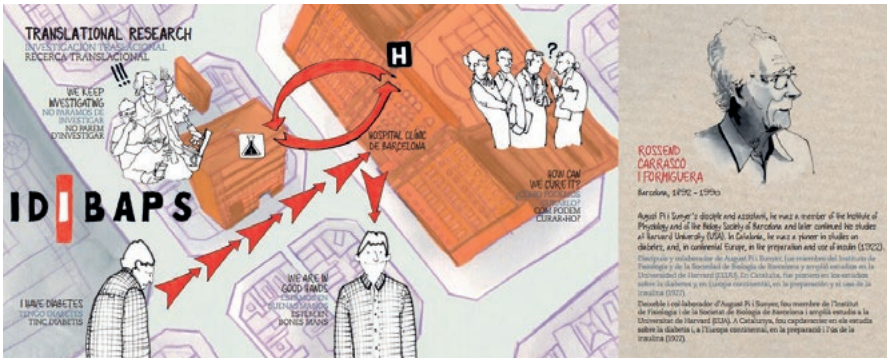
The activities (6 in 2016) started with a presentation of what IDIBAPS is. Then, the students started a tour to visit the facilities of the center and to know closely the work carried out in four of the research groups in the CEK building by the hand of their scientists. Students could also know and see how laboratories at IDIBAPS are organized and were able to visit the IDIBAPS Scientific Core Facilities.



SKETCHING DIABETES IDIBAPS

www.idibaps.org/sketching/

In 2015, IDIBAPS undertook for the second time the initiative to spread its research through the IDIBAPS Sketching project. The Sketching Diabetes was an initiative of IDIBAPS and the AstraZeneca Innovation in Diabetes Chair, in collaboration with Zahorí de Ideas-Drawing on Location, the Associació de Diabètics de Catalunya and CIBERDEM. It sought to create public awareness, through drawing, of the importance of research and innovation in treating and preventing diabetes and its complications. The result was a book published in 2016.







News

IDIBAPS takes part in the European HIV Vaccine Alliance (EHVA) to develop and evaluate new preventive and therapeutic vaccines.

Elías Campo, awarded with the 2016 Rey Jaime I prize in the Medical Research category.

The Clínic-IDIBAPS is the Spanish biomedical research-healthcare institution with more scientists in the list of world's most influential scientist, according to the Thomson Reuters Highly Cited Researchers 2016 list.

IDIBAPS receives the TECNIO label from the Catalan Government.

IDIBAPS launches internal training program stepping-stone.

Marc Claret receives a 'Consolidator Grant' from the European Research Council.

CaixaImpulse selects two IDIBAPS projects to promote technology transfer.

IDIBAPS leads the European project LIVERHOPE, which evaluates the efficacy of new treatments in patients with advanced cirrhosis and searches biomarkers of this disease.

COMMEMORATION OF THE 20TH ANNIVERSARY OF IDIBAPS

Several activities were organized to commemorate the 20th anniversary of IDIBAPS in which the research community and the society were invited to participate:

Special seminars reviewing the evolution of research over the past 20 years were organized for several fields such as Parkinson, AIDS, diabetes, lymphoid malignancies, cardiac arrhythmia, liver diseases. There were also seminars in Cutting-edge research such as CRISPR-CAS technique, Artificial Intelligence... and the conference "European Research Council: an opportunity" presented by Professor Andreu Mas-Colell.

-On November 18th, about 300 people gathered in the inner courtyard Beatriu de Pinós where the celebration of the 20th anniversary of IDIBAPS was held.

The celebration continued in the afternoon, when about 400 people, relatives and workers, were able to get a better understanding of the work of IDIBAPS and visit the laboratories of the Esther Koplowitz Center and Cellex.







1



AREA 1

Biological aggression and response mechanisms

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1.5 **Musculoskeletal repair and plasticity** 94
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Oscar Miró

1.8 **Molecular and cellular bases of inflammation. Structural and biological mass spectrometry** 102
Daniel Closa

1.9 **Ocular Inflammation: Clinical and Experimental Studies.** 104
Alfredo Adán

1.1 Inflammatory joint diseases (IJDs)

LOCATION
HCB building

KEYWORDS
1. **Rheumatoid arthritis**
2. **Psoriatic arthritis**
3. **Pathogenesis**
4. **Biomarkers**
5. **Targeted therapies**

Original publications from 2014 to 2016

YEAR	I.F.	TOTAL	Q1	Q2
2014	56.85	14	11	2
2015	38.89	9	4	4
2016	58.21	14	8	5

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STRATEGIC OBJECTIVES

Promotion of research into the most prevalent chronic forms of immune mediated inflammatory arthritis: rheumatoid arthritis (RA) and spondyloarthritis, including psoriatic arthritis.

MAIN LINES OF RESEARCH

1. Prognostic factors in early arthritis
- Prognostic factors (clinical and immunogenetic) in patients with recent-onset rheumatoid arthritis.
- Production of new synthetic citrullinated peptides for the design of immunoassays with diagnostic and prognostic value in recent-onset rheumatoid arthritis and palindromic rheumatism.

2. Clinical and sonographic characterization of clinical remission
- Definition and clinical characterization of subclinical "active synovitis"
- Immunopathological and molecular characterization of subclinical "active synovitis".
- Search of biomarkers of clinical reactivation and radiographic progression.

3. Immunopathology of synovitis in chronic arthritis
- -Utility in pathogenesis, differential diagnosis and prognosis of rheumatoid arthritis and psoriatic arthritis. Immunopathological changes induced by biological treatments. Mechanism of action of targeted therapies. Synovial response biomarkers.

4. Pharmacogenomics of chronic arthritis
- Genetic biomarkers associated to biological therapy response in rheumatoid arthritis and psoriatic arthritis

PUBLICATIONS

Originals / I.F.: 58.206

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2. Julià A, Blanco F, Fernández-Gutierrez B, González A, Cañete JD, Maymó J, Alperi-López M, Olivè A, Corominas H, Martínez-Taboada V, González-Álvaro I, Fernandez-Nebro A, Erra A, Sánchez-Fernández S,

Alonso A, López-Lasanta M, Tortosa R, Codó L, Lluis Gelpi J, García-Montero AC, Bertranpetit J, Absher D, Myers RM, Tornero J, Marsal S. **Identification of IRX1 as a Risk Locus for Rheumatoid Factor Positivity in Rheumatoid Arthritis in a Genome-Wide Association Study.** *Arthritis Rheumatol.* 68(6):1384-91. IF: 6.009

3. Ogando J, Tardáguila M, Díaz-Alderete A, Usategui A, Miranda-Ramos V, Martínez-Herrera DJ, de la Fuente L, García-León MJ, Moreno MC, Escudero S, Cañete JD, Toribio ML, Cases I, Pascual-Montano A, Pablos JL, Mañes S. **Notch-regulated miR-223 targets the aryl hydrocarbon receptor pathway and increases cytokine production in macrophages from rheumatoid arthritis patients.** *Sci Rep.* 6:20223. IF: 5.228

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6. Inciarte-Mundo J, Ramirez J, Hernández MV, Ruiz-Esquide V, Cuervo A, Cabrera-Villalba SR, Pascal M, Yagüe J, Cañete JD, Sanmarti R. **Calprotectin and TNF trough serum levels identify power Doppler ultrasound synovitis in rheumatoid arthritis and psoriatic arthritis patients in remission or with low disease activity.** *Arthritis Res Ther.* 18(1):160. IF: 3.979

7. Del Rey MJ, Faré R, Usategui A, Cañete JD, Bravo B, Galindo M, Criado G, Pablos JL. **CD271(+) stromal cells expand in arthritic synovium and exhibit a proinflammatory phenotype.** *Arthritis Res Ther.* 18:66. IF: 3.979

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9. Narváez J, Magallares B, Díaz Torné C, Hernández MV, Reina D, Corominas H, Sanmartí R, LLobet JM, Rodriguez de la Serna A, Nolla JM. **Predictive factors for induction of remission in patients with active rheumatoid arthritis treated with tocilizumab in clinical practice.** *Semin Arthritis Rheum.* 45(4):386-90. IF: 3.946

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11. Inciarte-Mundo J, Victoria Hernández M, Ruiz-Esquide V, Raquel Cabrera-Villalba S, Ramirez J, Cuervo A, Pascal M, Yagüe J, Cañete JD, Sanmarti R. Serum Calprotectin Versus Acute-Phase Reactants in the Discrimination of **Inflammatory Disease Activity in Rheumatoid Arthritis Patients Receiving Tumor Necrosis Factor Inhibitors.** *Arthritis Care Res (Hoboken).* 68(7):899-906. IF: 3.229

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13. Tälli S, Etcheto A, Fautrel B, Balanescu A, Braun J, Cañete JD, de Vlam K, de Wit M, Heiberg T, Helliwell P, Kalyoncu U, Kiltz U, Maccarone M, Niedermayer D, Otsa K, Scrivo R, Smolen JS, Stamm T, Veale DJ, Kvien TK, Gossec L. **Patient global assessment in psoriatic arthritis - what does it mean? An analysis of 223 patients from the Psoriatic arthritis impact of disease (PsAID) study.** *Joint Bone Spine.* 83(3):335-40. IF: 2.946

14. Cubino N, Montilla C, Usategui-Martín R, Cieza-Borrela C, Carranco T, Calero-Paniagua I, Quesada A, Cañete JD, Queiro R, Sánchez MD, Hidalgo C, Martínez O, Del Pino-Montes J, Díaz-Álvarez A, González-Sarmiento R. **Association of IL1B (-511 A/C) and IL6 (-174 G > C) polymorphisms with higher disease activity and clinical pattern of psoriatic arthritis.** *Clin Rheumatol.* 35(7):1789-94. IF: 2.042

Reviews / I.F.: 10.824

1. Navarro-Compán V, Plasencia-Rodríguez C, de Miguel E, Balsa A, Martín-Mola E, Seoane-Mato D, Cañete JD. **Anti-TNF discontinuation and tapering strategies in patients with axial spondyloarthritis: a systematic literature review.** *Rheumatology (Oxford).* 55(7):1188-94. IF: 4.524

2. Hernández MV, Sanmartí R, Cañete JD. **The safety of tumor necrosis factor-alpha inhibitors in the treatment of rheumatoid arthritis.** *Expert Opin Drug Saf.* 15(5):613-24. IF: 2.896

3. Martin-Mola E, Balsa A, García-Vicuna R, Gómez-Reino J, González-Gay MA, Sanmartí R, Loza E. **Anti-citrullinated peptide antibodies and their value for predicting responses to biologic agents: a review.** *Rheumatol Int.* 36(8):1043-63. IF: 1.702

4. Cobo-Ibáñez T, Villaverde V, Seoane-Mato D, Muñoz-Fernández S, Guerra M, Del Campo PD, Cañete JD. **Multidisciplinary dermatology-**

rheumatology management for patients with moderate-to-severe psoriasis and psoriatic arthritis: a systematic review. *Rheumatol Int.* 36(2):221-9. IF: 1.702

Clinical guidelines / I.F.: 12.384

1. Gossec L, Smolen JS, Ramiro S, de Wit M, Cutolo M, Dougados M, Emery P, Landewé R, Oliver S, Aletaha D, Betteridge N, Braun J, Burmester G, Cañete JD, Damjanov N, FitzGerald O, Haglund E, Helliwell P, Kvien TK, Lories R, Luger T, Maccarone M, Marzo-Ortega H, McGonagle D, McInnes IB, Olivieri I, Pavelka K, Schett G, Sieper J, van den Bosch F, Veale DJ, Wollenhaupt J, Zink A, van der Heijde D. **European League Against Rheumatism (EULAR) recommendations for the management of psoriatic arthritis with pharmacological therapies: 2015 update.** *Ann Rheum Dis.* 75(3):499-510. IF: 12.384

GRANTS FOR RESEARCH IN PROGRESS

Cañete, JD. **Red de investigación en inflamación y enfermedades reumáticas.**
Sponsored by: Instituto de Salud Carlos III (ISCIII). RD12/0009/0016
Duration: 01/01/2013-31/12/2016

Cañete JD. **Biomarcadores sinoviales para la clasificación diagnóstica de las artritis indiferenciadas. Estudio prospectivo basado en patrones vasculares, inmunohistoquímica y expresión génica.**
Sponsored by: Instituo de Salud Carlos III (ISCIII). PI14/00785
Duration: 01/01/2015-31/12/17

Cañete JD. **Clinical validation of genetic markers to predict persistent remission in rheumatoid arthritis patients treated with biological therapy (REMRABIT)**
Sponsored by: Fundación Profesor Novoa Santos. PMP15/00032
Duration: 01/01/2016-31/12/2019

DOCTORAL THESES

Cañete JD, Sanmarti R. **Caracterización ecográfica e inmunohistológica de la sinovitis subclínica en pacientes con artritis reumatoide en remisión clínica: implicaciones pronósticas.**
PhD student: Felipe Julio Ramírez García

1.2 Systemic autoimmune diseases

LOCATION
HCB building
CELLEX building

KEYWORDS
1. **Systemic autoimmune diseases**
2. **Systemic lupus erythematosus**
3. **Systemic vasculitis**
4. **Antiphospholipid syndrome**
5. **Sjögren's syndrome**

Original publications from 2014 to 2016

YEAR	I.F.	TOTAL	Q1	Q2
2014	181.55	33	23	7
2015	191.76	38	20	11
2016	150.05	28	15	10

TEAM INVOLVED IN
AGAUR_SGR14: 419, 1184

AWARDS

Premi Josep Font
Institution: Fundació Mutual Mèdica
Awardee/s: Dr. Ricard Cervera

Profesor Ad Honorem
Institution: Facultad de Medicina de la Universidad de la República de Uruguay
Awardee/s: Dr. Ricard Cervera

Membre corresponent estranger
Institution: Sociedad de Medicina Interna de Uruguay
Awardee/s: Dr. Ricard Cervera

Silvia Pierangeli Young Scholar Award
Institution: APS Foundation of America
Awardee/s: Dr. Ignasi Rodríguez-Pintó

Premi Joaquim Barraquer
Institution: Reial Acadèmia de Medicina de Catalunya
Awardee/s: Dr. Ricardo P Casaroli-Marano

Membre corresponent electe
Institution: Reial Acadèmia de Medicina de Catalunya
Awardee/s: Dr. Maria Cinta Cid



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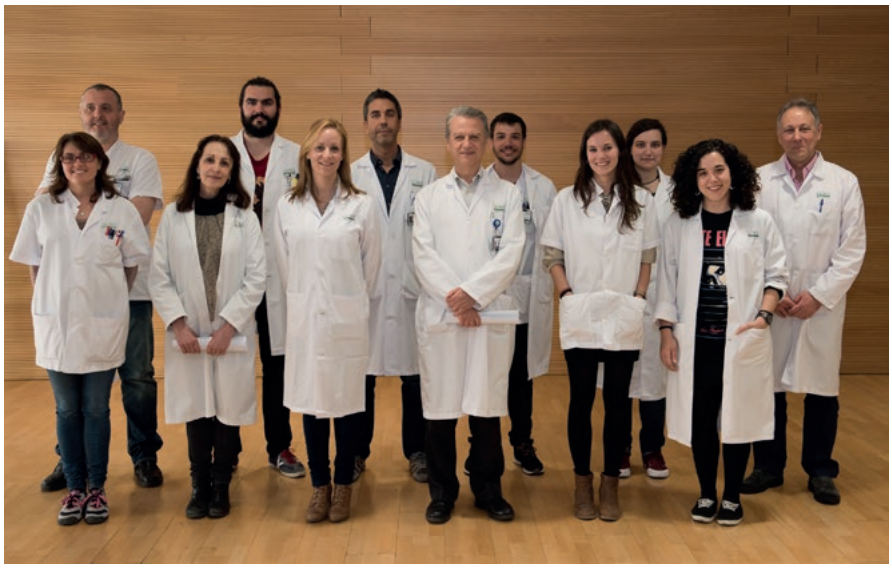

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Miguel Angel Plasín (Mollet)
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Gil Reyes (Santiago, Cuba)
Isabel Sánchez (Granada)
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Pilar Toledano (Toledo)

STRATEGIC OBJECTIVES

The research team promotes clinical and translational research on systemic autoimmune diseases in a multidisciplinary manner, with the participation of members of the Departments of Autoimmune Diseases, Ophthalmology, Nephrology, Immunology, Hemostasis, Obstetrics and Dermatology, among others. These activities are carried out in collaboration with many international working groups.

MAIN LINES OF RESEARCH

1. **Systemic lupus erythematosus, antiphospholipid syndrome and systemic sclerosis:**
- Epidemiological studies on the clinical manifestations and long-term evolution of these diseases.
- Clinical trials in new biological therapies.

2. **Sjögren's syndrome, autoimmune manifestations of hepatitis C virus infection and biological therapies:**
- Study of IgG4 disease associated with Sjögren's.
- Validation of ESSDAI and ESSPRI activity scores,
- Development of new international classification criteria for Sjögren's.

3. **Systemic vasculitis:**
- Investigation of the mechanisms involved in vascular inflammation and remodelling in systemic vasculitis. Identification of biomarkers and new therapeutic targets.
- Development of ex-vivo culture models for studying factors implicated in the perpetuation of inflammation and in vascular remodelling.in giant-cell arteritis
- Clinical trials investigating targeted therapies in the management of systemic vasculitis.
- Clinical phenotypes and outcomes in systemic vasculitis
- Immunogenetics of systemic vasculitis

4. **Autoinflammatory diseases:**
- Epidemiological studies on the clinical manifestations and long-term evolution of these diseases.

RESEARCH GROUP
SYSTEMIC VASCULITIS



GROUP LEADER
Maria Cinta Cid (HCB)

We are interested in investigating mechanisms involved in vascular inflammation and remodelling in systemic vasculitis with the ultimate goal of identifying biomarkers of disease activity and therapeutic targets. We are also interested in delimitating clinical phenotypes and outcomes as well as in therapeutic innovation with targeted therapies, participating in the design and development of innovative international clinical trials. The group also participates in massive genotyping and national and international registries of systemic vasculitis, as well as in the development of international guidelines and recommendations for the definitions, classification and management of systemic vasculitis and related diseases.

PUBLICATIONS

Originals / I.F.: 150.048

1. Corbera-Bellalta M, Planas-Rigol E, Lozano E, Terrades-Garcia N, Alba M A, Prieto-Gonzalez S, Garcia-Martinez A, Albero R, Enjuanes A, Espigol-Frigole G, Hernandez-Rodriguez J, Roux-Lombard P, Ferlin W G, Dayer J M, Kosco-Vilbois M H, Cid M C. **Blocking interferon gamma reduces expression of chemokines CXCL9, CXCL10 and CXCL11 and decreases macrophage infiltration in**



GROUP. Maria Cinta Cid

ex vivo cultured arteries from patients with giant cell arteritis. *Ann Rheum Dis.* 75(6):1177-1186. IF: 12.384

2. Seror R, Bootsma H, Saraux A, Bowman SJ, Theander E, Brun JG, Barón G, Le Guern V, Devauchelle-Pensec V, Ramos-Casals M, Valim V, Dörner T, Tzioufas A, Gottenberg J-E, Laqué RS, Mandl T, Hachulla E, Sivils KL, Ng W-F, Fauchais A-L, Bombardieri S, Priori R, Bartoloni E, Goeb V, Praprotnik S, Sumida T, Nishiyama S, Caporali R, Kruize AA, Vollenweider C, Ravaud P, Meiners P, Brito-Zeron P, Vitali C, Mariette X, Gerli R, Kallenberg C, de Vita S, Demoulins F, Montecucco C. **Defining disease activity states and clinically meaningful improvement in primary Sjögren's syndrome with EULAR primary Sjögren's syndrome disease activity (ESSDAI) and patient-reported indexes (ESSPRI).** *Ann Rheum Dis.* 75(2):382-389. IF: 12.384

3. Seror R, Meiners P, Barón G, Bootsma H, Bowman SJ, Vitali C, Gottenberg J-E, Theander E, Tzioufas A, de Vita S, Ramos-Casals M, Dörner T, Quartuccio L, Ravaud P, Mariette X, Bartoloni E, Gerli R, Bombardieri S, Kallenberg C, Brun JG, Caporali R, Devauchelle V, Saraux A, Fauchais A-L, Hachulla E, Kruize AA, Mandl T, Demoulins F, Montecucco C, Ng W-F, Praprotnik S, Tomsic M, Scofield . **Development of the ClinESSDAI: A clinical score without biological domain. A tool for biological studies.** *Ann Rheum Dis.* 75(11):1945-1950. IF: 12.384

4. Tamirou F., D'Cruz D., Sangle S., Remy P., Vasconcelos C., Fiehn C., Del Mar Ayala Guttierez M., Gilboe I.-M., Tektonidou M., Blockmans D., Ravelingien I., Le Guern V., Depresseux G., Guillevin L., Cervera R., Houssiau F.A. MAINTAIN Nephritis Trial Group. **Long-term follow-up of the MAINTAIN Nephritis Trial comparing azathioprine and mycophenolate mofetil as maintenance therapy of lupus nephritis.** *Ann Rheum Dis.* 75():526-531. IF: 12.384

5. Brito-Zerón P, Kostov B, Solans R, Fraile G, Suárez-Cuervo C, Casanovas A, Rascón FJ, Qanneta R, Pérez-Alvarez R, Ripoll M, Akasbi M, Pinilla B, Bosch JA, Nava-Mateos J, Díaz-López B, Morera-Morales ML, Gheitasi H, Retamozo S, Ramos-Casals M; SS Study Group, Autoimmune Diseases Study Group (GEAS), Spanish Society of Internal Medicine (SEMI). **Systemic activity and mortality in primary Sjögren syndrome: Predicting survival using the EULAR-SS Disease Activity Index (ESSDAI) in 1045 patients.** *Ann Rheum Dis.* 75(2):348-355. IF: 12.384

6. Rodríguez-Pintó I, Moitinho M, Santacreu I, Shoenfeld Y, Erkan D, Espinosa G, Cervera R, the CAPS Registry Project Group (European Forum on Antiphospholipid Antibodies). **Catastrophic antiphospholipid syndrome (CAPS): Descriptive analysis of 500 patients from the International CAPS Registry.** *Autoimmun Rev.* 15(12) : 1120-1124. IF: 8.490

7. Hernandez-Rodriguez J, Ruiz-Ortiz E, Tome A, Espinosa G, Gonzalez-Roca E, Mensa-Vilaro A, Prieto-Gonzalez S, Espigol-Frigole G, Mensa J, Cardellach F, Grau J M, Cid M C, Yague J, Arostegui J I, Cervera R. **Clinical and genetic characterization of the autoinflammatory diseases diagnosed in an adult reference center.** *Autoimmun Rev.* 15(1):9-15. IF: 8.490

8. Espígol-Frigolé G, Planas-Rigol E, Ohnuki H, Salvucci O, Kwak H, Ravichandran S, Luke B, Cid MC, Tosato G. **Identification of IL-23p19 as an endothelial proinflammatory peptide that promotes gp130-STAT3 signaling.** *Sci Signal.* 9(419):ra28. IF: 7.359

9. Hanly JG, Su L, Urowitz MB, Romero-Diaz J, Gordon C, Bae SC, Bernatsky S, Clarke AE, Wallace DJ, Merrill JT, Isenberg DA, Rahman A, Ginzler EM, Petri M, Bruce IN, Dooley MA, Fortin P, Gladman DD, Sanchez-Guerrero J, Steinsson K, Ramsey-Goldman R, Khamashta MA, Aranow C, Alarcón GS, Fessler BJ, Manzi S, Nived O, Sturfelt GK, Zoma AA, van Vollenhoven RF, Ramos-Casals M, Ruiz-Irastorza G, Lim SS, Kalunian KC, Inanc M, Kamen DL, Peschken CA, Jacobsen S, Askanase A, Theriault C, Farewell V. **A Longitudinal Analysis of Outcomes of Lupus Nephritis in an International Inception Cohort Using a Multistate Model Approach.** *Arthritis Rheumatol.* 68(8):1932-1944. IF: 6.009

10. Morales-Espinoza EM, Kostov B, Salami DC, Perez ZH, Rosalen AP, Molina JO, Paz LG, Momblona JM, Areu JB, Brito-Zeron P, Ramos-Casals M, Siso-Almirall A. **Complexity comorbidity and health care costs associated with chronic widespread pain in primary care.** *Pain.* 157(4):818-826. IF: 5.557

11. Retamozo S, Gheitasi H, Quartuccio L, Kostov B, Corazza L, Bove A, Siso-Almirall A, Gandia M, Ramos-Casals M, de Vita S, Brito-Zeron P. **Cryoglobulinaemic vasculitis at diagnosis predicts mortality in primary Sjogren syndrome: analysis of 515 patients.** *Rheumatology.* 55(8):1443-51. IF: 4.524

12. Hanly J G, O'Keeffe A G, Su L, Urowitz M B, Romero-Diaz J, Gordon C, Bae S C, Bernatsky S, Clarke A E, Wallace D J, Merrill J T, Isenberg D A, Rahman A, Ginzler E M, Fortin P, Gladman D D, Sanchez-Guerrero J, Petri M, Bruce I N, Dooley M A, Ramsey-Goldman R, Aranow C, Alarcon G S, Fessler B J, Steinsson K, Nived O, Sturfelt G K, Manzi S, Khamashta M A, Van Vollenhoven R F, Zoma A A, Ramos-Casals M, Ruiz-Irastorza G, Lim S S, Stoll T, Inanc M, Kalunian K C, Kamen D L, Maddison P, Peschken C A. **The frequency and outcome of lupus nephritis: results from an international inception cohort study.** *Rheumatology.* 55(2):252-262. IF: 4.524

13. Brito-Zeron P, Bosch X, Perez-De-Lis M, Perez-Alvarez R, Fraile G, Gheitasi H, Retamozo S, Bove A, Monclus E, Escoda O, Moreno A, Lopez-Guillermo A, Khamashta M A, Ramos-Casals M. **Infection is the major trigger of hemophagocytic syndrome in adult patients treated with biological therapies.** *Semin Arthritis Rheum.* 45(4):391-399. IF: 3.946

14. Mazoteras P, Quiles MG, Martins Bispo PJ, Höfling-Lima AL, Pignatari AC, Casaroli-Marano RP. **Analysis of Intraocular Lens Biofilms and Fluids After Long-Term Uncomplicated Cataract Surgery.** *Am J Ophthalmol.* 169: 46-57. IF: 3.831

15. Nieto-Nicolau N, Martínez-Conesa EM, Casaroli-Marano RP. **Limbal Stem Cells from Aged Donors Are a Suitable Source for Clinical Application.** *Stem Cells Int.* 2016:3032128. IF: 3.687

16. Ortiz-Fernández L, Carmona FD, Montes-Cano MA, García-Lozano JR, Conde-Jaldón M, Ortego-Centeno N, Castillo MJ, Espinosa G, Graña-Gil G, Sánchez-Bursón J, Juliá MR, Solans R, Blanco R, Barnosi-Marín AC, Gómez de la Torre R, Fanlo P, Rodríguez-Carballeira M, Rodríguez-Rodríguez L, Camps T, Castañeda S, Alegre-Sancho JJ, Martín J, González-Escribano MF. **Genetic analysis with the immunochip platform in Behçet Disease Identification of residues associated in the HLA class I region and new susceptibility loci.** *PLoS One.* 11(8):e0161305. IF: 3.057

17. Roura E, Sarbu N, Oliver A, Valverde S, González-Villà S, Cervera R, Bargalló N, Lladó X. **Automated detection of lupus white matter lesions in MRI.** *Front Neuroinformatics.* 10:33. IF: 3.047

18. Alijotas-Reig J, Ferrer-Oliveras R, Esteve-Valverde E, Ruffatti A, Tincani A, Lefkou E, Bertero MT, Espinosa G, Coloma E, de Carolis S, Rovere-Querini P, Canti V, Picardo E, Fredi M, Mekinian A, for the EUROAPS Study Group (Cervera R). **Inherited thrombophilia in women with poor aPL-relted obstetric history : prevalence and outcomes. Survey of 208 cases from the European Registry on Obstetric Antiphospholipid Syndrome cohort.** *Am J Reprod Immunol.* 76(2): 164-171. IF: 2.916

19. Piñeiro GJ, Arrizabalaga P, Solé M, Abellana RM, Espinosa G, Cervera R. **Repeated Renal Biopsy - A Predictive Tool to Assess the Probability of Renal Flare in Lupus Nephritis.** *Am J Nephrol.* 44(6):439-446. IF: 2.605

20. Brito-Zeron P, Sellares J, Bosch X, Hernandez F, Kostov B, Siso-Almirall A, Lopez Casany C, Santos JM, Paradela M, Sanchez M, Ramirez J, Xaubet A, Agusti C, Ramos-Casals M. **Epidemiologic patterns of disease expression in sarcoidosis: age, gender and ethnicity-related differences.** *Clin Exp Rheumatol.* 34(3):380-8. IF: 2.495

21. Ruiz-Irastorza G, García M, Espinosa G, Cabezas-Rodríguez I, Mitjavila F, González-León R, Sopeña B, Perales I, Pinilla B, Rodríguez-Carballeira M, López-Dupla JM, Callejas JL, Castro A, Tolosa C, Sánchez-García ME, Pérez-Conesa M, Navarrete-Navarrete N, Rodríguez AP, Herranz MT, Pallarés L; RELES, Autoimmune Diseases Study Group GEAS. **Patterns of drug therapy in newly diagnosed Spanish patients with systemic lupus erythematosus.** *Clin Exp Rheumatol.* 34(3): 466-472. IF: 2.495

22. Ortiz-Fernandez L, Montes-Cano MA, García-Lozano JR, Conde-Jalón M, Ortego-Centeno N, González-León R, Espinosa G, Graña-Gil J, Sánchez-Bursón J, Julià MR, Solans R, Barnosi-Marín AC, FAnlo P, Rodríguez-Carballeira M, Camps MT, Castañeda S, Martín J, González-Escribano MF. **PTPN22 is not associated with Behçet's disease. Study spanning the complete gene region in the Spanish population and meta-analysis of the functional variant R620W.** *Clin Exp Rheumatol.* 36 (6): 41-45. IF: 2.495

23. Sellares J, Hernandez-Gonzalez F, Lucena CM, Paradela M, Brito-Zeron P, Prieto-Gonzalez S, Benegas M, Cuerpo S, Espinosa G, Ramirez J, Sanchez M, Xaubet A. **Auscultation of Velcro Crackles is Associated With Usual Interstitial Pneumonia.** *Medicine (Baltimore).* 95(5):e2573. IF: 2.133

24. Hernandez-Rodriguez J, Murgia G, Villar I, Campo E, Mackie SL, Chakrabarty A, Hensor EMA, Morgan AW, Font C, Prieto-Gonzalez S, Espigol-Frigole G, Grau JM, Cid MC. **Description and Validation of Histological Patterns and Proposal of a Dynamic Model of Inflammatory Infiltration in Giant-cell Arteritis.** *Medicine (Baltimore).* 95(8):e2368. IF: 2.133

25. Brito-Zeron P, Kostov B, Bosch X, Acar-Denizli N, Ramos-Casals M, Stone JH. **Therapeutic approach to IgG4-related disease: A systematic review.** *Medicine (Baltimore).* 95(26):e4002. IF: 2.133

26. Bentow C, Lakos G, Martis P, Wahl E, García M, Viñas O, Espinosa G, Cervera R, Sjöwall C, Carmona-Fernandes D, Santos MJ, Hanly JG, Mahler M. **International multi-center evaluation of a novel chemiluminiscence assay for the detection of anti-dsDNA antibodies.** *Lupus.* 25(8) : 864-872. IF: 2.118

27. Doti PI, Escoda O, César-Díez S, Palasti S, Teixidó I, Sarquella-Brugada G, Gómez O, Martínez JM, Espinosa G. **Congenital heart block related to maternal autoantibodies: descriptive analysis of a series of 18 cases from a single center.** *Clin Rheumatol.* 35(2):351-356. IF: 2.042

28. Mejía JC, Ortiz T, Tassies D, Solanich X, Vidaller A, Cervera R, Reverter J-C, Espinosa G. **Procoagulant microparticles are increased in patients with Behçet's disease but do not define a specific subset of clinical manifestations.** *Clin Rheumatol.* 35(3):695-699. IF: 2.042

Reviews / I.F.: 26.258

1. Brito-Zeron P, Baldini C, Bootsma H, Bowman SJ, Jonsson R, Mariette X, Sivils K, Theander E, Tzioufas A, Ramos-Casals M. **Sjogren syndrome.** *Nat Rev Dis Primers.* 2:16047. IF: 6.389

2. Brito-Zerón P, Retamozo S Gheitasi H, Ramos-Casals M. **Treating the Underlying Pathophysiology of Primary Sjogren Syndrome: Recent Advances and Future Prospects.** *Drugs.* 76(18):1601-1623. IF: 4.883

3. Brito-Brito-Zerón P, Pérez-Alvarez R, Pallarés L, Retamozo S, Baughman RP, Ramos-Casals M; SarcoGEAS-SEMI Study GroupZeron. **Sarcoidosis: an update on current pharmacotherapy options and future directions.** *Expert Opin Pharmacother.* 17(18):2431-2448. IF: 3.543

4. Rodríguez-Pintó I, Espinosa G, Cervera R. **Catastrophic antiphospholipid syndrome: The current management approach.** *Best Pract Res Clin Rheumatol.* 30(2) 239-249. IF: 3.267

5. Brito-Zerón P, Bosch X, Ramos-Casals M, Stone JH. **IgG4-related disease: Advances in the diagnosis and treatment.** *Best Pract Res Clin Rheumatol.* 30(2):261-278. IF: 3.267

6. Prieto-Gonzalez S, Espigol-Frigole G, Garcia-Martinez A, Alba MA, Tavera-Bahillo I, Hernandez-Rodriguez J, Renú A, Gilabert R, Lomena F, Cid MC. **The Expanding Role of Imaging in Systemic Vasculitis.** *Rheum Dis Clin North Am.* 42(4):733-751. IF: 2.791

7. Brito-Zeron P, Izmirly PM, Ramos-Casals M, Buyon JP, Khamashta MA. **Autoimmune congenital heart block: complex and unusual situations.** *Lupus.* 25(2):116-128. IF: 2.118

Letters / I.F.: 1.267

1. Peiró P, Prieto-González S, de la Red G, Espinosa G. **Rituximab action on the antiphospholipid antibodies in patients with thrombotic antiphospholipid syndrome.** *Med Clin (Barc).* 146(12): e69–e70. IF: 1.267

Editorials / I.F.: 3.484

1. Rodríguez-Pintó I, Espinosa G, Cervera R. **The problems and pitfalls in systemic lupus erythematosus drug discovery.** *Expert Opin Drug Discov.* 11(6): 525-527. IF: 3.484

Case Reports / I.F.: 2.118

1. Sánchez-Marcos C, Hoffman V, Prieto-González S, Hernández-Rodríguez J, Espinosa G. **Renal tubular acidosis type IV as a complication of lupus nephritis.** *Lupus.* 25(3): 307-309. IF: 2.118

Clinical Guidelines / I.F.: 23.470

1. Yates M, Watts RA, Bajema IM, Cid MC, Crestani B, Hauser T, Hellmich B, Holle JU, Laudien M, Little MA, Luqmani RA, Mahr A, Merkel PA, Mills J, Mooney J, Segelmark M, Tesar V, Westman K, Vaglio A, Yalçındağ N, Jayne DR, Mukhtyar C. **EULAR/ERA-EDTA recommendations for the management of ANCA-associated vasculitis.** *Ann Rheum Dis.* 75(9):1583-94. IF: 12.384

2. Ferri C, Ramos-Casals M, Zignego AL, Arcaini L, Roccatello D, Antonelli A, Saadoun D, Desbois AC, Sebastiani M, Casato M, Lamprecht P, Mangia A, Tzioufas AG, Younossi ZM, Cacoub P; ISG-EHCV coauthors. **International diagnostic guidelines for patients with HCV-related extrahepatic manifestations. A multidisciplinary expert statement.** *Autoimmun Rev.* 15(12): 1145-1160. IF: 8.490

3. Brito-Zerón P, Theander E, Baldini C, Seror R, Retamozo S, Quartuccio L, Bootsma H, Bowman SJ, Dörner T, Gottenberg JE, Mariette X, Bombardieri S, de Vita S, Mandl T, Ng WF, Kruize AA, Tzioufas A, Vitali C, Buyon J, Izmirly P, Fox R, Ramos-Casals M; Eular Sjögren Syndrome Task Force. **Early diagnosis of primary Sjogren's syndrome: EULAR-SS task force clinical recommendations.** *Expert Rev Clin Immunol.* 12(2):137-156. IF: 2.596

Consortium Publciations / I.F.: 77.951

1. Marso SP, Daniels GH, Brown-Frandsen K, Kristensen P, Mann JF, Nauck MA, Nissen SE, Pocock S, Poulter NR, Ravn LS, Steinberg WM, Stockner M, Zinman B, Bergenstal RM, Buse JB; LEADER Steering Committee.; LEADER Trial Investigators. (Prieto S). **Liraglutide and Cardiovascular Outcomes in Type 2 Diabetes.** *N Engl J Med.* 375(4):311-22. IF: 59.558

2. López-Isac E, Campillo-Davo D, Bossini-Castillo L, Guerra SG, Assassi S, Simeón CP, Carreira P, Ortego-Centeno N, García de la Peña P; Spanish Scleroderma Group. (Espinosa G), Beretta L, Santaniello A, Bellocchi C, Lunardi C, Moroncini G, Gabrielli A, Riemekasten G, Witte T, Hunzelmann N, Kreuter A, Distler JH, Voskuyl AE, de Vries-Bouwstra J, Herrick A, Worthington J, Denton CP, Fonseca C, Radstake TR, Mayes MD, Martín J. **Influence of TYK2 in systemic sclerosis susceptibility: a new locus in the IL-12 pathway.** *Ann Rheum Dis.* 75(8): 1521-1526. IF: 12.384

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GRANTS FOR RESEARCH IN PROGRESS

Casaroli-Marano R. **Cell Therapy in ocular surface: Role and biosubstitutive applications of human**

adult mesenchymal stem cells (ADS and BMDS) for corneal regeneration.
Sponsored by: Fundació La Marató de TV3. 120630
Duration: 21/01/2013-20/01/2017

Casaroli-Marano R. **Potencial terapéutico de las células progenitoras pluripotentes inducidas (IPSC) y las células progenitoras mesenquimales del estroma de la médula ósea (MSCs) nestina positivas para la regeneración de la superficie ocular.**
Sponsored by: Fondos de Investigaciones Sanitarias del Instituto de Salud Carlos III. PI14/00196
Duration: 01/01/2015-31/12/2018

Cervera R. **Molecular Reclassification to Find Clinically Useful Biomarkers for Systemic Autoimmune Diseases.**
Sponsored by: Fundación Progreso y Salud. 115565
Duration: 01/02/2014-31/01/2019

Cid MC. **Microenvironment Interactions in the Pathogenesis of Lymphoid Neoplasms and Chronic Inflammatory Disorders. Identification of Biomarkers and Design of New Therapeutic Strategies.**
Sponsored by: Instituto de Salud Carlos III. PIE13 00033
Duration: 01/01/2014-31/12/2016

Cid MC. **Crosstalk between lymphocytes and their microenvironment in chronic inflammatory diseases and lymphoproliferative disorders as a target for new therapeutic intervention.**
Sponsored by: Ministerio de Economía y Competitividad. SAF 2014-57708-R
Duration: 01/01/2015-31/12/2017

Ramos M. **Activación del inmunoreceptor linfocitario CD5 en la patogenia del síndrome de Sjogren: alteraciones genéticas y funcionales implicadas en la expresión fenotípica de la enfermedad.**
Sponsored by: Instituto de Salud Carlos III (ISCIII). PI12/01009
Duration: 01/01/2013-31/12/2016

Cid MC. **Dilatació d'aorta ascendent i aneurismes coronaris en pacients amb vasculitis sistèmiques (arteritis de cèlules gegants i malaltia de Kawasaki). Rol de la via HIF en remodelatge/ inflamació vascular.**
Sponsored by: Fundació la Marató de TV3. 20150730
Duration: 10/05/2016-09/05/2019

Espígol G. **Vasculitis de pequeño vaso rodeando a una arteria temporal preservada: significado clínico y búsqueda de biomarcadores de utilidad diagnóstica.**
Sponsored by: Instituto de Salud Carlos III. PI15/00092
Duration: 01/01/2016-31/12/2018

DOCTORAL THESES

Cid MC. **Endothelial and myointimal cell functions related to vascular inflammation and remodeling in Giant-Cell Arteritis. Contribution of interleukin-23p19, interleukin-35 and endothelin-1.**
PhD student: Ester Planas Rigol

Cid MC. **Afectación de gran vaso en la arteritis de células gigantes detectada mediante técnicas de imagen. Prevalencia, relevancia clínica, utilidad diagnóstica y biomarcadores séricos.**
PhD student: Sergio Prieto González

Casaroli-Marano R. **Reposicionamiento y fijación transescleral en el sulcus con suturas de poliéster de lentes intraoculares luxadas a cavidad vítrea mediante vitrectomía 23-Gauge: evaluación de una técnica quirúrgica.**
PhD student: Bachar Kudsieh

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Infectious diseases and AIDS

LOCATION
CELLEX building

FOR FURTHER INFORMATION
www.idibaps.org/aidsresearch

KEYWORDS
1. **HIV**
2. **AIDS**
3. **Endocarditis**
4. **Nosocomial infections**
5. **Immune suppressed patients**

Original publications from 2014 to 2016

YEAR	I.F.	TOTAL	Q1	Q2
2014	294.95	61	43	13
2015	421.94	69	54	5
2016	308.79	64	45	9

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RIS
AGAUR_SGR14: 706, 253

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STRATEGIC OBJECTIVES

1. **In the AIDS field:**
- HIV immune-pathogenesis and HIV vaccines, new antiretrovirals, non-AIDS defining diseases, aging.
- New direct-antiviral drugs (DAA) against HCV in HCV/HIV-coinfected patients.

2. **In the general infections field:**
- Infective endocarditis, including experimental endocarditis in animal models.
- Infection in solid-organ transplant recipients, including HIV-infected patients.
- Nosocomial infections. Antimicrobial use.

MAIN LINES OF RESEARCH

1. **In the AIDS field:**
- Pharmacogenomics and pharmacokinetics
- Immuno-pathogenesis of HIV infection and development of preventive and therapeutic vaccines
- Primary HIV infection: eradication and functional cure strategies.
- Opportunistic diseases: tuberculosis, human papillomavirus, anal cancer.
- Solid organ transplantation in HIV-infected patients
- Epidemiological studies based on cohorts (PISCIS, ART-CC, COHERE, EuroSida)
- Antiretroviral treatment: Efficacy and safety of new antiretroviral drugs. Studies of resistance. New antiretroviral strategies.
- Prevention strategies: PEP and PrEP
- Incidence and management of non-AIDS defining events. Aging. STDs.
- HCV and HBV coinfection. Efficacy and safety of new direct-antiviral drugs (DAA) against HCV.
- New health-care strategies: telemedicine, shared health-care unit with primary care and OPAT programs.

2. **In the general infections field:**
- Clinical and experimental endocarditis. Cohort studies (ICE, GAMES) (Dr J.M. Miró).
- Infections in solid organ transplant recipients (Dr A. Moreno).
- Non-nosocomial and nosocomial health-care associated infections and community-acquired infections. Evaluation of new antibiotic and antifungal drugs (Dr A. Soriano).

RESEARCH GROUP
AIDS AND HIV INFECTION

GROUP LEADER
Josep Maria Gatell (HCB)

This group studies the clinical, diagnostic, therapeutic and preventive aspects of HIV infection. The scientific contribution of this line of research is very competitive and is internationally renowned. This group of investigators focuses on exploration of the potential for eradicating HIV infection and on reconstruction of the immune system, including the development of preventive and therapeutic vaccines. Since its start in 2002, Dr. Gatell has coordinated the Spanish network of research groups in AIDS (RIS), funded by the FIS, and since 2007 has coordinated the HIVACAT project on research therapeutic and preventive vaccines against HIV infection.



GROUP Josep Maria Miró

RESEARCH GROUP
ENDOCARDITIS. CARDIOVASCULAR INFECTIONS. EXPERIMENTAL MODEL



GROUP LEADER
Josep Maria Miró (HCB)

This group studies the epidemiological, clinical, diagnostic, preventive and therapeutic aspects of infectious endocarditis. This is done based on studies of local, national or international cohorts (ICE) that have revealed an increase in endocarditis produced by methicillin-sensitive and -resistant Staphylococcus aureus (MSSA and MRSA, respectively). Studies using the experimental model of endocarditis due to MRSA and glycopeptide intermediate-resistant Staphylococcus aureus (GISA) have evaluated the activity of new antibiotic combinations (phosphomycin and imipenem), or new antibiotics such as daptomycin, telavancin, ceftaroline, and others.

RESEARCH GROUP
INFECTIONS IN SOLID-ORGAN TRANSPLANT RECIPIENTS



GROUP LEADER
Asunción Moreno (HCB)

In recent years, this group has studied the clinical and evolutive characteristics of bacteremia, especially MDR, in patients undergoing transplantation of solid organs (kidney, liver, heart and renal-pancreas).

We have shown that MBL and TLR condition an increase in the prevalence of bacterial infection and CMV disease. These studies have been carried out jointly with researchers specialized in Microbiology and Immunology, and with the different Transplant Units (Institutes of Digestive, Renal and Cardiac Diseases). Its components are members of the Spanish Infectious Diseases Research Network (REIPI) and actively participate in multicenter projects funded by the FIS.

RESEARCH GROUP

NOSOCOMIAL INFECTION STUDY GROUP



GROUP LEADER

Alex Soriano (HCB)

This group studies the clinical, diagnostic, therapeutic and preventive aspects of nosocomial (in-hospital) infections. The scientific contribution is particularly notorious in the treatment and management of bacteremia, infections in Intensive Care Units, and infections related to orthopedic implants



GROUP Alex Soriano

PUBLICATIONS

Originals / I.F.: 308.794

1. Jauregui-Amezaga A, Rovira M, Marin P, Salas A, Pino-Donnay S, Feu F, Elizalde J I, Fernandez-Aviles F, Martinez C, Gutierrez G, Rosinol L, Carreras E, Urbano A, Lozano M, Cid J, Suarez-Lledo M, Mensa J, Rimola J, Rodriguez S, Masamunt M C, Comas D, Ruiz I, Ramirez-Morros A, Gallego M, Ordas I, Panes J, Ricart E. **Improving safety of autologous haematopoietic stem cell transplantation in patients with Crohn's disease.** *Gut.* 65(9):1456-1462. IF: 14.921

2. Melenotte C, Million M, Audoly G, Gorse A, Dutronc H, Roland G, Dekel M, Moreno A, Cammilleri S, Carrieri MP, Protopopescu C, Ruminy P, Lepidi H, Nadel B, Mege JL, Xerri L, Raoult D. **B-cell non-Hodgkin lymphoma linked to Coxiella burnetii.** *Blood.* 127(1):113-21. IF: 11.847

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4. Dominguez-Molina B, Leon A, Rodriguez C, Benito JM, Lopez-Galindez C, Garcia F, Del Romero J, Gutierrez F, Viciana P, Alcami J, Leal M, Ruiz-Mateos E; Spanish AIDS Research Network HIV Controllers Cohort (ECRIS). **Analysis of Non-AIDS-Defining Events in HIV Controllers.** *Clin Infect Dis.* 62(10):1304-9. IF: 8.736

5. Cancer Project Working Group for the Collaboration of Observational HIV Epidemiological Research Europe (COHERE) study in EuroCoord. **Changing Incidence and Risk Factors for Kaposi Sarcoma by Time Since Starting Antiretroviral Therapy: Collaborative Analysis of 21 European Cohort Studies.** *Clin Infect Dis.* 63(10):1373-1379. IF: 8.736

6. May MT, Vehreschild JJ, Trickey A, Obel N, Reiss P, Bonnet F, Mary-Krause M, Samji H, Cavassini M, Gill MJ, Shepherd LC, Crane HM, d'Arminio Monforte A, Burkholder GA, Johnson MM, Sobrino-Vegas P, Domingo P, Zangerle R, Justice AC, Sterling TR, Miró JM, Sterne JA; Antiretroviral Therapy Cohort Collaboration (ART-CC). **Mortality According to CD4 Count at Start of Combination antiretroviral Therapy Among HIV-infected Patients Followed for up to 15 Years After Start of Treatment: Collaborative Cohort Study.** *Clin Infect Dis.* 62(12):1571-7. IF: 8.736

7. Borges ÁH, Lundh A, Tendal B, Bartlett JA, Clumeck N, Costagliola D, Daar ES, Echeverría P, Gisslén M, Huedo-Medina TB, Hughes MD, Huppler Hullsiek K, Khabo P, Komati S, Kumar P, Lockman S, MacArthur RD, Maggiolo F, Matteelli A, Miro JM, Oka S, Petoumenos K, Puls RL, Riddler SA, Sax PE, Sierra-Madero J, Torti C, Lundgren JD. **Nonnucleoside Reverse-transcriptase**

Inhibitor- vs Ritonavir-boosted Protease Inhibitor-based Regimens for Initial Treatment of HIV Infection: A Systematic Review and Metaanalysis of Randomized Trials. *Clin Infect Dis.* 63(2):268-80. IF: 8.736

8. Nicolás D, Esteve A, Cuadros A, Campbell CN, Tural C, Podzamczer D, Murillas J, Homar F, Segura F, Force L, Vilaró J, Masabeu À, Garcia I, Mercadal J, Montoliu A, Ferrer E, Riera M, Cifuentes C, Ambrosioni J, Navarro G, Manzardo C, Clotet B, Gatell JM, Casabona J, Miró JM; PISCIS Cohort Study Investigators. **Safe Reduction in CD4 Cell Count Monitoring in Stable, Virally Suppressed Patients With HIV Infection or HIV/Hepatitis C Virus Coinfection.** *Clin Infect Dis.* 62(12):1578-85. IF: 8.736

9. Pett SL, Amin J, Horban A, Andrade-Villanueva J, Losso M, Porteiro N, Madero JS, Belloso W, Tu E, Silk D, Kelleher A, Harrigan R, Clark A, Sugiura W, Wolff M, Gill J, Gatell J, Fisher M, Clarke A, Ruxrungtham K, Prazuck T, Kaiser R, Woolley I, Arnaiz JA, Cooper D, Rockstroh JK, Mallon P, Emery S. **Maraviroc as a Switch Option, in HIV-1-infected Individuals With Stable, Well-controlled HIV Replication and R5-tropic Virus on Their First Nucleoside/Nucleotide Reverse Transcriptase Inhibitor Plus Ritonavir-boosted Protease Inhibitor Regimen: Week 48 Results of the Randomized, Multicenter MARCH Study.** *Clin Infect Dis.* 63(1):122-132. IF: 8.736

10. Hernandez-Rodriguez J, Ruiz-Ortiz E, Tome A, Espinosa G, Gonzalez-Roca E, Mensa-Vilaro A, Prieto-Gonzalez S, Espigol-Frigole G, Mensa J, Cardellach F, Grau J M, Cid M C, Yague J, Arostegui J I, Cervera R. **Clinical and genetic characterization of the autoinflammatory diseases diagnosed in an adult reference center.** *Autoimmun Rev.* 15(1):9-15. IF: 8.49

11. Pavot V, Climent N, Rochereau N, Garcia F, Genin C, Tiraby G, Vernejoul F, Perouzel E, Lioux T, Verrier B, Paul S. **Directing vaccine immune responses to mucosa by nanosized particulate carriers encapsulating NOD ligands.** *Biomaterials.* 75:327-339. IF: 8.387

12. Podlekareva DN, Efsen AM, Schultze A, Post FA, Skrahina AM, Panteleev A, Furrer H, Miller RF, Losso MH, Toibaro J, Miro JM, Vassilenko A, Girardi E, Bruyand M, Obel N, Lundgren JD, Mocroft A, Kirk O; TB:HIV study group in EuroCoord. **Tuberculosis-related mortality in people living with HIV in Europe and Latin America: an international cohort study. Lancet HIV.** 3(3):e120-31. IF: 8.364

13. Cilloniz C, Gabarrús A, Ferrer M, Puig De La Bellacasa J, Rinaudo M, Mensa J, Niederman MS, Torres A. **Community-Acquired Pneumonia Due to Multidrug- and Non–Multidrug-Resistant Pseudomonas aeruginosa.** *Chest.* 150(2):415-425. IF: 6.136

14. Granados U, Fuster D, Pericas JM, Llopis JL, Ninot S, Quintana E, Almela M, Pare C, Tolosana JM, Falces C, Moreno A, Pons F, Lomena F, Miro JM. **Diagnostic Accuracy of F-18-FDG PET/CT in Infective Endocarditis and Implantable Cardiac Electronic Device Infection: A Cross-Sectional Study.** *J Nucl Med.* 57(11):1726-1732. IF: 5.849

15. López-Medrano F, Fernández-Ruiz M, Silva JT, Carver PL, van Delden C, Merino E, Pérez-Saez MJ, Montero M, Coussement J, de Abreu Mazzolin M, Cervera C, Santos L, Sabé N, Scemla A, Cordero E, Cruzado-Vega L, Martín-Moreno PL, Len Ó, Rudas E, de León AP, Arriola M, Lauzurica R, David M, González-Rico C, Henríquez-Palop F, Fortún J, Nucci M, Manuel O, Paño-Pardo JR, Montejo M, Muñoz P, Sánchez-Sobrino B, Mazuecos A, Pascual J, Horcajada JP, Lecompte T, Moreno A, Carratalà J, Blanes M, Hernández D, Fariñas MC, Andrés A, Aguado JM; Spanish Network for Research in Infectious Diseases (REIPI), the Group for the Study of Infection in Transplant Recipients (GESITRA) of the Spanish Society of Clinical Microbiology and Infectious Diseases (SEIMC), the Study Group for Infections in Compromised Hosts (ESGICH) of the European Society of Clinical Microbiology and Infectious Diseases (ESCMID), and the Swiss Transplant Cohort Study (STCS). **Clinical Presentation and Determinants of Mortality of Invasive Pulmonary Aspergillosis in Kidney Transplant Recipients: A Multinational Cohort Study.** *Am J Transplant.* 16(11):3220-3234. IF: 5.669

16. López-Medrano F, Silva JT, Fernández-Ruiz M, Carver PL, van Delden C, Merino E, Pérez-Saez MJ, Montero M, Coussement J, de Abreu Mazzolin M, Cervera C, Santos L, Sabé N, Scemla A, Cordero E, Cruzado-Vega L, Martín-Moreno PL, Len Ó, Rudas E, de León AP, Arriola M, Lauzurica R, David M, González-Rico C, Henríquez-Palop F, Fortún J, Nucci M, Manuel O, Paño-Pardo JR, Montejo M, Muñoz P, Sánchez-Sobrino B, Mazuecos A, Pascual J, Horcajada JP, Lecompte T, Lumbreras C, Moreno A, Carratalà J, Blanes M, Hernández D, Hernández-Méndez EA, Fariñas MC, Perelló-Carrascosa M, Morales JM, Andrés A, Aguado JM; Spanish Network for Research in Infectious Diseases (REIPI), the Group for the Study of Infection in Transplant Recipients (GESITRA) of the Spanish Society of Clinical Microbiology and Infectious Diseases (SEIMC), the Study Group for Infections in Compromised Hosts (ESGICH) of the European Society of Clinical Microbiology and Infectious Diseases (ESCMID), and the Swiss Transplant Cohort Study (STCS). **Risk Factors Associated With Early Invasive Pulmonary Aspergillosis in Kidney Transplant Recipients: Results From a Multinational Matched Case-Control Study.** *Am J Transplant.* 16(7):2148-57. IF: 5.669

17. Aguero F, Rimola A, Stock P, Grossi P, Rockstroh J K, Agarwal K, Garzoni C, Barcan L A, Maltez F, Manzardo C, Mari M, Ragni M V, Anadol E, Di Benedetto F, Nishida S, Gastaca M, Miro J M. **Liver Retransplantation in Patients With HIV-1 Infection: An International Multicenter Cohort Study.** *Am J Transplant.* 16(2):679-687. IF: 5.669

18. Pazos-Perez, N; Pazos, E; Catala, C; Mir-Simon, B; Gomez-de Pedro, S; Sagales, J; Villanueva, C; Vila, J; Soriano, A; de Abajo, Fjg; Alvarez-Puebla, RA. **Ultrasensitive multiplex optical quantification of bacteria in large samples of biofluids.** *Sci Rep.* 6:29014. IF: 5.228

19. Bermejo, M; Lopez-Huertas, MR; Garcia-Perez, J; Climent, N; Descours, B; Ambrosioni, J; Mateos, E; Rodriguez-Mora, S; Rus-Bercial, L; Benkirane, M; Miro, JM; Plana, M; Alcami, J; Coiras, M. **Dasatinib inhibits HIV-1 replication through the interference of SAMHD1 phosphorylation in CD4+ T cells.** *Biochem Pharmacol.* 106():30-45. IF: 5.091

20. Gomara, MJ; Sanchez-Merino, V; Paus, A; Merino-Mansilla, A; Gatell, JM; Yuste, E; Haro, I. **Definition of an 18-mer Synthetic Peptide Derived from the GB virus C E1 Protein as a New HIV-1 Entry Inhibitor.** *Biochim Biophys Acta-Gen Subj.* (6):-1148. IF: 5.083

21. De Luca A, Flandre P, Dunn D, Zazzi M, Wensing A, Santoro MM, Günthard HF, Wittkop L, Kordossis T, Garcia F, Castagna A, Cozzi-Lepri A, Churchill D, De Wit S, Brockmeyer NH, Imaz A, Mussini C, Obel N, Perno CF, Roca B, Reiss P, Schülter E, Torti C, van Sighem A, Zangerle R, Descamps D; CHAIN and COHERE in EuroCoord. (Miró JM). **Improved darunavir genotypic mutation score predicting treatment response for patients infected with HIV-1 subtype B and non-subtype B receiving a salvage regimen.** *J Antimicrob Chemother.* 71(5):1352-60. IF: 4.919

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10. López-Cortés LE, Almirante B, Cuenca-Estrella M, Garnacho-Montero J, Padilla B, Puig-Asensio M, Ruiz-Camps I, Rodríguez-Baño J; members of the CANDIPOP Project from GEIH-GEMICOMED (SEIMC) and REIPI (Mensa J). **Empirical and targeted therapy of candidemia with fluconazole versus echinocandins: a propensity score-derived analysis of a population-based, multicentre prospective cohort.** *Clin Microbiol Infect.* 22(8):733.e1-8. IF: 4.575

11. Laut KG, Shepherd LC, Pedersen C, Rockstroh JK, Sambatakou H, Paduta D, Matulionyte R, Smiatacz T, Mulcahy F, Lundgren JD, Mocroft A, Kirk O, EuroSIDA in EuroCoord. **Associations between HIV-RNA-based indicators and virological and clinical outcomes.** *Aids.* 30(12):1961-1972. IF: 4.407

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13. Shahmanesh M, Schultze A, Burns F, Kirk O, Lundgren J, Mussini C, Pedersen C, De WS, Kutsyna G, Mocroft A. **The cardiovascular risk management for people living with HIV in Europe: how well are we doing?** *Aids.* 30: 2505-2518. IF: 4.407

14. Ryom L, Lundgren JD, De WS, Kovari H, Reiss P, Law M, El-Sadr W, Monforte AD, Mocroft A, Smith C, Fontas E, Dabis F, Phillips A, Sabin C. **Use of antiretroviral therapy and risk of end-stage liver disease and hepatocellular carcinoma in HIV-positive persons.** *Aids.* 30:1731-1743. IF: 4.407

15. Martínez-Sellés M, Bouza E, Díez-Villanueva P, Valerio M, Fariñas MC, Muñoz-García AJ, Ruiz-Morales J, Gálvez-Acebal J, Antorrena I, de la Hera Galarza JM, Navas E, Muñoz P; GAMES study group. **Incidence and clinical impact of infective endocarditis after transcatheter aortic valve implantation.** *EuroIntervention.* 11(10):1180-7. IF: 3.863

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20. Grund B, Baker JV, Deeks SG, Wolfson J, Wentworth D, Cozzi-Lepri A, Cohen CJ, Phillips A, Lundgren JD, Neaton JD. **Relevance of Interleukin-6 and D-Dimer for Serious Non-AIDS Morbidity and Death among HIV-Positive Adults on Suppressive Antiretroviral Therapy.** *PLoS One.* 11: e0155100. IF: 3.057

21. Kamara DA, Smith C, Ryom L, Reiss P, Rickenbach M, Phillips A, Mocroft A, De WS, Law M, Monforte AD, Dabis F, Pradier C, Lundgren JD, Sabin C. **Longitudinal analysis of the associations between antiretroviral therapy, viraemia and immunosuppression with lipid levels: the D:A:D study.** *Antivir Ther.* 21:495-506. IF: 2.916

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23. García-Álvarez L, Sanz MM, Marín M, Fariñas M, Montejo M, Goikoetxea J, Rodríguez García R, de Alarcón A, Almela M, Fernández-Hidalgo N, Alonso Socas Mdel M, Goenaga MÁ, Navas E, Vicioso L, Oteo JA; Spanish Collaboration on Endocarditis-Grupo de Apoyo al Manejo de la Endocarditis Infecciosa en España (GAMES). **Tropheryma whipplei endocarditis in Spain: Case reports of 17 prospective cases.** *Medicine (Baltimore).* 95(26):e4058. IF: 2.133

GRANTS FOR RESEARCH IN PROGRESS

Miro J.M. **Estudio clínico y experimental de la asociación entre la CMI de vancomicina en Staphylococcus aureus sensible a meticilina (SASM) y el pronóstico de la endocarditis infecciona (EI) izquierda causada por dicho**

microorganismo.
Sponsored by: Instituto de Salud Carlos III (ISCIII). PI043573
Duration: 01/01/2015- 31/12/2017

Garcia F. **Therapeutic TriMix / mRNA based Vaccine in Chronic HIV-1 Infected Patients Receiving Antiretroviral Therapy.**
Sponsored by: European Commission. 602570
Duration: 01/12/2013-30/11/2017

Garcia F. **Relevancia de las células dendríticas en los mecanismos de protección en no infectados y en el control inmunológico de la replicación viral en infectados por VIH.**
Sponsored by: Ministerio de Economía y Competitividad. SAF2012-39075
Duration: 01/01/2013-19/03/2016

Gatell J.M. **Red de Sida.**
Sponsored by: Instituto de Salud Carlos III (ISCIII). RD12/0017/0001
Duration: 01/01/2013-31/12/2016

Gatell J.M. **Targeting the HIV-1 Nucleocapsid Protein to fight Antiretroviral Drug Resistance.**
Sponsored by: European Commission. 601969-2
Duration: 01/09/2013-31/08/2016

Gatell J.M. **Papel de las células dendríticas en la protección y control de la infección por el VIH. Avanzando hacia la remisión sin tratamiento antirretroviral o la curación funcional.**
Sponsored by: Instituto de Salud Carlos III (ISCIII). PI12/01247
Duration: 01/01/2013-30/06/2017

Gatell J.M. **Programa HIVACAT para el desarrollo de vacunas preventivas y terapéuticas frente al VIH.**
Sponsored by: Ministerio de Economía y Competitividad. IPT-2012-0325-010000
Duration: 01/01/2013-31/03/2016

Miro J.M. **Influence of genetic, virologic and immunologic factors on outcomes of HCV/HIV OLT.**
Sponsored by: Roche Organ Transplantation Research Foundation. 218268270
Duration: 01/08/2013-31/03/2016

Miro J.M. **A Phase III multi-center, randomized, open-label, comparative study to assess the efficacy of a treatment algorithm to reduce the use of vancomycin in patients with intravenous catheter-associated bloodstream infections (BSI) due to Staphylococci.**
Sponsored by: National Institute of Health (NIH). NIHAI2008025
Duration: 23/05/2011-30/06/2016

Moreno A. **Impacto de las variaciones genéticas de los TLR 2, 4 y 9 en el riesgo de infección por citomegalovirus postrasplante y su utilidad en la prevención.**
Sponsored by: Instituto de Salud Carlos III (ISCIII). PI12/01743
Duration: 01/01/2013-31/12/2016

Plana M. **Papel de los microRNAs en la regulación de la respuesta inmune antiviral y en el control y / o progresión de la infección por el VIH-1.**
Sponsored by: Instituto de Salud Carlos III (ISCIII). PI12/00969
Duration: 01/01/2013-31/03/2016

Soriano A. **Diseño y evaluación de pruebas para el diagnóstico de biopelículas bacterianas sobre biomateriales. Aplicación en infecciones sobre prótesis articulares.**
Sponsored by: Instituto de Salud Carlos III. PI13/01754
Duration: 01/01/2014-31/12/2016

Yuste E. **Aislamiento y caracterización de anticuerpos de amplio espectro frente al Virus de la Inmunodeficiencia Human tipo 1 (VIH-1) a partir de pacientes con infección reciente.**
Sponsored by: Instituto de Salud Carlos III. PI13/01528
Duration: 01/01/2014-31/12/2016

León A. **Evaluating mHealth technology in HIV to improve Empowerment and healthcare utilisation: Research and innovation to Generate Evidence for personalised care.**
Sponsored by: Ministerio De Sanidad, Politica Social E Igualdad. CE_H2020-PHC-2014-1s
Duration: 01/05/2015-30/04/2020

Arnedo M. **Implicación del colesterol y ácidos grasos en macrofagos infectados por VIH. Una aproximación lipidómica en el campo de la aterosclerosis y la infección por el VIH.**
Sponsored by: Instituto de Salud Carlos III. PI15/00708
Duration: 01/01/2016-31/12/2018

García C. **Impacto de un paquete de intervenciones basadas en la evidencia en la calidad de la atención y el pronóstico de la candidemia.**
Sponsored by: Instituto de Salud Carlos III. PI15/00744
Duration: 05/07/2016-31/12/2018

García F. **Utilización de medicina de sistemas para la predicción de la inmunogenicidad y eficacia de vacunas terapéuticas frente a VIH.**
Sponsored by: Ministerio de Economia y Competitividad. SAF2015-66193-R
Duration: 01/01/2016-31/12/2018

Gatell JM. **NEAT22 – EACS.**
Sponsored by: European Aids Clinical Society Chu Saint Pierre. 16/524
Duration: 14/09/2016-31/12/2020

Gatell JM. **European HIV Vaccine Alliance (EHVA): a EU platform for the discovery and evaluation of novel prophylactic and therapeutic vaccine candidates.**
Sponsored by: INSERM - ANRS Institut National de la Santé. 681032
Duration: 01/01/2016-31/12/2020

Gatell JM. **Inmunoterapia frente al VIH con una vacuna terapéutica más interferón para modificar el reservorio viral y eventualmente alcanzar una remisión sin antiretrovirales.**
Sponsored by: Instituto de Salud Carlos III. PI15/00641
Duration: 01/01/2016-31/12/2018

Miró JM. **Estudi clínic i experimental de la relació entre la CMI a la vancomicina en Staphylococcus aureus sensibles a la meticil·lina (MSSA) i el pronòstic de la endocarditis infecciosa esquerra per MSSA.**
Sponsored by: Fundació la Marató de TV3.
20152610
Duration: 03/06/2016-02/06/2019

Plana M. **Desarrollo de una vacuna terapéutica frente al VIH basada en una nueva formulación de mRNA con nanopartículas.**
Sponsored by: Instituto de Salud Carlos III.
PI15/00480
Duration: 01/01/2016-31/12/2018

DOCTORAL THESES

Carratalá J, Garcia Vidal C. **Candidemia in hospitalized adults: current challenges and strategies of management.**
PhD student: Guillermo Luis Cuervo Requena

Martínez JA. **Factores de riesgo de adquisición de pseudomonas aeruginosa y comparación de dos estrategias de uso de antibióticos (rotación frente a mezcla) en pacientes críticos: Impacto en las adquisión de microorganismos resistentes y desenlaces clínicos.**
PhD student: Nazaret Cobos Trigueros

Miró JM. **Infección aguda/reciente por el VIH-1. Características clínicas, virológicas e inmunológicas y efectos del tratamiento inmunomediado.**
PhD student: Omar Gustavo Sued

Moreno A. **Estudio de los infiltrados pulmonares en pacientes con trasplante de órgano sólido (TOS). Factores de riesgo, pronóstico y diferencias según esquemas de profilaxis e inmunosupresión.**
PhD student: Irma Hoyo Ulloa

Soriano À, García S. **Early prosthetic joint infections treated with debridement and implant retention: Risk factors for failure and importance of selection of antibiotic regimen.**
PhD student: Eduard Tornero Dacasa

1.4

Immune receptors of the innate and adaptive system

LOCATION
CEK building

KEYWORDS
1. **Innate and adaptive immune response**
2. **Immune receptor-ligand interactions**
3. **Immunomodulation and immunotherapy**
4. **Host-pathogen interaction**
5. **Immunevasion**

Original publications from 2014 to 2016

YEAR	I.F.	TOTAL	Q1	Q2
2014	43.03	10	8	-
2015	30.23	8	4	1
2016	42.52	7	6	1

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Adriana Lázaro (UB)

VISITING SCIENTISTS
Francis W. Luscinskas (Cambridge, Massachusetts)
Gustavo Mourglia-Ettlin (Uruguay)

STRATEGIC OBJECTIVES

1. Identification and characterization of functionally relevant genetic variations of immunoreceptors regulating innate and/or adaptive immune responses.
2. Functional characterization of the ligand-receptor interactions responsible for intercellular communication between components from the innate and adaptive immune system.
3. Understanding of host-pathogen interactions mediated by lymphoid and non-lymphoid receptors.
4. Development of novel immunomodulatory strategies in experimental models of autoimmunity, infection and cancer.



TEAM Francisco Lozano

5. Characterization of cytomegalovirus (CMV) biology and pathogenesis.

MAIN LINES OF RESEARCH

1. Molecular and functional characterization of the SLAM (Signaling Lymphocytic Activation Molecule) and SAP (SLAM-Associated Protein) leukocyte receptor families.
2. Study of the molecules that intervene in leukocyte adhesion and inflammation.
3. Immunogenetics of receptors and molecules implicated in the regulation of innate and adaptive immune responses.
4. Study of the role of the lymphoid scavenger-like receptors CD5 and CD6 as immunomodulators in infection, autoimmunity and cancer.
5. Molecular and functional characterization of nonlymphoid members of the superfamily of receptors with extracellular domains rich in cysteine (SRCR, Scavenger Receptor Cysteine-Rich) residues.
6. Characterization of the mechanisms that regulate CMV gene expression and identification of functions encoded by CMV.
7. Study of CMV modulation of the immune response and viral immune evasion strategies

PUBLICATIONS

Originals / I.F.: 42.253

1. Orta-Mascaró M, Consuegra-Fernández M, Carreras E, Roncagalli R, Carreras-Sureda A, Alvarez P, Girard L, Simões I, Martínez-Florensa, Aranda F, Merino R, Martínez VG, Vicente R, Merino J, Sarukhan A, Malissen M, Malissen B, Lozano F. **CD6 modulates thymocyte selection and peripheral T cell homeostasis.** *J Exp Med.* 213 (8):1387-1397. IF: 11.240

2. Robertson KA, Hsieh WY, Forster T, Blanc M, Lu H, Crick PJ, Yutuc E, Watterson S, Martin K, Griffiths SJ, Enright AJ, Yamamoto M, Pradeepa MM, Lennox KA, Behlke MA, Talbot S, Haas J, Dolken L, Griffiths WJ, Wang Y, Angulo A, and Ghazal P. **An interferon regulated microRNA provides broad cell-intrinsic anti-viral immunity through multihit host-directed targeting of the sterol pathway.** *PLoS Biol.* 14(3):e1002364. IF: 8.668

3. Potrony M, Carreras E, Aranda F, Zimmer L, Puig-Butille JA, Tell-Martí G, Armiger N, Sucker A, Gimenez-Xavier P, Martinez-Florensa M, Carrera C, Malvehy J, Schadendorf D, Puig S, Lozano F. **Inherited functional variants of the lymphocyte receptor CD5 influence melanoma survival.** *Int J Cancer.* 139 (6): 1297-302. IF: 5.531

4. Yigit B, Halibozek PJ, Chen SS, O'Keeffe MS, Arnason J, Avigan D, Gattei V, Bhan A, Cen O, Longnecker R, Chiorazzi N, Wang N, Engel P, Terhorst C. **A combination of an anti-SLAMF6 antibody and ibrutinib efficiently abrogates expansion of chronic lymphocytic leukemia cells.** *Oncotarget.* 7(18):26346-60. IF: 5.008

5. Cuenca M, Romero X, Sintes J, Terhorst C, Engel P. **Targeting of Ly9 (CD229) Disrupts Marginal Zone and B1 B Cell Homeostasis and Antibody Responses.** *J Immunol.* 196(2):726-37. IF: 4.985

6. Wang N, Keszei M, Halibozek P, Yigit B, Engel P, Terhorst C. **Slamf6 negatively regulates autoimmunity.** *Clin Immunol.* 173:19-26. IF: 4.034

7. Farré D, Engel P, Angulo A. **Novel role of 3'UTR-embedded Alu elements as facilitators of processes pseudogene genesis and host gene capture by viral genomes.** *PLoS One.* 11:e0169196. IF: 3.057

Reviews / I.F.: 8.724

1. van Driel BJ, Liao G, Engel P, Terhorst C. **Responses to Microbial Challenges by SLAMF Receptors.** *Front Immunol.* 7:4. IF: 5.695

2. Sarukhan A, Martínez-Florensa M, Escoda-Ferran C, Carrasco E, Carreras E, Lozano F. **Pattern Recognition by CD6: A Scavenger-Like Lymphocyte Receptor.** *Curr Drug Targets.* 17(6):640-650. IF: 3.029

Clinical Guidelines / I.F.: 4.161

1. Roncador G, Engel P, Maestre L, Anderson AP, Cordell JL, Cragg MS, Šerbec VČ, Jones M, Lisnic VJ, Kremer L, Li D, Koch-Nolte F, Pascual N, Rodríguez-Barbosa JI, Torensma R, Turley H, Pulford K, Banham AH. **The European antibody network's practical guide to finding and validating suitable antibodies for research.** *MAbs.* 8(1):27-36. IF: 4.161

GRANTS FOR RESEARCH IN PROGRESS

Angulo A. **Caracterización funcional de nuevas proteínas del citomegalovirus que interfieren en la respuesta inmune del huésped.**
Sponsored by: Ministerio de Economía y Competitividad. SAF2014-55683
Duration: 01/01/2015-31/12/2017

Engel P. **SLAM Gene Family Controlled Pathways to SLE.**
Sponsored by: NIH (USA). 2P01AI065687-06A1
Duration 01/08/2012-31/07/2017

Lozano F. **Red Española de Investigación en Patología Infecciosa.**
Sponsored by: Instituto de Salud Carlos III (ISCIII). RD12/0015/0018
Duration: 01/01/2013-31/12/2016

Lozano F. **Soluble scavenger-like lymphocyte receptors as novel immunomodulatory agents in cancer.**
Sponsored by: Fundació La Marató TV3. TV3_Cancer_13. 20131930
Duration: 08/05/2014-07/05/2017

Lozano F. **CD5 y CD6 como dianas de inmunomodulación en modelos experimentales de autoinmunidad e infección.**

Sponsored by: Ministerio de Economía y Competitividad. SAF2013-46151-R
Duration: 01/01/2014-31/12/2016

Lozano F. **Potentiation of the immune anti-tumour response by soluble lymphocyte receptors CD5 and CD6.**
Sponsored by: Worldwide Cancer Research. INT_AICR_Oct2013
Duration: 01/06/2014-31/05/2016

Lozano F. **Proteínas SRCR como receptores reconocedores de microorganismos: un amplio rastreo de interacciones con bacterias patogénicas.**
Sponsored by: Ministerio de Economía y Competitividad. PI044058
Duration: 01/12/2015- 30/11/2018

Lozano F. **Aproximaciones experimentales al estudio de las propiedades inmunomoduladores de receptores linfocitarios tipo scavenger en patología inmunomediada.**
Sponsored by: Ministerio de Economia y Competitividad. SAF2016-80535-R
Duration: 30/12/2016-29/12/2019

DOCTORAL THESES

Engel P. **Role of the immunoreceptor CD229 (Ly9) in humoral immunity.**
PhD student: Marta Cuenca Lopera

Lozano F, Martínez Florensa M. **Estudio de la función inmunomoduladora de CD6 en distintos modelos de estimulación antigénica in vivo e in vitro.**
PhD student: Marta Consuegra Fernández

Lozano F. **Implicacions funcionals i terapèutiques de les interaccions moleculars mitjançades per CD5 i CD6 en les repostes immunitàries.**
PhD student: Marc Orta Mascaró

1.5

Musculoskeletal repair and plasticity

LOCATION
HCB building

Original publications from 2014 to 2016

YEAR	I.F.	TOTAL	Q1	Q2
2014	7.77	5	-	1
2015	42.46	13	6	5
2016	10.07	4	1	2

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AGAUR_SGR14: 796

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Josep M. Segur (HCB)
Santiago Suso (HCB)

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Ester Garcia Oltra (HCB)
Diego Artemio Reátegui Villegas (HCB)
Conxita Closa Rusinés (Fisiogestion)
Maria Gonzalez Luis (VHIR)

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STRATEGIC OBJECTIVES

The musculoskeletal system (MS) is a field with a growing social and technological demand. There are many aspects of new knowledge related to the MS: cellular, genic and pharmacological therapies; implants; robotics; surgical technology; and imaging techniques. The lack of clinical scientific evidence relating to much of the new knowledge, and the great volume of patients in our setting, represent an important source of work from which to derive intellectual benefit.

MAIN LINES OF RESEARCH

1. Bone physiopathology, pathological variation with age, evaluation of fracture setting techniques and bone substitutes.
2. Cartilage, degeneration and repair through tissue engineering.
3. Evaluation and design of new prosthetic implants.
4. Minimally invasive surgery with new technology and instruments.
5. Infections of the locomotor apparatus, their prevention and treatment.
6. Acute postoperative pain and chronic musculoskeletal pain.
7. Functional re-adaptation, prevalence and evaluation of health results in degenerative arthropathies.
8. Biology of autologous adipose tissue grafts.

9. Musculoskeletal system tissue bank.
10. Imaging diagnosis, new technologies in diagnosis and follow-up
11. Collaboration in joint projects with the UASP.
12. Acute-phase response in open fractures. Use of IL-6, C-reactive protein and CK in predicting results, and correlation with the Gustilo classification.
13. Vascular anatomy of the upper extremity applied to reconstructive procedures.
14. Surgical management of facial lipoatrophy based on the injection of autologous adipose tissue in HIVinfected patients.
15. Nervous system: - Tubulization repair of peripheral nervous system damage. - Experimental reimplantation of nerve root preganglionic avulsions.

PUBLICATIONS

Originals / I.F.: 10.068

1. Tornero E, Morata L, Martínez-Pastor JC, Angulo S, Combalia A, Bori G, García-Ramiro S, Bosch J, Mensa J, Soriano A. **Importance of selection and duration of antibiotic regimen in prosthetic joint infections treated with debridement and implant retention.** *J Antimicrob Chemother.* 71(5):1395-401. IF: 4.919

2. Torner F, Segur JM, Ullot R, Soldado F, Domenech P, DeSena L, Knorr J. **Non-invasive expandable prosthesis in musculoskeletal oncology paediatric patients for the distal and proximal femur.** *First results. Int Orthop.* 40(8):1683-8. IF: 2.387

3. Claret G, Montañana J, Rios J, Ruiz-Ibán MÁ, Popescu D, Núñez M, Lozano L, Combalia A, Sastre S. **The effect of percutaneous release of the medial collateral ligament in arthroscopic medial meniscectomy on functional outcome.** *Knee.* 23(2):251-5. IF: 1.446

4. Capdevila A, Navarro M, Bori G, Tornero E, Camacho P, Bosch J, García S, Mensa J, Soriano A. **Incidence and Risk Factors for Infection When Teicoplanin Is Included for Prophylaxis in Patients with Hip Fracture.** *Surg Infect (Larchmt).* 17(4):381-4. IF: 1.316

Case Reports / I.F.: 3.097

1. Sastre S, Peidro L, Méndez A, Calvo E. **Suprascapular nerve palsy after arthroscopic Latarjet procedure: a case report and review of literature.** *Knee Surg Sports Traumatol Arthrosc.* 24(2):601-3. IF: 3.097

GRANTS FOR RESEARCH IN PROGRESS

Núñez M. **Predicción de resultados de la protesis de rodilla. Importancia de las medidas antropometricas de la rodilla.**
Sponsored by: Instituto de Salud Carlos III (ISCIII). PI13/00948
Duration: 01/01/2014-31/12/2016

Bori G. **Estudi de la planificació quirúrgica preoperatòria per impressió 3-D en recanvis complexes de còtila.**
Sponsored by: Fundacio academica de les ciències mèdiques. DN040573
Duration: 18/06/2015-17/06/2017

Segur JM. **Estudio clínico piloto de terapia alogénica con células madre adultas expandidas "ex vivo" conjugadas en matriz ósea de origen alogénico en el tratamiento de fracturas de fémur proximal en ancianos.**
Sponsored by: Ministerio de sanidad, politica social e igualdad. EC11-158
Duration: 01/01/2012-31/12/2016

Bori G. **Estudio multicéntrico prospectivo para comparar dos estrategias quirúrgicas: recambio en un tiempo versus dos tiempos en la infección crónica de una prótesis de cadera.**
Sponsored by: Instituto Carlos III. PI043445.
Duration: 01/01/2015-31/12/2017

DOCTORAL THESES

Segur JM. **Estudio mediante elementos finitos de prótesis tumorales de rodilla en niños y adolescentes.**
PhD student: Ferran Torner Rubies

1.6

Immunogenetics of the autoinflammatory response

LOCATION
HCB building

KEYWORDS
1. **Autoinflammation**
2. **Immunogenetics**
3. **Inflammasome**
4. **Immunotherapy**
5. **Immunodeficiencies**

Original publications from 2014 to 2016

YEAR	I.F.	TOTAL	Q1	Q2
2014	91.71	10	7	1
2015	75.24	13	9	4
2016	59.39	15	8	2



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STRATEGIC OBJECTIVES

In the field of autoinflammatory diseases: Promotion of basic, clinical and translation research in the physiopathology of autoinflammatory diseases as a model for gaining in-depth knowledge of the regulation of the normal inflammatory response, its dysfunctions, and its effects upon the immune response.

In the field of immune response: Determination of the components of normal and pathological inflammatory response is essential for modulating the specific recognition phenomena of the immune response.

MAIN LINES OF RESEARCH

In the field of autoinflammatory diseases:
- Determination of the genetic and molecular bases of the autoinflammatory process.
- Characterization of the regulatory mechanisms of the inflammasome and its dysfunction.
- Characterization of the spefific transcriptional profiles of autoinflammatory diseases.



TEAM Jordi Yagüe

- Isolation of new genes responsible for hereditary autoinflammatory diseases and identification of genetic susceptibility factors for the development of polygenic autoinflammatory processes.
- Definition of new therapeutic targets for the treatment of autoinflammatory diseases

In the field of immune responses:

- Assessing the role of HLA-DRB3/4/5 loci in the immune response against infection, transplantation and autoimmune response.
- Assessing the role of the mutation E52del in MyD88 in normal population as well as in relation to the lack of MyD88.

PUBLICATIONS

Originals / I.F.: 5.389

1. Hernandez-Rodriguez J, Ruiz-Ortiz E, Tome A, Espinosa G, Gonzalez-Roca E, Mensa-Vilaro A, Prieto-Gonzalez S, Espigol-Frigole G, Mensa J, Cardellach F, Grau J M, Cid M C, Yague J, Arostegui J I, Cervera, R. **Clinical and genetic characterization of the autoinflammatory diseases diagnosed in an adult reference center.** *Autoimmun Rev.* 15(1):9-15. IF: 8.49

2. Rowczenio DM, Trojer H, Omoyinmi E, Aróstegui JI, Arakelov G, Mensa-Vilaró A, Baginska A, Silva Pilorz C, Wang G, Lane T, Brogan P, Hawkins PN, Lachmann. **Brief report: Association of tumor necrosis factor receptor-associated periodic syndrome with gonosomal mosaicism of a novel 24-nucleotide TNFRSF1A deletion.** *Arthritis Rheumatol.* 68(8):2044-2049. IF: 6.009

3. Mensa-Vilaro A, Cham WT, Tang SP, Lim SC, Gonzalez-Roca E, Ruiz-Ortiz E, Ariffin R, Yague Ribes Jordi, Arostegui JI. **Brief Report: Firs identification of intrafamilial recurrence of Blau Syndrome due to gonosomal NOD2 Mosaicism.** *Arthritis Rheumatol.* 68(4):1039-1044. IF: 6.009

4. Mensa-Vilaro A, Teresa Bosque M, Magri G, Honda Y, Martinez-Banaclocha H, Casorran-Berges M, Sintes J, Gonzalez-Roca E, Ruiz-Ortiz E, Heike T, Martinez-Garcia JJ, Baroja-Mazo A, Cerutti A, Nishikomori R, Yague J, Pelegrin P, Delgado-Beltran C, Arostegui JI. **Late onset cryopyrin-associated periodic syndrome due to myeloid-restricted somatic NLRP3 mosaicism.** *Arthritis Rheumatol.* 68(12):3035-3041. IF: 6.009

5. Pascal M, Munoz-Cano R, Mila J, Sanz ML, Diaz-Perales A, Sanchez-Lopez J, Garcia-Moral A, Juan M, Valero A, Yague J, Picado C, Bartra J. **Nonsteroidal anti-inflammatory drugs enhance IgE-mediated activation of human basophils in patients with food anaphylaxis dependent and independent of nonsteroidal anti-inflammatory drugs.** *Clin Exp Allergy*. 46(8):1111-1119. IF: 5.587

6. Molins B, Fuentes-Prior P, Adan A, Anton R, Arostegui JI, Yague J, Dick AD. **Complement factor H binding of monomeric C-reactive protein downregulates proinflammatory activity and is impaired with at risk polymorphic CFH variants.** *Sci Rep.* 6:22889. IF: 5.228

7. Inciarte-Mundo Jose, Ramirez Julio, Victoria Hernandez Maria, Ruiz-Esquide Virginia, Cuervo Andrea, Raquel Cabrera-Villalba Sonia, Pascal Mariona, Yague Jordi, Canete Juan D., Sanmarti Raimon. **Calprotectin and TNF trough serum levels identify power Doppler ultrasound synovitis in rheumatoid arthritis and psoriatic arthritis patients in remission or with low disease activity.** *Arthritis Res Ther.* 8;18(1):160. IF: 3.979

8. Inciarte-Mundo Jose, Victoria Hernandez Maria, Ruiz-Esquide Virginia, Raquel Cabrera-Villalba Sonia, Ramirez Julio, Cuervo Andrea, Pascal Mariona, Yague Jordi, Canete Juan D., Sanmarti Raimon. **Serum Calprotectin Versus Acute-Phase Reactants in the Discrimination of Inflammatory Disease Activity in Rheumatoid Arthritis Patients Receiving Tumor Necrosis Factor Inhibitors.** *Arthritis Care Res*. 68(7):899-906. IF: 3.229

9. Gambato M, Caro-Pérez N, González P, Cañete N, Mariño Z, Lens S, Banacci M, Batres C, Sánchez-Tapias JM, Carrión JA, Forns X, Juan M, Pérez del Pulgar S, Londoño MC. **Neutrophil and monocyte function in patients with chronic hepatitis C undergoing antiviral therapy with regimens containing protease inhibitors with and without interferon.** *PLoS One.* 11(11):e0166631. IF: 3.057

10. Eroglu FK, Kasapcopur O, Besbas N, Ozaltin F, Bilginer Y, Barut K, Mensa-Vilaró A, Nakagawa K, Heike T, Nishikomori R, Aróstegui J, Ozen S. **Genetic and clinical features of cryopyrin-associated periodic syndromes in Turkish children.** *Clin Exp Rheumatol.* 102(6):115-120. IF: 2.495

11. Magnano L, Fernandez De Larrea C, Elena M, Cibeira MT, Tovar N, Arostegui JI, Pedrosa F, Rosinol L, Filella X, Yague Ribes Jordi, Blade J. **Prognostic Impact of Serum Heavy/Light Chain Pairs in Patients With Monoclonal Gammopathy of Undetermined Significance and Smoldering Myeloma: Long-Term Results From a Single Institution.** *Clin Lymphoma Myeloma Leuk.* 16(6):e71-e77. IF: 2.316

12. Corbella X, Aróstegui J, Mitjavila F, Camprubí D. **Efficacy of anakinra in an adult patient with recurrent pericarditis and cardiac tamponade as initial manifestations of tumor necrosis factor receptor-associated periodic syndrome due to the R92Q TNFRSF1A variant.** *Int J Rheum Dis.* 20(4):510-514. IF: 1.914

13. Calvo K, Gean E, Piquer M, Martínez Valdez L, Deyà-Martínez A, Rojas M, Esteve-Solé A, Juan M, Plaza AM, Alsina L. **Humoral deficiency in three paediatric patients with genetic diseases.** *Allergol Immunopathol.* 44(3):257-262. IF: 1.689

14. Pascal M, Vazquez-Ortiz M, Folque MM, Jiménez-Feijoo R, Lozano J, Dominguez O, Piquer-Gibert M, Giner MT, Alvaro M, Diaz

da Costa, García-Paba B, Machinena A, Alsina L, Yague Ribes Jordi, Plaza-Mertín AM. **Asymptomatic LTP sensitisation is common in plant-food allergic children from the Northeast of Spain.** *Allergol Immunopathol.* 44(4):351-358. IF: 1.689

15. Pascal M, Vazquez-Ortiz M, Folque MM, Jimenez-Feijoo R, Lozano J, Dominguez O, Piquer-Gibert M, Giner MT, Alvaro M, da Costa MD, Garcia-Paba B, Machinena A, Alsina L, Yague J, Plaza-Martin AM. **Asymptomatic LTP sensitisation is common in plant-food allergic children from the Northeast of Spain.** *Allergol Immunopathol.* 44(4):351-358. IF: 1.689

Reviews / I.F.: 1.163

1. Xirotagaros G, Hernández-Ostiz S, Aróstegui JI, Torrelo A. **Newly described autoinflammatory diseases in pediatric dermatology.** *Pediatr Dermatol.* 33(6):602-614. IF: 1.163

Letters / I.F.: 17.318

1. Bueno C, van Roon EH, Múñoz-López A, Sanjuan-Pla A, Juan M, Navarro A, Stam RW, Menéndez P. **Immunophenotypic analysis and quantification of B-1 and B-2 cells Turing human fetal hematopoietic development.** *Leukemia.* 30(7):1603-1606. IF: 12.104

2. Deyà-Martínez A, Esteve-Solé A, Giner MT, Aróstegui JI, Ruiz-Ortiz E, Yagüe J, Juan M, Plaza AM, Alsina L. **Clues to management of neonatally diagnosed BTK deficiency.** *Pediatr Allergy Immunol.* 27(4):428-430. IF: 3.947

3. Rodríguez-Lobato LG, Iranzo P, Aróstegui JI, Fernández de Larrea C. **Schnitzler syndrome: Report of 3 cases.** *Med Clin (Barc).* 146(11):e63-65. IF: 1.267

GRANTS FOR RESEARCH IN PROGRESS

Juan M. **Mejoras en el protocolo de tratamiento con linfocitos T transducidos con CART19 (receptor antigénico quimérico anti-CD19) en síndromes linfoproliferativos B: de la valoración epigenética a la introducción de genes suicidas.**
Sponsored by: Instituto de Salud Carlos III (ISCIII). PI13/00676
Duration: 01/01/2014-31/12/2016

Yagüe J. **Microenvironment Interactions in the Pathogenesis of Lymphoid Neoplasms and Chronic Inflammatory Disorders. Identification of Biomarkers and Design of New Therapeutic Strategies.**
Sponsored by: Instituto de Salud Carlos III (ISCIII). PIE13/00033
Duration: 01/01/2014-31/12/2016

Arostegui JI. **A comprehensive clinical and experimental approach to personalized molecular medicine in patient autoinflammatory disorders.**
Sponsored by: Instituto de Salud Carlos III. AC15/00027
Duration: 01/01/2016-31/12/2018

Arostegui JI. **A comprehensive clinical and experimental approach to personalized molecular medicine in patients with defined and undefined autoinflammatory disorders.**
Sponsored by: Istituto Giannina Gaslini. E-RARE_JTC_2015_07
Duration: 01/05/2016-30/04/2019

Arostegui JI. **Contribución de nuevos mecanismos genéticos a la fisiopatología de las inmunodeficiencias primarias.**
Sponsored by: Ministerio de Economia y Competitividad. SAF2015-68472-C2-1-R
Duration: 01/01/2016-31/12/2018

Arostegui JI. **Estudio multicéntrico nacional para la evaluación de la deficiencia humana de lacasa en la fisiopatología de la artritis idiopática juvenil.**
Sponsored by: Sociedad Española de Reumatología Pediátrica. SERPE-2015-AROSTEGUI
Duration: 05/02/2016-04/02/2018

Juan M. **Acceleradora pel desenvolupament de Teràpies Avançades a Catalunya.**
Sponsored by: Universitat de Barcelona. COMRDI15-1-0013-13
Duration: 01/02/2016-31/01/2019

1.7

Emergencies: Processes and pathologies

LOCATION
HCB building

KEYWORDS
1. **Emergency department**
2. **Organization**
3. **Toxicology**
4. **Chest pain**
5. **Arrhythmia**

Original publications from 2014 to 2016

YEAR	I.F.	TOTAL	Q1	Q2
2014	50.48	20	15	4
2015	94.44	28	18	8
2016	37.46	14	8	5

TEAM INVOLVED IN
AGAUR_SGR14: 313

AWARDS

10º Premio Nacional "Pepe Millá" de investigación en urgencias y emergencias
Institution: Sociedad Española de Medicina de Urgencias y Emergenicas (SEMES)
Awardee/s: Blanca Coll-Vinent

Premio Luis Jiménez Murillo (8ª edición; 2016) al mejor trabajo de investigación publicado en la revista Emergencias el año previo
Institution: Sociedad Española de Medicina de Urgencias y Emergenicas (SEMES)
Awardee/s: Òscar Miró

Premio Luis Jiménez Murillo (8ª Edición; 2016) al trabajo de investigación publicado en la revista Emergencias con mayor impacto a medio plazo.
Institution: Sociedad Española de Medicina de Urgencias y Emergenicas (SEMES)
Awardee/s: Òscar Miró



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STRATEGIC OBJECTIVES

The study of all processes and pathologies inherent to the emergency setting, with a patient-centred approach and



TEAM Òscar Miró

focusing on the acute process leading to emergency consultation. The first few hours of emergency disease conditions are exclusively addressed by the Emergency Department, where clinical research has not classically been considered. This makes this group unique in Catalonia and Spain.

MAIN LINES OF RESEARCH

1. Functional aspects of Hospital Emergency Departments.
2. Clinical aspects of intoxicated patients.
3. Treatment of arrhythmias in the emergency room.
4. Evaluation of chest pain in the Emergency Department.
5. Diffusion of the teaching of cardiopulmonary resuscitation maneuvers among the general population
6. Emergency medical care for problems caused by drug abuse.
7. Acute heart failure
8. Attention to infectious diseases in Emergency Departments.
9. Dynamics of teaching and research in Emergency Medicine.

PUBLICATIONS

Originals / I.F.: 37.461

1. Nestelberger T, Wildi K, Boeddinghaus J, Twerenbold R, Reichlin T, Giménez MR, Puelacher C, Jaeger C, Grimm K, Sabti Z, Hillinger P, Kozhuharov N, du Fay de Lavallaz J, Pinck F, Lopez B, Salgado E, Miró Ò, Bingisser R, Lohrmann J, Osswald S, Mueller C. **Characterization of the observe zone of the ESC 2015 high-sensitivity cardiac troponin 0h/1h-algorithm for the early diagnosis of acute myocardial infarction.** *Int J Cardiol.* 207:238-45. IF: 4.638

2. Miro O, Muller C, Martin-Sanchez FJ, Bueno H, Mebazaa A, Herrero P, Jacob J, Gil V, Escoda R, Llorens P, Ica-Semes Research Group. **BETAWIN-AHF study: effect of beta-blocker withdrawal during acute decompensation in patients with chronic heart failure.** *Clin Res Cardiol.* 105(12):1021-1029. IF: 4.324

3. Calvo N, Ramos P, Montserrat S, Guasch E, Coll-Vinent B, Domenech M, Bisbal F, Hevia S, Vidorreta S, Borras R, Falces C, Embid C, Montserrat JM, Berruezo A, Coca A, Sitges M, Brugada J, Mont L. **Emerging risk factors and the dose-response relationship between physical activity and lone atrial fibrillation: a prospective case-control study.** *Europace.* 18:57-63. IF: 4.021

4. Carbajosa V, Martín-Sánchez FJ, Llorens P, Herrero P, Jacob J, Alquézar A, Pérez-Durá MJ, Alonso H, Garrido JM, Torres-Murillo JM, López-Grima MI, Piñera P, Fernández C, Miró O. **Factors associated with short stays for patients admitted with acute heart failure.** *Emergencias.* 28:366-74. IF: 2.917

5. Martínez Sánchez L, Trenchs Sainz De La Maza V, Azkunaga Santibáñez B, Nogué-Xarau S, Ferrer Bosch N, García González E, Luaces I Cubells C. **Impact of quality-indicator-based measures to improve the treatment of acute poisoning in pediatric emergency patients.** *Emergencias.* 28:31-37. IF: 2.917

6. Amigo M, Fernandez F, Velasco V, Nogue S. **Injuries from pepper spray used for self defense: analysis of 15 cases managed in an emergency chemical decontamination area.** *Emergencias.* 28(5):349-352. IF: 2.917

7. Fernández-Guerrero IM, Burbano Santos P, Martin-Sanchez FJ, Hidalgo-Rodríguez A, Leal-Lobato MM, Rivilla-Doce C, Julián-Jiménez A, Burillo-Putze G, Miro O. **Productivity of Spanish emergency physicians: Comparison of the 5-year periods 2010–2014 and 2005–2009 [Producción científica de los urgenciólogos españoles durante el quinquenio 2010-2014 y comparación con el quinquenio 2005-2009].** *Emergencias.* 28(3):153-166. IF: 2.917

8. Amigó M, Fernández F, Velasco V, Nogué S. **Agresiones realizadas con espráis de defensa personal atendidas en el área de descontaminación química de urgencias. A propósito de 15.** *Emergencias.* 28:349-52. IF: 2.917

9. Miro O, Tost J, Herrero P, Jacob J, Martin-Sanchez F J, Gil V, Fernandez-Perez C, Escoda R, Llorens P. **Short-term predictive capacity of two different triage systems in patients with acute heart failure: TRICA-EAHFE study.** *Eur J Emerg Med.* 23(6):435-441. IF: 2.026

10. Galicia M, Nogue S, Miro O. **MARRIED-cocaine score: validating a tool for detecting the risk of ED revisit in cocaine users.** *Emerg Med J.* 33(3):218-223. IF: 1.836

11. Borderhore C, Alonso C, SanchezL, Canepa A, Acevedo M, Nogué S, Fuentes V. **Lifeguard assistance at Spanish Mediterranean beaches: Jellyfish previail and proposals for improving risk management.** *Ocean Coastal Manage.* 131: 45-32. IF: 1.696

12. Trullas JC, Miro O, Formiga F, Martín-Sánchez FJ, Montero-Perez-Barquero M, Jacob J, Quiros-Lopez R, Herrero Puente P, Manzano L, Llorens P. **The utility of heart failure registries: a descriptive and comparative study of two heart failure registries.** *Postgrad Med J.* 92(1087):260-266. IF: 1.633

13. Martín-Sánchez FJ, Carbajosa V, Llorens P, Herrero P, Jacob J, Miro O, Fernandez C, Bueno H, Calvo E, Ribera Casado JM. **[Length of stay in patients admitted for acute heart failure].** *Gac Sanit.* 30(3):191-200. IF: 1.509

14. Jacob J, Miró Ò, Herrero P, Martín-Sánchez FJ, Gil V, Tost J, Aguirre A, Escoda R, Alquézar A, Andueza JA, Llorens P; en representación del grupo ICA-SEMES. **Predicting short-term mortality in patients with acute exacerbation of chronic heart failure: The EAHFE-3D scale.** *Med Intensiva.* 40:348-55. IF: 1.193

Reviews / I.F.: 4.638

1. Martin-Sanchez FJ, Christ M, Miro O, Peacock WF, Mcmurray JJ, Bueno H, Maisel AS, Cullen L, Cowie MR, Di Somma S, Platz E, Masip J, Zeymer U, Vrints C, Price S, Mueller C. Practical approach on frail older patients attended for acute heart failure. Int J Cardiol. 222:62-71. IF: 4.638

Letters / I.F.: 5.447

1. Miró Ò. **Triaje ya está en el Diccionario de la Real Academia Española.** *Emergencias.* 28:285. IF: 2.917

2. Miró Ò. **Meningitis, lumbar puncture and procalcitonin.** *Enferm Infecc Microbiol Clin.* 34:538. IF: 1.530

3. Nogue S, Amigo M, Vidal O. **Nasogastric tube activated charcoal and peritonitis.** *Cir Espan.* 94(1):58-59. IF: 1.000

Editorials / I.F.: 5.834

1. Miró O. **A Roman story.** *Emergencias.* 28:1-2. IF: 2.917

2. Miró O. **Research quality in the face of political disdain.** *Emergencias.* 28:211-3. IF: 2.917

Case Reports / I.F.:1.267

1. Martín B, Jiménez-Hernández M, Prado V, Nogué S. **Acute kidney injury in paracetamol poisoning.** *Med Clin.* 146:233-4. IF: 1.267

Clinical Guidelines / I.F.: 4.447

1. Aguilar-Salmeron R, Martinez-Sanchez L, Broto-Sumalla A, de Gamarra-Martinez EF, Garcia-Pelaez M, Nogue-Xarau S. **Recommendations for stocking and using antidotes in hospitals of varying levels of complexity.** *Emergencias.* 28(1):45-54. IF: 2.917

2. Polo Rodriguez R, Lozano F, González de Castro P, Jiménez MA, Miró O, Ramón Blanco J, Moreno D, Dueñas C, Muñoz Platón E, Fernández Escribano M, Sanz Sanz J, Fumaz C, Santos I, García F, Téllez MJ, González Montero R, Vals Jimenez MV, Losa J, Valle Robles ML, Iribarren J, Ortega E. **Executive summary of the consensus document on post-exposure prophylaxis against HIV, HBV and HCV in adults and children.** *Enferm Infecc Microbiol Clin.* 34(2):122-31. IF: 1.530

Consortium Publciations / I.F.: 2.576

1. Vallersnes OM, Dines AM, Wood DM, Yates C, Heyerdahl F, Hovda KE, Giraudon I; Euro-DEN Research Group. **Psychosis associated with acute recreational drug toxicity: a European case series.** *BMC Psychiatry.* 16:293. IF: 2.576

GRANTS FOR RESEARCH IN PROGRESS

Miró O. **Identificación de los factores asociados a reconsulta, ingreso y mortalidad precoz en pacientes dados de alta directamente de urgencias por un episodio de insuficiencia cardiaca aguda: estudio español multicéntrico.**
Sponsored by: Instituto de Salud Carlos III (ISCIII) PI11/01021
Duration: 01/01/2012-30/06/2016

Miró O. **Identificació a urgències dels pacients amb insuficiència cardiaca aguda de baix risc i desenvolupament d'una escala per identificar-los i millorar l'evolució dels que són donats d'alta des d'urgències.**
Sponsored by: Fundació la Marató de TV3. 20152510
Duration: 09/03/2016-08/03/2019

Miró O. **Diseño de programas de intervención y escalas de riesgo con marcadores y biológicos de fragilidad para la insuficiencia cardiaca aguda en los servicios de urgencia españoles.**
Sponsored by: Instituto de Salud Carlos III. PI15/01019
Duration: 01/01/2016-31/12/2018

DOCTORAL THESES

Coll-Vinent B. **Importancia de la atención primaria en la mejora de la calidad asistencial de los pacientes con fibrilación auricular.**
PhD student: Maria Luisa Benito Serrano

Coll-Vinent B. **La coordinación asistencial y la educación para la salud son factores clave en el tratamiento de los pacientes con fibrilación auricular.**
PhD student: Carolina Fuenzalida Inostroza

Miró Ò, Martin FJ. **Anàlisi de diferents aspectes clínics, evolutius i de qualitat assistencial en malalts diagnosticats d'insuficiència cardíaca aguda en els serveis d'urgències hospitalaris durant el període 2007-2014.**
PhD student: Maria Rosa Escoda Turon

1.8

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

LOCATION
IIBB-CSIC labs

KEYWORDS
1. **Inflammation**
2. **Fibrosis**
3. **Proteomics**
4. **Macrophages**

Original publications from 2014 to 2016

YEAR	I.F.	TOTAL	Q1	Q2
2014	28.10	7	5	2
2015	23.47	5	3	1
2016	28.35	6	6	-



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STRATEGIC OBJECTIVES

1. **Molecular and cellular bases of inflammation:**
Study of inflammatory response in general.

2. **Structural and biological mass spectrometry:**
Development of techniques for the analysis of biomolecules by mass spectrometry and more especially for proteomics studies. Application to the characterization of post-translational modifications involved in signal transduction and of therapeutic targets and markers of disease.

MAIN LINES OF RESEARCH

1. **Molecular and cellular bases of inflammation:**
- Mechanisms involved in the development of systemic inflammatory



TEAM Daniel Closa

processes.
- New therapies for idiopathic pulmonary fibrosis
- Study of the lipid alterations associated with pancreatitis
- Exosomes in inflammatory diseases

2. Structural and biological mass spectrometry:
- Phosphoproteome,, acetylome, ubiquitinome and modification crosstalking on the human t-lymphocyte.
- Diagnostic and prognostic markers in cancer and other diseases.
- External scientific-technical services.

PUBLICATIONS

Originals / I.F.: 28.346

1. Bonjoch L, Casas V, Carrascal M, Closa D. **Involvement of exosomes in lung inflammation associated with experimental acute pancreatitis.** *J Pathol.* 240(2):235-245. IF: 7.381

2. Scholz E, Mestre-Ferrer A, Daura X, García-Medel N, Carrascal M, James EA, Kwok WW, Canals F, Álvarez I. **A Comparative Analysis of the Peptide Repertoires of HLA-DR Molecules Differentially Associated With Rheumatoid Arthritis.** *Arthritis Rheumatol.* 68(10):2412-21. IF: 6.009

3. Casas V, Vadillo S, San Juan C, Carrascal M, Abian J.**The Exposed Proteomes of Brachyspira hyodysenteriae and B. pilosicoli.** *Front Microbiol.* 7:1103. IF: 4.165

4. Vialas V, Sun Z, Reales-Calderón JA, Hernáez ML, Casas V, Carrascal M, Abián J, Monteoliva L, Deutsch EW, Moritz RL, Gil C. **A comprehensive Candida albicans PeptideAtlas build enables deep proteome coverage.** *J Proteomics.* 131:122-30. IF: 3.867

5. Nguyen TD, Carrascal M, Vidal-Cortes O, Gallardo O, Casas V, Gay M, Phan VC, Abian J. **The phosphoproteome of human Jurkat T cell clones upon costimulation with anti-CD3/anti-CD28 antibodies.** *J Proteomics.* 131:190-8. IF: 3.867

6. Gulfo J, Ledda A, Gea-Sorlí S, Bonjoch L, Closa D, Grasa M, Esteve M. **New Roles for Corticosteroid Binding Globulin and Opposite Expression Profiles in Lung and Liver.** *PLoS One.* 11(1):e0146497. IF: 3.057

Letters / I.F.: 12.711

1. Loncle C, Bonjoch L, Folch-Puy E, Lopez-Millan MB, Lac S, Molejon MI, Chuluyan E, Cordelier P, Dubus P, Lomberk G, Urrutia R, Closa D, Iovanna JL. **REG3β Plays a Key Role in IL17RA Protumoral Effect-Response.** *Cancer Res.* 76(7):2051. IF: 8.556

2. Secq V, Mallmann C, Gironella M, Lopez B, Closa D, Garcia S, Christa L, Montalto G, Dusetti N, Iovanna JL. **Response to "Is the Reg3α (HIP/PAP) Protein Really an Obesogenic Factor?".** *J Cell Physiol.* 231(1):2. IF: 4.155

GRANTS FOR RESEARCH IN PROGRESS

Abian J. **Plataforma de Recursos Biomoleculares y Bioinformáticos.**
Sponsored by: ISCIII Acción Estrategica en Salud 2013-2016. Plataformas de Apoyo a la Investigación en Ciencias y Tecnologías de la Salud. (PT13/0001/0008)
Duration: 2014-2016

Abian J. **Spanish Human Proteome Project (SpHPP-HPP- HUPO).**
Sponsored by: Instituto de Salud Carlos III
Duration: 2013-2017

Abian J. **Characterization of the human T-lymphocyte phosphoproteome and secretome using proteomic techniques.**
Sponsored by: Acciones VAST-CSIC, MICINN. (ref. 2012VN0003)
Duration: 2012-2016

Abian J, Carrascal M. **Modificaciones y Cross-talking en el proteoma del linfocito T humano.**
Sponsored by: MICINN (BIO2013-46492-R)
Duration: 2014-2017

Closa D. **Lípidos halogenados y evolución de la pancreatitis aguda.**
Sponsored by: Instituto de Salud Carlos III (PI13/00019)
Duration 01/1/2014-31/12/2016

1.9

Ocular Inflammation: Clinical and Experimental Studies

LOCATION
MATERNITAT building

KEYWORDS
1. **Uveitis**
2. **Inflammation**
3. **Immunology**
4. **Biomarkers**
5. **Biological therapies**

Original publications from 2014 to 2016

YEAR	I.F.	TOTAL	Q1	Q2
2014	35.72	10	6	-
2015	30.22	12	3	8
2016	38.32	13	6	6

TEAM INVOLVED IN
OFTARED (RETIC)

AWARDS
Premio Prof. Julián García Sánchez
Institution: Fundación VISION España
Awardee/s: Blanca Molins Monteys



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STRATEGIC OBJECTIVES

The research of the Ocular Inflammation Group focuses on how the retina responds to injury, inflammation and degeneration. Our main goal is to promote the investigation on ocular inflammatory diseases with special interest in the study of pathological mechanisms, immune response, and development of new therapies.

MAIN LINES OF RESEARCH

1. Prognostic factors in patients with macular edema associated with non-infectious uveitis: Assessment of the clinical, biological and imaging factors involved in the pathogenesis of uveitic macular edema and its response to treatment.

2. New biologic therapies for the treatment of non-infectious uveitis: Assessment of the efficacy and safety of new biologic therapies including anti-TNF-alpha, anti-IL-1beta, and anti-IL-6 receptor monoclonal antibodies for treating patients with non-infectious uveitis.



TEAM Alfredo Adán

3. Genetic polymorphisms predisposing to uveitis: Multicentric study that investigates genetic polymorphisms as potential risk factors for developing uveitis and its complications.

4. Tuberculosis-related uveitis: Development of epidemiological, clinical and experimental studies

5. Macular pathology in diabetic patients: Development of clinical and experimental studies to investigate the pathogenesis of diabetic macular edema, as well as its response to different therapeutic approaches.

6. Molecular basis of age-related macular degeneration (AMD): Study of the contribution of chronic inflammation and in particular, C-reactive protein and complement Factor H to the progression of AMD.

PUBLICATIONS

Originals / I.F.: 38.317

1. Molins B, Fuentes-Prior P, Antón-López R, Arostegui JI, Yagüe J, Adán A, Dick AD. **Complement factor H binding of monomeric C-reactive protein downregulates proinflammatory activity and is impaired with at risk polymorphic FH variants.** *Sci AlfreRep.* 6:22889. IF: 5.228

2. Zarranz-Ventura J, Keane PA, Sim DA, Llorens V, Tufail A, Sadda SR, Dick AD, Lee RW, Pavesio C, Denniston AK, Adan A; EQUATOR Study Group. **Evaluation of Objective Vitritis Grading Method Using Optical Coherence Tomography: Influence of Phakic Status and Previous Vitrectomy.** *Am J Ophthalmol.* 161:172-80. IF: 3.831

3. Tappeiner C, Mesquida M, Adán A, Anton J, Ramanan AV, Carreno E, Mackensen F, Kotaniemi K, de Boer JH, Bou R, de Vicuña CG, Heiligenhaus A. **Evidence for Tocilizumab as a Treatment Option in Refractory Uveitis Associated with Juvenile Idiopathic Arthritis.** *J Rheumatol.* 43(12):2183-2188. IF: 3.236

4. Fonollosa A, Llorenç V, Artaraz J, Jimenez B, Ruiz-Arruza I, Agirrebengoa K, Cordero-Coma M, Costales-Mier F, Adan A. **Safety and efficacy of intravitreal dexamethasone implants in the Management of macular edema secondary to infectious uveitis.** *Retina.* 36(9):1778-85. IF: 3.039

5. Sainz-de-la-Maza M, Molina N, Gonzalez-Gonzalez LA, Doctor PP, Tauber J, Foster CS. **Scleritis associated with relapsing polychondritis.** *Br J Ophthalmol.* 100(9):1290-4. IF: 3.036

6. Cocho L, Gonzalez-Gonzalez LA, Molina-Prat N, Doctor P, Sainz-de-la-Maza M, Foster CS. **Scleritis in patients with granulomatosis with polyangiitis (Wegener).** *Br J Ophthalmol.* 100(8):1062-5. IF: 3.036

7. Sainz de la Maza M, Molins B Mesquida M, Llorenç V, Zarranz-Ventura J, Sala-Puigdollers A, Matas J, Adán A, Foster CS. **Interleukin-22 serum levels are elevated in active scleritis.** *Acta Ophthalmol.* 94(6):e395-9. IF: 3.032

8. Santos-Gómez M, Calvo-Río V, Blanco R, Beltrán E, Mesquida M, Adán A, Cordero-Coma M, García-Aparicio ÁM, Valls Pascual E, Martínez-Costa L, Hernández MV, Hernandez Garfella M, González-Vela MC, Pina T, Palmou-Fontana N, Loricera J, Hernández JL, González-Gay MA. **The effect of biologic therapy different from infliximab or adalimumab in patients with refractory uveitis due to Behçet's disease: results of a multicentre open-label study.** *Clin Exp Rheumatol.* 34(6 Suppl 102):S34-S40. IF: 2.495

9. Llorenç V, Mesquida M, Sainz de la Maza M, Blanco R, Calvo V, Maíz O, Blanco A, de Dios-Jiménez de Aberásturi JR, Adán A. **Certolizumab Pegol, a New Anti-TNF-α in the Armamentarium against Ocular Inflammation.** *Ocul Immunol Inflamm.* 24(2):167-72. IF: 2.481

10. Fonollosa A, Martinez-Indart L, Artaraz J, Martinez-Berriotxoa A, Agirrebengoa K, Garcia M, Lopez-Soria L, Sorribas M, Diaz-Valle D, Blanco R, Rueda-Gotor J, Adan A, Llorenç V, Cordero-Coma M, Distefano L, Segura A, Blanco A. **Clinical Manifestations and Outcomes of Syphilis-associated Uveitis in Northern Spain.** *Ocul Immunol Inflamm.* 24(2):147-52. IF: 2.481

11. Molins B, Mesquida M, Llorenç V, Sainz de la Maza M, Adán A. **Elevated serum immune mediators and subclinical inflammation in HLA-A29-associated Birdshot chorioretinopathy.** *Ocul Immunol Inflamm.* 24(6):647-652. IF: 2.481

12. Latasiewicz M, Fontecilla C, Millá E, Sánchez A. **Marfan syndrome: ocular findings and novel mutations-in pursuit of genotype-phenotype associations.** *Can J Ophthalmlo.* 51(2):113-8. IF: 1.460

13. Llorenç V, Mesquida M, Molins B, Gonzalez-Martín J, Sainz de la Maza M, Adán A. **Bacillus Calmette-Guérin Infection and Cytotoxicity in the Retinal Pigment Epithelium.** *Ocul Immunol Inflamm.* 1-7. IF: 2.481

GRANTS FOR RESEARCH IN PROGRESS

Adán A. **Prevención, detección precoz y tratamiento de la patología ocular prevalente, degenerativa y crónica.**
Sponsored by: Instituto de Salud Carlos III (ISCIII). RD12/0034/0005
Duration: 01/01/2013-31/12/2016

Adán A. **Estudio de factores clínicos, hallazgos de tomografía de coherencia óptica y biomarcadores como factores pronósticos de la agudeza visual en el edema macular secundario a uveítis.**
Sponsored by: Instituto de Salud Carlos III (ISCIII). PI13/00217
Duration: 01/01/2014-31/12/2016



AREA 2

Respiratory, cardiovascular and renal pathobiology and bioengineering

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Fritz Diekmann

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Ramon Estruch

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Ramon Farré

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Antoni Torres

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Antonio Alcaraz

2.1

Atherosclerosis, coronary disease and heart failure

LOCATION
CELLEX building

KEYWORDS
1. **Acute myocardial infarction**
2. **Percutaneous coronary intervention. Stent. Biodegradable device**
3. **Therapeutic hypothermia**
4. **Stem cell therapy**
5. **Heart failure**

Original publications from 2014 to 2016

YEAR	I.F.	TOTAL	Q1	Q2
2014	199.33	33	23	8
2015	284.89	40	22	15
2016	336.25	43	27	13

TEAM INVOLVED IN
Red HERACLES
Red REMIND

AWARDS
Primer accèsit del Premi Dr. Josep Font d'Investigació Mutual Mèdica 2016
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STRATEGIC OBJECTIVES

- To identify the pathophysiological mechanisms involved in accelerated atherosclerosis.
- To evaluate the safety and efficacy of regenerative cell therapy.
- To gain an increased understanding of the genetics, pathophysiology, diagnosis and treatment of heart failure and acute and chronic ischaemic heart disease.
- To evaluate the clinical implications of the new diagnostic imaging techniques and types of treatment in structural heart disease and heart failure.

MAIN LINES OF RESEARCH

- To study of the regulatory mechanisms and efficacy of stem cell therapy in experimental models and in clinical contexts.
- To perform experimental models of neointimal hyperplasia, endothelialization, vascular inflammation and thrombosis.
- To evaluate the influence of hormonal factors, gender and aging in ischemic heart disease
- To design experimental and clinical studies to evaluate the performance of novel devices and strategies to treat coronary artery disease, including chronic and acute coronary syndromes, cardiogenic shock and cardiac arrest.
- To evaluate neurohormonal activation, fibrotic process, genetic and environmental factors associated with ventricular remodeling in dilated cardiomyopathy.
- To determine the safety, efficacy and efficiency of new transcatheter and minimally invasive devices to treat structural and congenital heart disease and the role of imaging techniques.
- To evaluate new pharmacological and invasive treatments for pulmonary hypertension.

PUBLICATIONS

Originals / I.F.: 336.252

1. Stone GW, Sabik JF, Serruys PW, Simonton CA, Généreux P, Puskas J, Kandzari DE, Morice MC, Lembo N, Brown WM 3rd, Taggart DP, Banning A, Merkely B, Horkay F, Boonstra PW, van Boven AJ, Ungi I, Bogáts G, Mansour S, Noiseux N, Sabaté M, Pomar J, Hickey M, Gershlick A, Buszman P, Bochenek A, Schampaert E, Pagé P, Dressler O, Kosmidou I, Mehran R, Pocock SJ, Kappetein AP. **Everolimus-Eluting Stents or Bypass Surgery for Left Main Coronary Artery Disease. EXCEL Trial Investigators.** *N Engl J Med.* 375(23):2223-2235. IF: 59.558

2. Serruys PW, Chevalier B, Sotomi Y, Cequier A, Carrié D, Piek JJ, Van Boven AJ, Dominici M, Dudek D, McClean D, Helqvist S, Haude M, Reith S, de Sousa Almeida M, Campo G, Iñiguez A, Sabaté M, Windecker S, Onuma Y. **Comparison of an everolimus-eluting bioresorbable scaffold with an everolimus-eluting metallic stent for the treatment of coronary artery stenosis (ABSORB II): a 3 year, randomised, controlled, single-blind, multicentre clinical trial.** *Lancet.* 388(10059):2479-2491. IF: 44.002

3. Sabaté M, Brugaletta S, Cequier A, Iñiguez A, Serra A, Jiménez-Quevedo P, Mainar V, Campo G, Tespili M, den Heijer P, Bethencourt A, Vazquez N, van Es GA, Backx B, Valgimigli M, Serruys PW. **Clinical outcomes in patients with ST-segment elevation myocardial infarction treated with everolimus-eluting stents versus bare-metal stents (EXAMINATION): 5-year results of a randomised trial.** *Lancet.* 387(10016):357-66. IF: 44.002

4. Leonardi S, Frigoli E, Rothenbühler M, Navarese E, Calabró P, Bellotti P, Briguori C, Ferlini M, Cortese B, Lupi A, Lerna S, Zavallonito-Parenti D, Esposito G, Tresoldi S, Zingarelli A, Rigattieri S, Palmieri C, Liso A, Abate F, Zimarino M, Comeglio M, Gabrielli G, Chieffo A, Brugaletta S, Mauro C, Van Mieghem NM, Heg D, Jüni P, Windecker S, Valgimigli M; MATRIX Investigators. **Bivalirudin or unfractionated heparin in patients with acute coronary syndromes managed invasively with and without ST elevation (MATRIX): randomised controlled trial.** *BMJ.* 354:i4935. IF: 19.697

5. Sabaté M, Windecker S, Iñiguez A, Okkels-Jensen L, Cequier A, Brugaletta S, Hofma SH, Räber L, Christiansen EH, Suttorp M, Pilgrim T, Anne van Es G, Sotomi Y, García-García HM, Onuma Y, Serruys PW. **Everolimus-eluting bioresorbable stent vs. durable polymer everolimus-eluting metallic stent in patients with ST-segment elevation myocardial infarction: results of the randomized ABSORB ST-segment elevation myocardial infarction-TROFI II trial.** *Eur Heart J.* 37(3):229-40. IF: 15.064

6. Tamburino C, Capranzano P, Gori T, Latib A, Lesiak M, Nef H, Caramanno G, Naber C, Mehilli J, Di Mario C, Sabaté M, Münzel T, Colombo A, Araszkiewicz A, Wiebe J, Geraci S, Jensen C, Mattesini A, Brugaletta S, Capodanno D. **1-Year Outcomes of Everolimus-Eluting Bioresorbable Scaffolds Versus Everolimus-Eluting Stents: A Propensity-Matched Comparison of the GHOST-EU and XIENCE V USA Registries.** *JACC Cardiovasc Interv.* 9(5):440-9. IF: 7.630

7. Romaguera R, Gómez-Hospital JA, Gomez-Lara J, Brugaletta S, Pinar E, Jiménez-Quevedo P, Gracida M, Roura G, Ferreiro JL, Teruel L, Montanya E, Fernandez-Ortiz A, Alfonso F, Valgimigli M, Sabate M, Cequier A. **A Randomized Comparison of Reservoir-Based Polymer-Free Amphilimus-Eluting Stents Versus Everolimus-Eluting Stents With Durable Polymer in Patients With Diabetes Mellitus: The RESERVOIR Clinical Trial.** *JACC Cardiovasc Interv.* 9(1):42-50. IF: 7.630

8. Alfonso F, Pérez-Vizcayno MJ, García Del Blanco B, Otaegui I, Masotti M, Zueco J, Veláquez M, Sanchís J, García-Touchard A, Lázaro-García R, Moreu J, Bethencourt A, Cuesta J, Rivero F, Cárdenas A, Gonzalo N, Jiménez-Quevedo P, Fernández C; RIBS V Study Investigators. **Long-Term Results of Everolimus-Eluting Stents Versus Drug-Eluting Balloons in Patients With Bare-Metal In-Stent Restenosis: 3-Year Follow-Up of the RIBS V Clinical Trial.** *JACC Cardiovasc Interv.* 9(12):1246-55. IF: 7.630

9. García-Álvarez A, Pereda D, García-Lunar I, Sanz-Rosa D, Fernández-Jiménez R, García-Prieto J, Nuño-Ayala M, Sierra F, Santiago E, Sandoval E, Campelos P, Agüero J, Pizarro G, Peinado VI, Fernández-Friera L, García-Ruiz JM, Barberá JA, Castellá M, Sabaté M, Fuster V, Ibañez B. **Beta-3 adrenergic agonists reduce pulmonary vascular resistance and improve right ventricular performance in a porcine model of chronic pulmonary hypertension.** *Basic Res Cardiol.* 111(4):49. IF: 6.038

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Sponsored by: Fundació la Marató de TV3. 122230.
Duration: 21/01/2013-20/02/2016

Vilella Dantas, AP. **Niveles circulantes y vasculares de miRNAs en la restenosis arterial: bases moleculares y sus implicaciones clínicas.**
Sponsoredby: InstitutodeSalud Carlos III (ISCIII). PI13/00091.
Duration: 01/01/2014-31/12/2016

Roqué M. **Effect of kv1.3 ion channel blockade in restenosis and allograft vasculopathy.**
Sponsored by: Instituto de Salud Carlos III - FIS PI11/00225
Duration: 01/01/2012-30/06/2016

Roqué M, Sabaté M. **Cardiovascular net. HERACLES Programme: Research programme on prevention of cardiovascular diseases and study of hypertension mechanisms.**
Sponsored by: Instituto de Salud Carlos III – FIS. RD12/0042/0006
Duration: 01/01/2013-31/12/2016

Roqué M. **Intimal hyperplasia inhibition. Development of a farmacoactive stent releasing pap-1 and implementation in an experimental model of restenosis.**
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Duration: 24/10/2015-24/10/2016

Sabaté, M. **Desarrollo de biosensores sobre tecnología flexible y rígida para la detección de marcadores cardíacos.**
Sponsored by: Ministerio de Economía. RTC-2015-4184-1
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García A. **Tractament agonista adrenèrgic en la hipertensió pulmonar crònica secundària a insuficiència cardíaca: assaig clínic fase 2 aleatoritzat i controlat amb placebo.**
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20151730
Duration: 21/07/2016-20/07/2019

Roqué M. **Acute myocardical infarction in young patients. Analysis of prothrombotic, inflammatory and epigenetic factors. Effect of miRNA expressión modulation in a porcine model.**
Sponsored by: Instituto de Salud Carlos III.
PI15/00553
Duration: 01/01/2016-31/12/2018

Pomar JL. **Aortic Valve Replacement using Individualised Regenerative Allografts: Bridging the Therapeutic Gap.**
Sponsored by: HORIZONS 2020.
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DOCTORAL THESES

Falces C. Sitges M. **Characterization of heart failure with preserved ejection fraction in the outpatient setting: improvement in prognosis assessment and applicability of new echocardiographic techniques.**
PhD student: Laura Sanchis Ruiz

Martín Yuste V, Sabaté M. **Beneficis de la revascularització percutània de les oclusions coronàries totals cròniques en pacients amb fracció d'ejecció ventricular esquerra reduïda.**
PhD student: Montserrat Cardona Ollé

Pomar JL. **Estudio del mecanismo del precondicionamiento del miocardio inducido por ejercicio en el perro. Participación del canal de potasio mitocondrial sensible a ATP, lón calcio y NADPH oxidasa.**
PhD student: Víctor Manuel Parra Morales

2.2 Arrhythmias, resynchronization and cardiac imaging

LOCATION
CELLEX building

KEYWORDS
1. **Atrial Fibrillation**
2. **Ventricular Tachycardia**
3. **Sudden Death**
4. **Cardiac Imaging**
5. **Resynchronization Therapy**

Original publications from 2014 to 2016

YEAR	I.F.	TOTAL	Q1	Q2
2014	238.12	43	26	15
2015	193.84	38	28	8
2016	275.53	47	31	14

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AWARDS

Doctor "Honoris Causa"
Institution: Universidad Nacional de Tucumán, Argentina
Awardee/s: Josep Brugada

Premio General Electric al mejor artículo de Ecocardiografía en Revista Española de Cardiología 2016. "Evaluación del dolor torácico agudo mediante ecocardiografía de ejercicio y tomografía computarizada multidetectores".
Institution: Sociedad Española de Cardiologia.
Awardee/s: A Mas-Stachurska, O Miró, Marta Sitges, TM. de Caralt, RJ. Perea, B López, M Sánchez, C Paré, X Bosch, JT. Ortiz-Pérez.

Premio de la Sección de Estimulación Cardiaca al mejor Artículo Publicado 2016: "Optimized pacing mode for hypertrophic cardiomyopathy: Impact of ECG fusion during pacing".
Institution: Sociedad Española de Cardiologia.
Awardee/s: Berruezo A, Penela D, Burgos F, Evertz R, Fernández-Armenta J, Roca J, Doltra A, Acosta J, Francino A, Sitges M, Alsina X, Ordoñez A, Villuendas R, Brugada R, Mont L, Brugada J.



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STRATEGIC OBJECTIVES

Our research team focuses on the study of the electrophysiological, mechanical and biochemical remodelling of the heart and vessels through a translational perspective *(from bench to bedside)*, eventually aiming at the prevention, diagnosis and therapy of cardiovascular diseases. This is performed within a national and international collaborative network with research groups and enterprises.

MAIN LINES OF RESEARCH

- In **genetic diseases**, we focus on the genetics and prognosis of inherited arrhythmias, and the efficacy of epicardial ablation for Brugada syndrome.
- In **adaptation and consequences of sport**, we study exercise-induced cardiac remodelling and the deleterious effects of extreme training in clinical and murine models.
- In **atrial fibrillation**, we develop individualized ablation approaches based on imaging techniques. We participate in the Steering Committee of trials assessing new therapeutics for AF.
- In **resynchronization and pacing**, we aim at improving success rate through multipoint pacing and the fusion-optimized method. We test innovative devices such as leadless pacing and subcutaneous defibrillators.
- In **ventricular tachycardia**, we work to predict sudden cardiac death by substrate analysis in magnetic resonance, evaluate remodelling regression after PVC ablation and compare the efficacy of ablation with antiarrhythmic drugs.
- In **remodelling in heart disease**, we study structural and functional remodelling in valve heart disease, and heart failure characteristics.
- In **vascular cell and molecular biology of Marfan syndrome**, we address redox biology, membrane trafficking, cell signalling, and mechanical forces in aneurysm progression.



GROUP Gustavo Egea

RESEARCH GROUP
VASCULAR CELL BIOLOGY



GROUP LEADER
Gustavo Egea (UB)

The main objective of this group is to understand which are the molecular bases impaired in the formation and progression of syndromic thoracic aorta aneurysms particularly in Marfan syndrome. In this respect, we are focus on in the contribution of: (i) the oxidative stress, (ii) the crosstalk between vascular smooth muscle cells and extracellular matrix in terms of mechano-transduction, (iii) the membrane trafficking of TGF-beta and subsequent signaling, (iv) the impact of the physical exercise in the progression of the aneurysms, and (v) which are the behavioral alterations associated to Marfan syndrome. To all these aims, we use aortic aneurysm samples of Marfan patients subjected to reparatory surgery and animal (mice) experimental models.

RESEARCH GROUP
ARRYTHMIAS AND PHYSICAL ACTIVITY



GROUP LEADER
Eduard Guasch (HCB-IDIBAPS)

The *Arrhythmias and Physical Activity* group led by Dr. Eduard Guasch was officially established in 2015 under the IDIBAPS 50/50 program. Main research topics include the study of the etiology, pathophysiology and therapy of cardiac atrial and ventricular arrhythmias through a multifactorial approach involving animal models, *ex vivo* and *in vitro* techniques and studies in humans. In this regard, the group has developed a special interest in the study of extreme intensity exercise (regarded as *excessive*) as an emerging cause of cardiovascular diseases, including arrhythmias such as atrial fibrillation.



GROUP Eduard Guasch



GROUP Lluis Mont

RESEARCH GROUP
ATRIAL FIBRILLATION BIOPATHOLOGY AND THERAPY



GROUP LEADER
Lluis Mont (HCB)

Our group is focusing in the study of etiologic factors of atrial fibrillation, with the aim to understand the development of the disease and prevent its development. Furthermore, we are working in improving therapy, improving ablation techniques, and participating in multicenter studies pursuing improvements in AF and an early rhythm management strategy in it.

- Effects of endurance exercise (murine model) to study the limits of healthy adaptation to exercise vs excessive training leading to atrial disease.
- Study of the sympathetic/ parasympathetic balance in healthy volunteers, to analyze the relationship of stature and autonomic balance.
- Development of a custom made semiautomatic software, devoted to identification of fibrosis at the atrial level, to guide ablation.

RESEARCH GROUP
CARDIAC IMAGING



GROUP LEADER
Marta Sitges (HCB)

Our group has a pluridisciplinary team of people dedicated to non-invasive cardiac imaging and its application in the knowledge and research into cardiovascular pathophysiology and therapy within the field of cardiac mechanics and remodelling in cardiovascular diseases. Our lines of research include the application of cardiac imaging in the study of cardiac mechanics and function and analysis of cardiac remodelling in order to detect latent cardiac dysfunction. Additionally, our collaboration with bioengineering groups allows for better quantification and identification of patterns of cardiac adaptations to disease and understanding of their underlying physiopathology.

PUBLICATIONS

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GROUP Marta Sitges

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GRANTS FOR RESEARCH IN PROGRESS

Berruezo A. **Caracterización automàtica del sustrato arrítmico y evaluación**

de su utilidad para la prevención de la muerte súbita cardíaca y guiado de los procedimientos de arritmias (ADAS).
Sponsored by: Ministerio de Economía y Competitividad. RTC-2015-3515-1
Duration:01/11/2015-31/10/2017

Berruezo A. **Caracterización del sustrato arritmogénico y evaluación de su utilidad en la predicción de eventos arrítmicos y guiado de los procedimientos de ablación.**
Sponsored by: Instituto de Salud Carlos III (ISCIII). PI14/00759
Duration: 01/01/2015-31/12/2017

Berruezo A. **ABLAVIEW - Un sistema innovador de ablación por radiofrecuencia guiado por imagen para el tratamiento de la fibrilación auricular.**
Sponsored by: Ministerio de Economia y Competitividad. RTC-2016-5445-1
Duration: 08/03/2016-31/12/2018

Brugada J. **Comparative Effectiveness Research to Assess the Use of Primary ProphylacTic Implantable Cardioverter Defibrillators in EUrope.**
Sponsored by: European Commission. 602299-2
Duration: 01/10/2013-30/09/2017

Brugada J. **Red Cardiovascular.**
Sponsored by: Instituto de Salud Carlos III (ISCIII). RD12/0042/0044
Duration: 01/01/2013-31/12/2016.

Brugada J. **Ablación de fibrilación auricular asistida por resonancia magnética: personalizando el tratamiento mediante la identificación del sustrato arrítmico.**
Sponsored by: Instituto de Salud Carlos III (ISCIII). PI13/01747
Duration: 01/01/2014-31/12/2016

Egea G. **La activación crónica de la vía del TGF-β en el síndrome de Marfan: desregulación del tráfico intracelular y la matriz extracelular.**
Sponsored by: Fundación Areces. CIVP16A1858
Duration: 27/06/2012-31/12/2016

Mont L. **Efectos cardiovasculares del exceso de ejercicio: Caracterización en el modelo animal, traslación al atleta.**
Sponsored by: Instituto de Salud Carlos III (ISCIII). PI13/01580
Duration: 01/01/2014-31/12/2016

Mont L. **Characterizing Atrial fibrillation by Translating its Causes into Health Modifiers in the Elderly.**
Sponsored by: European Comission. 633196
Duration: 01/05/2015-30/04/2019

Mont JL. **Caracterització no invasiva dels teixits de l'aurícula esquerra per guiar l'ablació de la fibril·lació auricular i per predir els resultats del procediment així com la progressió de la malaltia.**
Sponsored by: Fundació la Marató de TV3. 20152730
Duration: 29/06/2016-28/06/2019

Sitges M. **Adaptación del ventrículo derecho y circulación arterial pulmonar al entrenamiento físico intensivo: implicaciones en el seguimiento de deportistas.**
Sponsored by: Ministerio de Economía y Competitividad. DEP2013-44923-P
Duration: 01/01/2014-31/12/2016

Egea G. **Apolinker p144, a potential anti-tgf-beta therapeutic tool to fight against aortic aneurysms in marfan syndrome.**
Sponsored by: The National Marfan Foundation. NMARFANF_15_01
Duration: 01/01/2016-31/12/2017

Ortiz JT. **Paper dels macròfags i fibroblastes residents a la remodelació mniocàrdica i la regeneració tisular tras l'infart de miocardi: contribució del sistema GAS6-TAM.**
Sponsored by: Fundació la Marató de TV3. 20153030
Duration: 26/04/2016-25/04/2019

Ortiz JT. **Papel del sistema GAS6-TAM en la difeerenciación fibroblástica y el remodelado ventricular tras el infarto de miocardio.**
Sponsored by: Instituto de Salud Carlos III. PI15/00531
Duration: 01/01/2016-31/12/2018

Sitges M. **Predicció personalitzada i oprecoç de fibrilació auricular en subjectes en risc. PREDICTAF.**
Sponsored by: Fundació la Marató de TV3. 20154030
Duration: 10/05/2016-09/05/2019

DOCTORAL THESES

Falces C, Sitges M. **Characterization of heart failure with preserved ejection fraction in the outpatient setting: improvement in prognosis assessment and applicability of new echocardiographic techniques.**
PhD student: Laura Sanchis Ruiz

Mont L. **Nuevas aplicaciones de la resonancia magnética para la estratificación de riesgo y personalización del tratamiento en pacientes con fibrilación auricular.**
PhD student: Felipe Bisbal Van Bylen

Mont L. **Cuantificación del calcio valvular aórtico. Diseño y validación de la estimación por un nuevo método ecocardiográfico utilizando com patrón la tomografía computada.**
PhD student: Maria Panelo

2.3 Nephro-urological diseases and kidney transplantation

LOCATION
CELLEX building 2B

KEYWORDS
1. **Chronic allograft dysfunction**
2. **Dialysis**
3. **Transplant immunology**
4. **Posttransplant cancer**
5. **Renal regeneration**

Original publications from 2014 to 2016

YEAR	I.F.	TOTAL	Q1	Q2
2014	71.77	17	6	4
2015	208.92	38	18	4
2016	171.98	23	15	4

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Francesc Maduell (HCB)
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Manel Vera (HCB)

VISITING SCIENTISTS
David Cucchiari (Milano)

STRATEGIC OBJECTIVES

LENIT performs translational research to broaden the knowledge of renal diseases. To date, the only remedy for chronic end-stage kidney disease is renal replacement therapy (RT) (dialysis or transplantation); that's why we are doing research mainly on the optimization of RT; but we also focused on regenerative treatment as an alternative establishing a cure and thus avoid the need for these RT.

MAIN LINES OF RESEARCH

In order to achieve these challenges, it are a team with well-balanced collaboration between clinicians and medical researchers, biologists, biochemists, veterinarians and specialist technicians.

This knowledge will enable us to personalize and improve current therapies and to discover new ways of action. Scientific objectives of LENIT are focused on the following areas of research:

i) Chronic graft dysfunction
ii) Role of immunosuppression and immunosuppressive medications in posttransplantation oncogenesis;
iii) Identification of new uremic toxins
iv) Immunology of transplantation
v) Cell therapy and renal regeneration
vi) Glomerular diseases and endothelial disfuncion
vii) Renal living donors psychosocial follow-up

50/50 PROGRAM

TRANSLATIONAL RESEARCH IN POSTTRASPLANT NEOPLASIA



GROUP LEADER

Ignacio Revuelta (HCB-IDIBAPS)

The effect of the immunosuppressive therapy in tumour immune escape and in several oncogenic pathways lead to tumoral progression, angiogenesis and pre-metastatic niche formation. Exosomes released from cancer cells (CaEx) are crucial for intercellular communication between primary tumour, microenvironment and host organs. CaEx role in posttransplant neoplasms is unknown. He aims to characterize CaEx under different immunosuppressive treatments and the relationship with immune, stromal and pre-metastatic cells. Understanding how CaExs work will give us tools for future interventions in posttransplant malignancies without losing effectiveness of immunotherapy, improving patient survival.



GROUP Ignacio Revuelta

PUBLICATIONS

Originals / I.F.: 171.981

1. Suzuki K, Tsunekawa Y, Hernandez-Benitez R, Wu J, Zhu J, Kim EJ, Hatanaka F, Yamamoto M, Araoka T, Li Z, Kurita M, Hishida T, Li M, Aizawa E, Guo S, Chen S, Goebl A, Soligalla RD, Qu J, Jiang T, Fu X, Jafari M, Esteban CR, Berggren WT, Lajara J, Nuñez-Delicado E, Guillen P, Campistol JM, Matsuzaki F, Liu GH, Magistretti P, Zhang K, Callaway EM, Zhang K, Belmonte JC. **In vivo genome editing via CRISPR/Cas9 mediated homology-independent targeted integration.** *Nature.* 540(7631):144-149. IF: 38.138

2. Ocampo A, Reddy P, Martinez-Redondo P, Platero-Luengo A, Hatanaka F, Hishida T, Li M, Lam D, Kurita M, Beyret E, Araoka T, Vazquez-Ferrer E, Donoso D, Roman JL, Xu J, Rodriguez Esteban C, Nuñez G, Nuñez Delicado E, Campistol JM, Guillen I, Guillen P, Izpisua Belmonte JC. **In Vivo Amelioration of Age-Associated Hallmarks by Partial Reprogramming.** *Cell.* 167(7):1719-1733.e12. IF: 28.710

3. Li Z, Araoka T, Wu J, Liao HK, Li M, Lazo M, Zhou B, Sui Y, Wu MZ, Tamura I, Xia Y, Beyret E, Matsusaka T, Pastan I, Rodriguez Esteban C, Guillen I, Guillen P, Campistol JM, Izpisua Belmonte JC. **3D Culture Supports Long-Term Expansion of Mouse and Human Nephrogenic Progenitors.** *Cell Stem Cell.* 19(4):516-529. IF: 22.387

4. Eggenhofer E, Sabet-Rashedi M, Lantow M, Renner P, Rovira J, Koehl GE, Schlitt HJ, Geissler EK, Kroemer A. **RORγt(+) IL-22-producing NKp46(+) cells protect from hepatic ischemia reperfusion injury in mice.** *J Hepatol.* 64(1):128-34. IF: 10.590

5. Rovira J, Karube K, Valera A, Colomer D, Enjuanes A, Colomo L, Martinez-Trillos A, Gine E, Dlouhy I, Magnano L, Delgado J, Martinez A, Villamor N; Campo E; Lopez-Guillermo A. **MYD88 L265P Mutations, But No Other Variants, Identify a Subpopulation of DLBCL Patients of Activated B-cell Origin, Extranodal Involvement, and Poor Outcome.** *Clin Cancer Res.* 22(11):2755-2764. IF: 8.738

6. Cruzado JM, Moreno P, Torregrosa JV, Taco O, Mast R, Gómez-Vaquero C, Polo C, Revuelta I, Francos J, Torras J, García-Barrasa A, Bestard O, Grinyó JM. **A Randomized Study Comparing Parathyroidectomy with Cinacalcet for Treating Hypercalcemia in Kidney Allograft Recipients with Hyperparathyroidism.** *J Am Soc Nephrol.* 27(8):2487-94. IF: 8.491

7. Recalde S, Tortajada A, Subias M, Anter J, Blasco M, Maranta R, Coco R, Pinto S, Noris M, García-Layana A, Rodríguez de Córdoba S. **Molecular Basis of Factor H R1210C Association with Ocular and Renal Diseases.** *J Am Soc Nephrol.* 27(5):1305-11. IF: 8.491

8. Fakhouri F, Hourmant M, Campistol JM, Cataland SR, Espinosa M, Gaber AO, Menne J, Minetti EE, Provôt F, Rondeau E, Ruggenenti P, Weekers LE, Ogawa M, Bedrosian CL, Legendre CM. **Terminal Complement Inhibitor Eculizumab in Adult Patients With Atypical Hemolytic Uremic Syndrome: A Single-Arm, Open-Label Trial.** *Am J Kidney Dis.* IF: 6.269

9. Rovira J, Renner P, Sabet-Baktach M, Eggenhofer E, Koehl GE, Lantow M, Lang SA, Schlitt HJ, Campistol JM, Geissler EK, Kroemer A. **Cyclosporine A Inhibits the T-bet-Dependent Antitumor Response of CD8(+) T Cells.** *Am J Transplant.* 16(4):1139-47. IF: 5.669

10. Verbalis JG, Greenberg A, Burst V, Haymann JP, Johannsson G, Peri A, Poch E, Chiodo JA 3rd, Dave J. **Diagnosing and Treating the Syndrome of Inappropriate Antidiuretic Hormone Secretion.** *Am J Med.* 129(5):537.e9-537.e23. IF: 5.610

11. Cruzado JM, Pascual J, Sánchez-Fructuoso A, Serón D, Díaz JM, Rengel M, Oppenheimer F, Hernández D, Paravisini A, Saval N, Morales JM; Evita Study Group. **Controlled randomized study comparing the cardiovascular profile of everolimus with tacrolimus in renal transplantation.** *Transpl Int.* 29(12):1317-1328. IF: 2.835

12. Sánchez-Escuredo A, Diekmann F, Revuelta I, Esforzado N, Ricart MJ, Cofán F, Torregrosa JV, Peri L, Ruiz Á, Campistol JM, Oppenheimer F. **An mTOR-inhibitor-based protocol and calcineurin inhibitor (CNI)-free treatment in kidney transplant recipients from donors after cardiac death: good renal function, but high incidence of conversion to CNI.** *Transpl Int.* 29(3):362-8. IF: 2.835

13. Cervera C, Cofan F, Hernandez C, Soy D, Marcos MA, Sanclemente G, Bodro M, Moreno A, Diekmann F, Campistol JM, Oppenheimer F. **Effect of mammalian target of rapamycin inhibitors on cytomegalovirus infection in kidney transplant recipients receiving polyclonal antilymphocyte globulins: a propensity score-matching analysis.** *Transpl Int.* 29(11):1216-1225. IF: 2.835

14. Sagasta A, Sánchez-Escuredo A, Oppenheimer F, Paredes D, Musquera M, Campistol JM, Solé M. **Pre-implantation analysis of kidney biopsies from expanded criteria donors: testing the accuracy of frozen section technique and the adequacy of their assessment by on-call pathologists**. *Transpl Int.* 29(2):234-40. IF: 2.835

15. Hernández-Sierra A, Rovira J, Petit A, Moya-Rull D, Mazuecos MA, Sánchez-Fructuoso AI, Errasti P, Idoate MÁ, Cruzado JM, Vidal A, Diekmann F, Oppenheimer F, Campistol JM, Revuelta I. **Role of HHV-8 and mTOR pathway in post-transplant Kaposi sarcoma staging.** *Transpl Int.* 29(9):1008-16. IF: 2.835

16. Piñeiro GJ, Arrizabalaga P, Solé M, Abellana RM, Espinosa G, Cervera R. **Repeated Renal Biopsy - A Predictive Tool to Assess the Probability of Renal Flare in Lupus Nephritis.** *Am J Nephrol.* 44(6):439-446. IF:2.605

17. Diego E, Castro P, Soy D, Poch E, Nicolás JM. **Predictive performance of glomerular filtration rate estimation equations based on cystatin C versus serum creatinine values in critically ill patients.** *Am J Health Syst Pharm.* 73(4):206-15. IF:2.451

18. Gupta G, Fattah H, Ayalon R, Kidd J, Gehr T, Quintana LF, Kimball P, Sadruddin S, Massey HD, Kumar D, King AL, Beck LH Jr. **Pre-transplant phospholipase A2 receptor autoantibody concentration is associated with clinically significant recurrence of membranous nephropathy post-kidney transplantation.** *Clin Transplant.* 30(4):461-9. IF:1.844

19. Sánchez-Escuredo A, Oppenheimer F, Solé M, Revuelta I, Cid J, Lozano M, Blasco M, Esforzado N, Ricart MJ, Cofán F, Torregrosa JV, Paredes D, Musquera M, Ercilla G, Campistol JM, Diekmann F. **Borderline rejection in ABO-incompatible kidney transplantation.** *Clin Transplant.* 30(8):872-9. IF: 1.844

20. De Sousa-Amorim E, Revuelta I, Diekmann F, Cofan F, Lozano M, Cid J, Palou E, Sole M, Campistol JM, Oppenheimer F. **Bortezomib for refractory acute antibody-mediated rejection in kidney transplant recipients: A single-centre case series.** *Nephrology (Carlton).* 21(8):700-4. IF: 1.796

21. Fontseré N, Mestres G, Yugueros X, López T, Yuguero A, Bermudez P, Gomez F, Riambau V, Maduell F, Campistol JM. **Effect of a postoperative exercise program on arteriovenous fistula maturation: A randomized controlled trial.** *Hemodial Int.* 20(2):306-14. IF: 1.495

22. Maduell F, Ojeda R, Arias-Guillen M, Rossi F, Fontseré N, Vera M, Rico N, Gonzalez LN, Piñeiro G, Jiménez-Hernández M, Rodas L, Bedini JL. **Eight-Year Experience with Nocturnal, Every-Other-Day, Online Haemodiafiltration.** *Nephron.* 133(2):98-110. IF: 1.471

23. Torres A, Torregrosa V, Marcen R, Campistol JM, Arias M, Hernández D, Fernández C, Esforzado N, Paschoalin R, Pérez N, García AI, Del Amo M, Pomés J, González Rinne A, Marrero D, Pérez E, Henríquez F, Díaz JM, Silva I, López V, Perello M, Ramos D, Beneyto I, Cruzado JM, Martínez Castelao A, Bravo J, Rodríguez M, Díaz C, Crespo J, Anaya F, Rodríguez ML, Cubero JJ, Pascual P, Romero R, Andrés Belmonte A, Checa MD, Jiménez C, Escuin F, Crespo M, Mir M, Gómez G, Bayes B, González MJ, Gutiérrez A, Cuberes M, Rodríguez Benoit A, García T, Llamas F, Ortega A, Conde JL, Gómez Alamillo C. **Mineral metabolism disorders, vertebral fractures and aortic calcifications in stable kidney transplant recipients: The role of gender (EMITRAL study).** *Nefrologia.* IF: 1.207

Reviews / I.F.: 19.940

1. Kronbichler A, Brezina B, Quintana LF, Jayne DR. **Efficacy of plasma exchange and immunoadsorption in systemic lupus erythematosus and antiphospholipid syndrome: A systematic review.** *Autoimmun Rev.* 15(1):38-49. IF: 8.490

2. Adams D, Suhr OB, Hund E, Obici L, Tournev I, Campistol JM, Slama MS, Hazenberg BP, Coelho T; European Network for TTR-FAP (ATTReuNET). **First European consensus for diagnosis, management, and treatment**

of transthyretin familial amyloid polyneuropathy. *Curr Opin Neurol.* 29 Suppl 1:S14-26. IF: 4.469

3. Quintana LF, Jayne D. **Sustained remission in lupus nephritis: still a hard road ahead.** *Nephrol Dial Transplant.* 31(12):2011-2018. IF: 4.085

4. Ventura-Aguiar P, Campistol JM, Diekmann F. **Safety of mTOR inhibitors in adult solid organ transplantation.** *Expert Opin Drug Saf.* 15(3):303-19. IF: 2.896

Case Reports / I.F.: 4.123

1. Agüero F, Cofan F, Fortuny C, Lopez M, Manzardo C, Lonca M, Oppenheimer F, Moreno A, Campistol JM, Miro JM. **Pregnancy in a renal transplant recipient with HIV-1 infection: a case report.** *Antivir Ther.* 21(3):267-71. IF: 2.916

2. De Sousa-Amorim E, Revuelta I, Diekmann F, Cid J, Lozano M, Oppenheimer F. **Failed ABO incompatible high titers kidney transplant using bortezomib.** *Case report. Nefrologia.* 36(6):701-704. IF: 1.207

Consortium Publciations / I.F.: 5.676

1. Adams D; European Network for TTR-FAP (ATTReuNET). **Optimizing the management of transthyretin familial amyloid polyneuropathy in Europe: early diagnosis and effective care.** *Curr Opin Neurol.* 29 Suppl 1:S1-2. IF: 4.469

2. Maduell F, Moreso F, Mora-Macià J, Pons M, Ramos R, Carreras J, Soler J, Torres F; study group ESHOL.(Campistol JM). **ESHOL study reanalysis: All-cause mortality considered by competing risks and time-dependent covariates for renal transplantation.** *Nefrologia.* (2):156-63. IF: 1.207

GRANTS FOR RESEARCH IN PROGRESS

Campistol JM. **Red de investigación renal.**
Sponsored by: Instituto de Salud Carlos III.
RD12/0021/0028
Duration: 01/01/2013-30/16/2017

Campistol JM. **Estudio comparativo de la capacidad inmunomoduladora de células madre mesenquimales de médula ósea y sus microvesículas en un modelo de rechazo renal en rata.**
Sponsored by: Fundacion Senefro.
SENEFRO14_001
Duration: 04/11/2014-03/11/2016

Campistol JM. **Modulación de la vía Wnt/beta-Catenina, efectos en la progresión de la disfunción crónica del injerto renal.**
Sponsored by: Instituto de Salud Carlos III.
PI13/02052
Duration: 01/01/2014-31/12/2016

Campistol JM. **Ensayos clínicos de fase I y estudios de eficacia y ADME.**
Sponsored by: Ministerio de Economia y Competitividad INNPACTO13
Duration: 01/02/2014-31/03/2016

Diekmann F. **Extracellular Vesicles and exosomes from adult stem cells in the regeneration of organ injury.**
Sponsored by: European Comission.
CE_PEOPLE-2013-IAPP.
Duration: 01/02/2014-31/01/2018

Diekmann F. **Effect of Envarsus conversion on Tacrolimus-associated tremor in renal transplant patients.**
Sponsored By: Chiesi Spain S.A . 16/575
Duration: 25/11/2016 – 25/11/2018
Diekmann F. **Characterization of B cell subset reconstitution after antibody-mediated rejection treatment in kidney transplnat patients.**
Sponsored by: TEVA Pharmaceuticals Europe B.V. 16/291
Duration: 20/06/2016 – 08/06/2019

Quintana Porras LF. **Generation of induced pluripotent stem cells (iPS) lines from patients with genetic renal involvement: targeting and modeling renal diseases in vitro.**
Sponsored by: Fundació Marató TV3 (121331)
Duration: 01/01/2013-01/01/2017

2.4 Cardiovascular, nutrition and Aging Unit

LOCATION

CELLEX building and Internal Medicine Services. Hospital Clinic

KEYWORDS

1. **Nutrition**
2. **Mediterranean diet**
3. **Cardiovascular disease**
4. **Cardiovascular risk factors**
5. **Cognition**

Original publications from 2014 to 2016

YEAR	I.F.	TOTAL	Q1	Q2
2014	187.24	38	29	6
2015	138.46	33	18	13
2016	143.83	32	21	8

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STRATEGIC OBJECTIVES

To deep in the knowledge of the effects of the lifestyle (Effect of diet, alcohol and physical exercise) in the different stages of life (adolescence, pregnancy, elderly ...) and its role in the prevention of chronic diseases (hypertension, diabetes, dyslipidemia, cognitive impairment ..) and cancer.

MAIN LINES OF RESEARCH

1. Protective Effects of Mediteranean Diet on cardiovascular and cerebrovascular prevention (chronic



TEAM Ramón Estruch

diseases,neurodegenerative diseases and cáncer).
2. Effects of alcohol (beer or wine) compsumption on health
3. Effects of other diet components on healthy: olive oil, nuts, cocoa, fatty-acids, tomatoes....
4. Assesment on cardiovascular risk factors on primary prevention
5. Hair failure physiopathology
6. Aging
7. Thrombosis

PUBLICATIONS

Originals / I.F.: 143.831

1. Estruch R, Martínez-González MA, Corella D, Salas-Salvadó J, Fitó M, Chiva-Blanch G, Fiol M, Gómez-Gracia E, Arós F, Lapetra J, Serra-Majem L, Pintó X, Buil-Cosiales P, Sorlí JV, Muñoz MA, Basora-Gallisá J, Lamuela-Raventós RM, Serra-Mir M, Ros E; PREDIMED Study Investigators. **Effect of a high-fat Mediterranean diet on bodyweight and waist circumference: a prespecified secondary outcomes analysis of the PREDIMED randomised controlled trial.** *Lancet Diabetes Endocrinol.* 4(8):666-76. IF: 16.320

2. Ruiz-Canela M, Toledo E, Clish CB, Hruby A, Liang L, Salas-Salvadó J, Razquin C, Corella D, Estruch R, Ros E, Fitó M, Gómez-Gracia E, Arós F, Fiol M, Lapetra J, Serra-Majem L, Martínez-González MA, Hu FB. **Plasma Branched-Chain Amino Acids and Incident Cardiovascular Disease in the PREDIMED Trial.** *Clin Chem.* 62(4):582-92. IF: 7.457

3. Guasch-Ferré M, Zheng Y, Ruiz-Canela M, Hruby A, Martínez-González MA, Clish CB, Corella D, Estruch R, Ros E, Fitó M, Dennis C, Morales-Gil IM, Arós F, Fiol M, Lapetra J, Serra-Majem L, Hu FB, Salas-Salvadó J. **Plasma acylcarnitines and risk of cardiovascular disease: effect of Mediterranean diet interventions.** *Am J Clin Nutr.* 103(6):1408-16. IF: 6.703

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GRANTS FOR RESEARCH IN PROGRESS

Estruch R. **REDIMED-PLUS: Efecto de una dieta mediterránea hipocalórica y promoción de la actividad física en prevención primaria cardiovascular. Estudio piloto sobre marcadores intermedios.**
Sponsored by: Instituto de Salud Carlos III (ISCIII). PI13/02184
Duration: 01/01/2014-31/12/2017

Secanella E. **Morbi-mortalitat cardiovascular, adherencia a la dieta mediterránea y efecto legado tras 10 años de intervención con dieta mediterránea.**
Sponsored by: Sociedad Española de Medicina Interna (SEMI). FEMI-2015
Duration: 24/12/2015-24/12/2018

Estruch R. **REDIMED-PLUS: Efecto de una dieta mediterránea hipocalórica y promoción de la actividad física en prevención primaria cardiovascular. Estudio piloto sobre marcadores intermedios.**
Sponsored by: Instituto de Salud Carlos III (ISCIII) PI13/02184
Duration: 01/01/2014-31/12/2016

Estruch R. **The Moderate Alcohol and Cardiovascular Health Trial.**
Sponsored by: Beth Israel Medical Center. 38685
Duration: 30/09/2016-31/07/2021

Estruch R. **Nous predictors de la cardiopatía coronaria: micropartículas endotelials circulants, funcionalitat de les partícules d'HDL i composició en àcids grassos de les membranes cel·lulars.**
Sponsored by: Fundació la Marató de TV3. 20151230
Duration: 29/06/2016-28/06/2019

DOCTORAL THESES

Estruch R, Sacanella E. **Efecto anti-inflamatorio e inmunomodulador de una intervención con dieta mediterránea sobre los marcadores de inflamación de la pared vascular y de la placa inestable. Estudio PREDIMED.**
PhD student: Rosa Maria Casas Rodríguez

2.5

Respiratory biophysics and bioengineering

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KEYWORDS
1. **Respiratory mechanics**
2. **Lung bioengineering**
3. **Neuroimaging in refractory epilepsy**
4. **Neuroimaging in Parkinson's disease**

Original publications from 2014 to 2016

YEAR	I.F.	TOTAL	Q1	Q2
2014	90.75	23	12	8
2015	69.77	16	10	5
2016	51.56	12	9	3

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STRATEGIC OBJECTIVES

The general objectives are the study of the biophysical mechanisms determining respiratory function, and the development of models and methods for the processing of biomedical images and signals. The work of the group is based on an interdisciplinary scientific approach, promoting industrial transfer of the technological advances derived from the research work.

MAIN LINES OF RESEARCH

1. **Respiratory mechanics.**
   To investigate the viscoelastic properties of the airways and lung tissues. The work focuses on the study of upper airway collapsibility in obstructive apnea-hypopnea and in the monitoring



TEAM. Ramon Farré

noninvasive mechanical ventilation. We aim to improve noninvasive diagnostic techniques and to optimize the treatments.

2. **Molecular and cellular nanomechanics.**
To use atomic force microscopy, magnetic microspheres and traction force microscopy to study cell adhesion and mechanics of lung cells. We study the mechanical properties of stem cells and of the way in which mechanical stimuli enhance differentiation. We also work on lung regeneration, focusing on recreating the mechanical pulmonary micro-nano environment to optimize cell differentiation.

3. **Biomedical imaging analysis.**
Imaging analysis focused on the processing of photon emission tomography (SPECT) and positron emission tomography (PET) images aimed at securing more precise quantification of gammagraphic (scintigraphic) studies. Iterative algorithms are being developed for the three-dimensional reconstruction of images and for the fusion of SPECT and magnetic resonance imaging (MRI) images.

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2. Almendros I, Khalyfa A, Trzepizur W, Gileles-Hillel A, Huang L, Akbarpour M, Andrade J, Farre R, Gozal D. **Tumor Cell Malignant Properties Are Enhanced by Circulating Exosomes in Sleep Apnea.** *Chest.* 150(5):1030-1041. IF: 6.136

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GRANTS FOR RESEARCH IN PROGRESS

Almendros I. **Papel de la Prostaglandina-E2 en el Desarrollo Tumoral Inducido por la Hipoxia Intermitente en un Modelo de Apnea del Sueño en Ratón y sus Posibilidades Terapéuticas.**
Sponsored by: SEPAR. 086/2014
Duration: 01/04/2015-01/04/2018

Almendros I. **Alteraciones del citosqueleto y de la matriz extracelular cerebral características de la enfermedad de Alzheimer en un modelo celular y animal de apnea obstructiva del sueño.**
Sponsored by: SEPAR. 139/2015
Duration: 01/04/2016-01/04/2019

Farré R. **Mecanismos del aumento del crecimiento tumoral y metástasis inducido por hipoxia intermitente en modelo celular/animal de apneadel sueño. Papel del envejecimiento y la menopausia.**
Sponsored by: Instituto Salud Carlos III. FIS: PI14-00004
Duration: 01/01/2015-31/12/2017

Farré R. **Impact of sleep apnea syndrome on persistent atrial fibrillation and effect of intervention with continuous positive airway pressure (CPAP). Role of hypoxia and sleep fragmentation.**
Sponsored: Fundació Marató TV3. 20143231
Duration: 01/10/2015-31/09/2018

Farré R. **Clinical tRials fOr elderly patients with MultiplE Disease (CHROMED)**
Sponsored by: European Commission. 306093-2
Duration: 01/01/2012-01/05/2016

Ros D. **Cuantificacion de estudios de SPECT de neurotransmision del sistema dopaminergico nigroestriatal. Optimizacion para la utilizacion en la rutina clinica.**
Sponsored by: Ministerio de Economía y Competitividad. PI12/00390
Duration: 01/01/2013-31/10/2016

DOCTORAL THESES

Navajas D, Farré R. **Multiscale lung tissue mechanics in a mouse model of Marfan syndrome.**
PhD student: Juan José Uriarte Díaz

Navajas D, Almendros I. **Cellular Responses to Intermittent Hypoxia: a Lab-on-a-Chip Approach.**
PhD student: Noelia Campillo Agulló.

Ros D, Cot A. **Quantification of dopaminergic neurotransmission SPECT studies with 123I-labelled radioligands**.
PhD student: Judith Gallego Blanco.

2.6

Applied research in infectious respiratory diseases, critically ill patients and lung cancer

LOCATION
CELLEX building

FOR FURTHER INFORMATION
www.idibapsrespiratoryresearch.org

KEYWORDS
1. **Respiratory Infections**
2. **Mechanical Ventilation**
3. **Pneumonia**
4. **COPD, bronchiectasis**
5. **Breathing disturbances in sleep**

Original publications from 2014 to 2016

YEAR	I.F.	TOTAL	Q1	Q2
2014	150.12	31	17	10
2015	189.70	31	22	6
2016	134.54	32	22	7

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TEAM Antoni Torres

STRATEGIC OBJECTIVES

1. To study respiratory infections, invasive and noninasive mechanical ventilation, exacerbations of chronic obstructive pulmonary disease (COPD), bronchiectasis
2. Physiopathological and treatment studies in animals and humans with ventilator associated pneumonia and or ARDS
3. Human and animal model research in sleep apnea syndrome. Telemedicine and multcentre studies

MAIN LINES OF RESEARCH

1. Epidemiology, prevention and new treatments of: pneumonia associated with artificial ventilation, community-acquired pneumonia. New treatments. Resistances of microorganisms. Local and systemic inflammatory response.
2. Etiopathogenesis, bronchial infection and inflammation in the patient with chronic obstructive pulmonary disease (COPD).
3. Chronic pulmonary infections: bronchiectasis not associated with cystic fibrosis, immune deficiencies and cystic fibrosis in the adult.
4. Invasive and noninvasive mechanical ventilation: epidemiology, cost-effectiveness and physiopathology. Weaning from mechanical ventilation: role of the inflammatory response and respiratory failure following extubation.
5. Study of the pharmacokinetics of antibiotics and other drugs in the ventilated and non-ventilated patient.
6. Porcine model of acute pulmonary damage due to methicillinresistant P. aeruginosa, S. aureus and S. pneumoniae
7. Chronic sleep apnea models.
8. Multicenter Study to assess the effect of CPAP on cardiovascular diseases in patients with sleep apnea.
9. Telematic control of CPAP treatment in sleep apnea syndrome.

RESEARCH GROUP

BREATHING DISTURBANCES IN SLEEP

GROUP LEADER

Josep M. Montserrat (HCB)

The main research line of this group is the analysis of respiratory disturbances in sleep. Specifically, the two most important lines are the following: the study of diagnostic methods and effects of treatment in a population of apneic patients in which the indication is not clear; and the study of animal models for exploring the mechanisms underlying the origin and consequences of the disorder. Both lines are carried out in the context of national multicenter clinical trials. Finally, the envelopment of a visrtual sleep unit is one of the major topic during last year as well as other telemedicine procedures to improve the patient management and the cost effectivenes.

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Letters / I.F.: 81.133

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Editorials / I.F.: 48.063

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Consortium Publciations / I.F.: 25.037

1. Talbot GH, Powers JH, Hoffmann SC; Biomarkers Consortium of the Foundation for the National Institutes of Health CABP-ABSSSI and HABP-VABP Project Teams. **Developing Outcomes Assessments as Endpoints for Registrational Clinical Trials of Antibacterial Drugs: 2015 Update From the Biomarkers Consortium of the Foundation for the National Institutes of Health.** *Clin Infect Dis.* 62(5):603-7. IF: 8.736

2. Álvarez-Lerma F, Marín-Corral J, Vila C, Masclans JR, González de Molina FJ, Martín Loeches I, Barbadillo S, Rodríguez A; H1N1 GETGAG/SEMICYUC Study Group. **Delay in diagnosis of influenza A (H1N1) pdm09 virus infection in critically ill patients and impact on clinical outcome.** *Crit Care.* 20(1):337. IF: 4.950

3. Abdul-Aziz MH, Lipman J, Akova M, Bassetti M, De Waele JJ, Dimopoulos G, Dulhunty J, Kaukonen KM, Koulenti D, Martin C, Montravers P, Rello J, Rhodes A, Starr T, Wallis SC, Roberts JA; DALI Study Group. **Is prolonged infusion of piperacillin/tazobactam and meropenem in critically ill patients associated with improved pharmacokinetic/pharmacodynamic and patient outcomes? An observation from the Defining Antibiotic Levels in Intensive care unit patients (DALI)**

cohort. *J Antimicrob Chemother.* 71(1):196-207. IF: 4.919

4. Campos-Rodriguez F, Martinez-Alonso M, Sanchez-de-la-Torre M, Barbe F; Spanish Sleep Network. **Long-term adherence to continuous positive airway pressure therapy in non-sleepy sleep apnea patients.** *Sleep Med.* 17:1-6. IF: 3.339

5. Marrone O, Battaglia S, Steiropoulos P, Basoglu OK, Kvamme JA, Ryan S, Pepin JL, Verbraecken J, Grote L, Hedner J, Bonsignore MR; ESADA study group. **Chronic kidney disease in European patients with obstructive sleep apnea: the ESADA cohort study.** *J Sleep Res.* 25(6):739-745. IF: 3.093

GRANTS FOR RESEARCH IN PROGRESS

Soler N. **Valor diagnóstico de la Pancreatic Stone Protein (PSP/reg) en la agudización infecciosa de la Enfermedad Pulmonar Obstructiva Crónica (EPOC): relevancia del microbioma.**
Sponsored by: Instituto de Salud Carlos III (ISCIII). PI13/02238
Duration: 01/01/2014-31/12/2016

Montserrat J.M. **Aplicabilidad y coste eficiencia de un modelo de gestión para el síndrome de apneas durante el sueño basado en el trabajo en red y telemedicina.**
Sponsored by: Instituto de Salud Carlos III (ISCIII). PI14/00416
Duration: 01/01/2015-31/12/2017

Torres A. **Combatting Bacterial Resistance in Europe - Molecules Against Gram Negative Infections. (COMBACTE-MAGNET).**
Sponsored by: ASTRAZENECA AB 115737-2
Duration: 01/01/2015-31/12/2021

Torres A. **Eficacia y caracterización de los efectos de los corticosteroides asociados a antibióticos en un modelo animal de neumonía grave por streptococcus pneumoniae.**
Sponsored by: Instituto de Salud Carlos III. PI15/00506
Duration: 01/01/2016-31/12/2018

DOCTORAL THESES

Torres A. **Systemic Inflammatory Response in patients with Community Acquired Pneumonia (CAP) and Chronic Obstructive Pulmonary Disease (COPD) and in Acute Exacerbations of COPD and new other uncommon triggers.**
PhD student: Arturo Humberto Huerta García

Agustí C, Torres A. **Complicaciones pulmonares en el trasplante de progenitores hematopoyéticos.**
PhD student: Carmen Maria Lucena Pozo

Montserrat JM. **Efectos del envejecimiento en las alteraciones neurocognitivas en la apnea obstructiva del sueño: mecanismos y tratamiento con CPAP.**
PhD student: Mireia Dalmases Cleries

Montserrat JM. **Diagnóstico, costes y decisión terapéutica de poligrafía respiratoria domiciliaria en pacientes sin alta sospecha de apnea obstructiva del sueño o con comorbilidad. Polisomnografía hospitalaria en comparación con tres noches de poligrafía respiratoria dom.**
PhD student: Arnoldo Anacleto Guerrero Chapa

Torres A. **New strategies to prevent endotracheal tube biofilm-associated pulmonary infections.**
PhD student: Elisabet Aguilera Xiol

Torres A, Soler N. **Factors predictius, pronòstics i resposta inflamatòria del fracàs de tractament a les Aguditzacions de la Malaltia Pulmonar Obstructiva Crònica (AMPOC) i del reingrés als 30 dies de l'alta hospitalària.**
PhD student: Monica Guerrero Pérez

Montserrat JM. **SAHS en els infarts cerebrals: topografies relacionades presència de Cheyne-Stokes i eficàcia d'un tractament precoç.**
PhD: Marc Bonnin Vilaplana

2.7 Physiopathological mechanisms of respiratory illnesses

LOCATION
CELLEX building

FOR FURTHER INFORMATION
www.idibaps.org/research/604/physiopathological-mechanisms-of-respiratory-illnesses

KEYWORDS
1. **Pulmonary Hypertension**
2. **COPD**
3. **Systems Medicine**
4. **Endothelium**
5. **Stem Cells**

Original publications from 2014 to 2016

YEAR	I.F.	TOTAL	Q1	Q2
2014	187.30	34	21	8
2015	143.23	23	12	6
2016	141.51	28	19	5

TEAM INVOLVED IN
CIBERES
RETIC Biobanco

AWARDS
Allied Respiratory Professionals Assembly Lifetime Achievement Award
Institution: European Respiratory Society
Awardee/s: Felip Burgos



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TEAM Joan Albert Barberà

STRATEGIC OBJECTIVES

Understanding of the molecular mechanisms involved in the development of pulmonary vascular diseases. Identification of biomarkers and therapeutic targets for pulmonary hypertension. Characterization of extrapulmonary disorders in COPD. Determination of intra-and extrapulmonary manifestations of severe obesity. Role of stem cells in lung injury and repair mechanisms. Personalized medical care for chronic respiratory diseases from a systems medicine strategy.

MAIN LINES OF RESEARCH

- Clinical research in pulmonary hypertension: biomarkers and new therapies
- Endothelial dysfunction and vascular remodeling
- Experimental models of COPD and pulmonary hypertension
- Stem and progenitor cells
- Interaction between airway, lung and systemic inflammation in COPD and severe obesity
- Pathophysiology of pulmonary gas exchange
- Systems medicine

50/50 PROGRAM

TRANSLATIONAL RESEARCH IN PULMONARY VASCULAR DISEASES: CELL PROLIFERATION AND APOPTOTIC MECHANISMS IN PULMONARY ARTERIAL HYPERTENSION



GROUP LEADER
Isabel Blanco (HCB-IDIBAPS)

Pulmonary arterial hypertension (PAH) is a disease of small pulmonary arteries, characterized by gradual obliteration of the arterial lumen due to the enlargement of the vessel wall. It results in a progressive increase of pulmonary vascular resistance (PVR) and, finally, right ventricular failure and death. While vasoconstriction contributes, especially in earlier stages, the obstructive vascular remodelling is the major cause of the elevated PVR and ultimately the right heart failure. There is a need to identify new signaling pathways in the pathogenesis of PAH. We propose going from the bench to the bed side studying potential biomarkers of the disease activity and progression; as well as potential new drugs to reverse the proliferative remodelling phenotype in PAH.

PUBLICATIONS

Originals / I.F.: 141.506

1. Delcroix M, Lang I, Pepke-Zaba J, Jansa P, D'Armini AM, Snijder R, Bresser P, Torbicki A, Mellemkjaer S, Lewczuk J, Simkova I, Barbera JA, de Perrot M, Hoeper MM, Gaine S, Speich R, Gomez-Sanchez MA. **Long-Term Outcome of Patients With Chronic Thromboembolic Pulmonary Hypertension (CTEPH): Results From an International Prospective Registry.** *Circulation.* 133(9):859-871. IF: 17.047

2. Watz H, Tetzlaff K, Wouters Efm, Kirsten A, Magnussen H, Rodriguez-Roisin R, Vogelmeier C, Fabbri LM, Chanez P, Dahl R, Disse B, Finnigan H, Calverley Pma. **Blood eosinophil count and exacerbations in severe chronic obstructive pulmonary disease after withdrawal of inhaled corticosteroids: a post-hoc analysis of the WISDOM trial.** *Lancet Resp Med.* 4(5):390-398. IF: 15.328

3. Faner R, Cruz T, Casserras T, López-Giraldo A, Noell G, Coca I, Tal-Singer R, Miller B, Rodriguez-Roisin R, Spira A, Kalko SG, Agusti A. **Network Analysis of Lung Transcriptomics Reveals a Distinct B Cell Signature in Emphysema.** *Am J Respir Crit Care Med.* 193(11):1242-53. IF: 13.118

4. Rodriguez-Roisin R, Bartolome SD, Huchon G, Krowka MJ. **Inflammatory bowel diseases chronic liver diseases and the lung.** *Eur Heart J.* 47(2):638-650. IF: 8.332

5. Magnussen H, Tetzlaff K, Bateman E D, Watz H, Kirsten A M, Wouters E F, Disse B, Finnigan H, Rodriguez-Roisin R, Calverley P M. **Lung-function changes over time following withdrawal of inhaled corticosteroids in patients with severe COPD.** *Eur Heart J.* 47(2):651-654. IF: 8.332

6. Cosío BG, Shafiek H, Iglesias A, Yanez A, Cordova R, Palou A, Rodriguez-Roisin R, Peces-Barba G, Pascual S, Gea J, Sibila O, Barnes PJ, Agusti A. **Oral Low-Dose Theophylline on Top of Inhaled Fluticasone-Salmeterol Does Not Reduce Exacerbations in Patients with Severe COPD: A Pilot Clinical Trial.** *Chest.* 150(1):123-30. IF: 6.136

7. García-Alvarez A, Pereda D, García-Lunar I, Sanz-Rosa D, Fernandez-Jimenez R, García-Prieto J, Nuno-Ayala M, Sierra F, Santiago E, Sandoval E, Campelos P, Aguero J, Pizarro G, Peinado VI, Fernandez-Friera L, García-Ruiz JM, Barbera JA, Castella M, Sabate M, Fuster V, Ibanez B. **Beta-3 adrenergic agonists reduce pulmonary vascular resistance and improve right ventricular performance in a porcine model of chronic pulmonary hypertension.** *Basic Res Cardiol.* 111(4):49. IF: 6.038

8. Blasi A, Hessheimer AJ, Beltran J, Pereira A, Fernandez J, Balust J, Martinez-Palli G, Fuster J, Navasa M, Garcia-Valdecasas JC, Taura P, Fondevila C. **Liver Transplant From Unexpected Donation After Circulatory Determination of Death Donors: A Challenge in Perioperative Management.** *Am J Transplant.* 16(6):1901-1908. IF: 5.669

9. Tafur LA, Taura P, Blasi A, Beltran J, Martinez-Palli G, Balust J, Garcia-Valdecasas JC. **Rotation thromboelastometry velocity curve predicts blood loss during liver transplantation.** *Br J Anaesth.* 117(6):741-748. IF: 5.616

10. Garcia-Lucio J, Argemi G, Tura-Ceide O, Diez M, Paul T, Bonjoch C, Coll-Bonfill N, Blanco I, Barbera JA, Musri MM, Peinado VI. **Gene expression profile of angiogenic factors in pulmonary arteries in COPD: relationship with vascular remodeling.** *Am J Physiol -Lung Cell Mol.* 310(7):L583-L592. IF: 4.721

11. Escribano-Subías P, del Pozo R, Roman-Broto A, Domingo Morera J A, Lara-Padron A, Elias Hernandez T, Molina-Ferragut L, Blanco I, Cortina J, Barbera J A. **Management and outcomes in chronic thromboembolic pulmonary hypertension: From expert centers to a nationwide perspective.** *Int J Cardiol.* 203:938-44. IF: 4.638

12. Santos A, Rivas E, Rodriguez-Roisin R, Sanchez M, Ruiz-Cabello J, Arismendi E, Venegas JG. **Lung Tissue Volume is Elevated in Obesity and Reduced by Bariatric Surgery.** *Obes Surg.* 26(10):2475-2482. IF: 3.346

13. Ramon M A, Ferrer J, Gimeno-Santos E, Donaire-Gonzalez D, Rodriguez E, Balcells E, De Batlle J, Benet M, Guerra S, Sauleda J, Ferrer A, Farrero E, Gea J, Barbera J A, Agusti A, Rodriguez-Roisin R, Anto J M, Garcia-Aymerich J. **Inspiratory capacity-to-total lung capacity ratio and dyspnoea predict exercise capacity decline in COPD.** *Respirology.* 21(3):476-482. IF: 3.078

14. Bujak R, Mateo J, Blanco I, Izquierdo-García JL, Dudzik D, Markuszewski MJ, Peinado VI, Laclaustra M, Barbera JA, Barbas C, Ruiz-Cabello J. **New biochemical insights into the mechanisms of pulmonary arterial hypertension in humans.** *PLoS One.* 11(8):e0160505. IF: 3.057

15. Frances A, Hildur K, Barbera JA, Rodríguez-Trigo G, Zock J-P, Giraldo J, Monyarch G, Rodriguez-Rodriguez E, De Castro Reis F, Souto A, Gómez FP, Pozo-Rodríguez F, Templado C, Fuster C. **Persistence of breakage in specific chromosome bands 6 years after acute exposure to oil.** *PLoS One.* 11(8):e0159404. IF: 3.057

16. Coll-Bonfill N, Peinado VI, Pisano MV, Parrizas M, Blanco I, Evers M, Engelmann JC, Garcia-Lucio J, Tura-Ceide O, Meister G, Barbera JA, Musri MM. **Slug Is Increased in Vascular Remodeling and Induces a Smooth Muscle Cell Proliferative Phenotype.** *PLoS One.* 11(7):e0159460. IF: 3.057

17. Arbillaga-Etxarri A, Torrent-Pallicer J, Gimeno-Santos E, Barberan-Garcia A, Delgado A, Balcells E, Rodriguez DA, Vilaro J, Vall-Casas P, Irurtia A, Rodriguez-Roisin R, Garcia-Aymerich J. **Validation of Walking Trails for the Urban Training™ of Chronic Obstructive Pulmonary Disease Patients.** *PLoS One.* 11(1):e0146705. IF: 3.057

18. Bosnic-Anticevich S, Chrystyn H, Costello RW, Dolovich MB, Fletcher MJ, Lavorini F, Rodríguez-Roisin R, Ryan D, Wan Yau Ming S, Price DB. **The use of multiple respiratory inhalers requiring different inhalation techniques has an adverse effect on COPD outcomes.** *Int J Chron Obstruct Pulmon Dis.* 12:59-71. IF: 3.046

19. Rodriguez-Roisin R, Tetzlaff K, Watz H, Wouters Efm, Disse B, Finnigan H, Magnussen H, Calverley Pma. **Daily home-based spirometry during withdrawal of inhaled corticosteroid in severe to very severe chronic obstructive pulmonary disease.** *Int J Chron Obstruct Pulmon Dis.* 11:1973-81. IF: 3.046

20. Tashkin DP, Martinez FJ, Rodriguez-Roisin R, Fogarty C, Gotfried M, Denenberg M, Gottschlich G, Donohue JF, Orevillo C, Darken P, St Rose E, Strom S, Fischer T, Golden M, Reisner C. **A multicenter randomized, double-blind dose-ranging study of glycopyrrolate/formoterol fumarate fixed-dose combination metered dose inhaler compared to the monocomponents and open-label tiotropium dry powder inhaler in patients with moderate-to-severe COPD.** *Respir Med.* 120:16-24. IF: 3.036

21. Dekhuijzen PNR, Batsiou M, Bjermer L, Bosnic-Anticevich S, Chrystyn H, Papi A, Rodriguez-Roisin R, Fletcher M, Wood L, Cifra A, Soriano JB, Price DB. **Incidence of oral thrush in patients with COPD prescribed inhaled corticosteroids: Effect of drug, dose, and device.** *Respir Med.* 120:54-63. IF: 3.036

22. Dueñas-Espín I, Vela E, Pauws S, Bescos C, Cano I, Cleries M, Contel JC, de Manuel Keenoy E, Garcia-Aymerich J, Gomez-Cabrero D, Kaye R, Lahr MM, Lluch-Ariet M, Moharra M, Monterde D, Mora J, Nalin M, Pavlickova A, Piera J, Ponce S, Santaeugenia S, Schonenberg H, Störk S, Tegner J, Velickovski F, Westerteicher C, Roca J. **Proposals for enhanced health risk assessment and stratification in an integrated care scenario.** *BMJ Open.* 6(4):e010301. IF: 2.562

23. Tenyi A, de Atauri P, Gomez-Cabrero D, Cano I, Clarke K, Falciani F, Cascante M, Roca J, Maier D. **ChainRank, a chain prioritisation method for contextualisation of biological networks.** *BMC Bioinformatics.* 17:17. IF: 2.435

24. Gomez-Cabrero D, Menche J, Vargas C, Cano I, Maier D, Barabasi AL, Tegner J, Roca J. **From comorbidities of chronic obstructive pulmonary disease to identification of shared molecular mechanisms by data integration.** *BMC Bioinformatics.* 17(Suppl 15):441. IF: 2.435

25. Virchow JC, Rodriguez-Roisin R, Papi A, Shah TP, Gopalan G. **A randomized double-blinded double-dummy efficacy and safety study of budesonide-formoterol Spiromax(R) compared to budesonide-formoterol Turbuhaler(R) in adults and adolescents with persistent asthma.** *BMC Pulm Med.* 16:42. IF: 2.329

26. Rodriguez DA, Arbillaga A, Barberan-Garcia A, Ramirez-Sarmiento A, Torralba Y, Vilaro J, Gimeno-Santos E, Gea J, Orozco-Levi M, Roca J, Marco E. **Effects of interval and continuous exercise training on autonomic cardiac function in COPD**

patients. *Clin Respir J.* 10(1):83-89. IF: 2.147

27. Rivas E, Arismendi E, Agustí A, Gistau C, Wagner PD, Rodriguez-Roisin R. **Postural effects on pulmonary gas exchange abnormalities in severe obesity before and after bariatric surgery.** *Minerva Anestesiol.* 82(4):403-10. IF: 2.036

28. Valeiro B, Hernandez C, Barberan-Garcia A, Rodriguez DA, Aibar J, Llop L, Vilaro J. **Feasibility of Home-Based Functional Status Assessment of Chronic Obstructive Pulmonary Disease Patients Recovering From an Exacerbation.** *Arch Bronconeumol.* 52(5):256-61. IF: 1.771

Reviews / I.F.: 15.064

1. Ambrosino N, Vitacca M, Dreher M, Isetta V, Montserrat JM, Tonia T, Turchetti G, Winck JC, Burgos F, Kampelmacher M, Vagheggini G. **Tele-monitoring of ventilator-dependent patients: a European Respiratory Society Statement.** *Eur Heart J.* 48(3):648-663. IF: 8.332

2. Coll-Bonfill N, de la Cruz-Thea B, Pisano MV, Musri MM. **Noncoding RNAs in smooth muscle cell homeostasis: implications in phenotypic switch and vascular disorders.** *Pflugers Arch.* 4681071-1087. IF: 3.654

3. Blanco I, Piccari L, Barbera JA. **Pulmonary vasculature in COPD: The silent component.** *Respirology.* 21(6):984-994. IF: 3.078

Letters / I.F.: 1.447

1. Vargas C, Burgos F, Cano I, Blanco I, Caminal P, Escarrabill J, Gallego C, Llauger MA, Miralles F, Solans O, Vallverdu M, Velickovski F, Roca J. **Protocol for regional implementation of collaborative lung function testing.** *npj Prim Care Respir Med.* 26:16024. IF: 1.447

Clinical Guidelines / I.F.: 8.332

1. Galiè N, Humbert M, Vachiery JL, Gibbs S, Lang I, Torbicki A, Simonneau G, Peacock A, Vonk Noordegraaf A, Begetter M, Ghofrani A, Gomez Sanchez MA, Hansmann G, Klepetko W, Lancellotti P, Matucci M, McDonagh T, Pierard LA, Trindade PT, Zompatori M, Hoeper M, Aboyans V, Vaz Carneiro A, Achenbach S, Agewall S, Allanore Y, Asteggiano R, Paolo Badano L, Barberà JA, Bouvaist H, Bueno H, Byrne RA, Carerj S, Castro G, Erol Ç, Falk V, Funck-Brentano C, Gorenflo M, Granton J, Iung B, Kiely DG, Kirchhof P, Kjellstrom B, Landmesser U, Lekakis J, Lionis C, Lip GY, Orfanos SE, Park MH, Piepoli MF, Ponikowski P, Revel MP, Rigau D, Rosenkranz S, Völler H, Luis Zamorano J. **2015 ESC/ERS Guidelines for the diagnosis and treatment of pulmonary hypertension: The Joint Task Force for the Diagnosis and Treatment of Pulmonary Hypertension of the European Society of Cardiology (ESC) and the European Respiratory Society (ERS).** *Eur Heart J.* 37(1):67-119. IF: 8.332

GRANTS FOR RESEARCH IN PROGRESS

Barberà JA. **Plataformas de apoyo a la Investigación en Ciencias y Tecnologías de la Salud. Red de Biobanco.**
Sponsored by: Instituto de Salud Carlos III (ISCIII). PT13/0010/0011
Duration: 01/01/2014-31/12/2017

Barberà JA. **Gestión en red de pacientes con Enfermedades Raras: la Hipertensión Pulmonar como caso de uso (GERAR).**
Sponsored by: MINECO (RETOS), Ref RTC-2015-4137-1
Duration: 01/09/2015 - 31/12/2018

Blanco I. **Estudio del papel de la survivina en la patogénesis de la hipertensión arterial pulmonar y su empleo como potencial diana terapéutica.**
Sponsored by Instituto de Salud Carlos III (ISCIII). PI14/00782
Duration: 01/01/2015-31/12/2017

Martinez Palli G. **Efectividad de una intervención de entrenamiento físico personalizado (prehabilitación) en pacientes de alto riesgo quirúrgico sobre la incidencia de complicaciones postoperatorias: ensayo controlado aleatorizado.**
Sponsored by Instituto de Salud Carlos III (ISCIII). PI13/00425
Duration: 01/01/2014-31/12/2016

Roca J. **PITES-ISA: Escalabilidad regional de los servicios de atención integrada y ayuda a la decisión clínica.**
Sponsored by: Instituto de Salud Carlos III (ISCIII). PI12/01241
Duration: 01/01/2013-30/03/2016

Roca J. **Sustainable intEgrated care modeLs for multi-morbidity: delivery, FInancing and performance.**
Sponsored by: Erasmus Universiteit Rotterdam. SEP_210142560
Duration: 01/09/2015-30/08/2018

Barbera JA. **Proliferación celular en la hipertensión pulmonar: detección y mecanismos de regulación epigenética.**
Sponsored by: Instituto de Salud Carlos III. PI15/00582
Duration: 01/01/2016-31/12/2018

Martínez G. **Effectiveness of personalized physical training intervention (prehabilitation) in high-risk patients underwent abdominal cancer surgery on postoperative complications: a randomized controlled trial.**
Sponsored by: European Society of Anaesthesiology. ESA_2015_01
Duration: 01/01/2016-30/06/2017

Roca J. **Personalised Connected Care for Complex Chronic Patients.**
Sponsored by: Barcelona Digital Centre Tecnologic. 689802
Duration: 01/04/2016-30/09/2019

Roca J. **KONFIDO - Secure and Trusted Paradigm for Interoperable eHealth Services**
Sponsored by: Exus Software Ltd. 727528
Duration: 01/11/2016-31/10/2019

Roca J. **Atenció personalitzada del malalt crònic en un marc de salut digital.**
Sponsored by: Fundació Eurecat.
COMRDI15-1-0016-08
Duration: 15/10/2016-15/10/2019

Roca J. **Plataforma de innovación en telemedicina y e-salud: TIC para los retos de I+i en servicios de salud - PITES – TIiSS.**
Sponsored by: Instituto de Salud Carlos III.
PI15/00576
Duration: 01/01/2016-31/12/2018

Roca J. **Advancing Care Coordination and Telehealth deployment at Scale**
Sponsored by: Philips Medizin Systeme Böblingen Gmbh. 709770
Duration: 04/03/2016-03/03/2019

DOCTORAL THESES

Barbera JA. **Mecanismes moleculars i expressió de miRNAs durant la diferenciació de la cèl·lula muscular llisa en el remodelat vascular.**
PhD student: Núria Coll Bonfill

Rodríguez-Roisin R. **Pulmonary gas exchange and severe obesity: bariatric surgery effects.**
PhD student: Eva Rivas Ferreira

2.8 Clinical and Experimental Respiratory Immunoallergy

LOCATION
CELLEX building

FOR FURTHER INFORMATION
www.idibaps.org/research/605/clinical-and-experimental-respiratory-immunoallergy-irce

KEYWORDS
1. **Chronic rhinosinusitis and nasal polyps**
2. **Aspirin Sensitive Asthma**
3. **Drug & Food allergy**
4. **Olfactory disorders**
5. **Urticaria and mast cells**
6. **Endoscopic & skull base surgery**

Original publications from 2014 to 2016

YEAR	I.F.	TOTAL	Q1	Q2
2014	136.72	25	15	5
2015	82.41	24	13	6
2016	151.13	26	14	5

TEAM INVOLVED IN
AGAUR_SGR14
CIBER_CIBERES
RETIC_RIRAAF
RETIC_ARADYAL

AWARDS
Member of Honour
Institution: Belgian Society of Otorhinolaryngology
Awardee/s: Bernal-Sprekelsen M

Sant Blas Award (Best publication)
Institution: Societat Catalana d'ORL
Awardee/s: Bernal-Sprekelsen M



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Arnau Navinés Ferrer (HCB)
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Arturo Cordero (Guatemala)



TEAM Joaquim Mullol

STRATEGIC OBJECTIVES

1. To investigate mechanisms regulating inflammatory response and remodelling in asthma, rhinitis, rhinosinusitis/ polyposis, and pulmonary interstitial diseases.
2. To investigate mechanisms underlying food and drug allergies.
3. To investigate mechanisms involved in anaphylaxis and mast cell physiology.
4. To investigate mechanisms of smell loss: sinonasal inflammation, Traumatic Brain Injury, Parkinson Disease, iatrogenic, idiopathic.

MAIN LINES OF RESEARCH

1. Inflammation of the Upper and Lower respiratory mucosa. Mechanisms involved in sinonasal and bronchial development, inflammation, and remodelling.
2. Sense of smell in health and disease. Mechanisms involved in olfactory dysfunctions (rhinitis, rhinosinusitis, septal perforation) and neurogenesis of sinonasal diseases, Traumatic Brain Injury, and neurodegenerative (Parkinson) diseases.
3. Food and drug allergy. Genetic, immunological, and biochemical mechanisms of respiratory, food, and drug allergy.
4. Glucocorticoid resistance. Mechanisms and biomarkers involved in glucocorticoid resistance of respiratory and non-respiratory diseases.
5. Aspirin and Non-Steroidal Antiinflammatory Drug (NSAID) intolerance. Mechanisms of allergy and cofactors, regulation of cyclooxygenase, leukotriene and prostaglandins (PGE2) and their receptors.
6. Pathophysiology of eosinophils, mast cells and basophils. Anaphylactic reactions (mastocytosis, adapter molecules in the signaling of IgE). Antiinflammatory drugs in eosinophils and epithelial cells (corticosteroids, MP29-02), and mast cell and basophils (omalizumab).
7. Skull Base tumours. Impact of skull base tumours in quality of life and olfaction. Different surgical approaches.

RESEARCH GROUP

SINONASAL INFLAMMATORY AND OLFACTORY RESEARCH GROUP (INGENIO)



GROUP LEADER

Joaquim Mullol (IDIBAPS)

1. Upper airway diseases (rhinitis, rhinosinusitis, nasal polyps): A) regulation of mucins and MUC genes; and B) impact on quality of life.
2. Olfactory disorders and their mechanisms of action: A) validation of new adult (BOT-8) and children (pBOT-6) olfactometries; and B) mechanisms of smell loss and its recovery in sinonasal diseases, traumatic brain injury, and neurodegenerative diseases.
3. Human in vitro model of eosinophilic inflammation to test / compare medication antiinflammatory effects: corticosteroids, antihistamines, antileukotrienes, MP29-02.
4. Stem/progenitor respiratory epithelial / neuroepithelial cell differentiation in ALI culture model.

PUBLICATIONS

Originals / I.F.: 151.128

1. Bachert C, L Mannent, RM Naclerio, J Mullol, BJ Ferguson, Ph. Gevaert, P Hellings, L Jiao, L Wang, RR Evans, G Pirozzi, NM Graham, B Swanson, JD Hamilton, A Radin, N Gandhi, N Stahl, GD Yancopolous, ER Sutherland. **Effect of subcutaneous Dupilumab on nasal polyp burden in patients with chronic cinusitis and nasal polyposis. A randomized clinical trial.** *JAMA*. 315(5):469-79. IF: 37.684

2. Ramesh M, Yuenyongviwat A, Konstantinou GN, Lieberman J, Pascal M, Masilamani M, Sampson HA. **Peanut T-cell epitope discovery: Ara h 1.** *J Allergy Clin Immunol*. 137(6):1764-71.e4. IF: 12.485

3. Munoz-Cano R, Pascal M, Bartra J, Picado C, Valero A, Kim D K, Brooks S, Ombrello M, Metcalfe D D, Rivera J, Olivera A. **Distinct transcriptome profiles differentiate nonsteroidal anti-inflammatory drug-dependent from nonsteroidal anti-inflammatory drug-independent food-induced anaphylaxis.** *J Allergy Clin Immunol*. 137(1):137-146. IF: 12.485

4. Tomassen P, Vandeplas G, Van Zele T, Cardell L-O, Arebro J, Olze H, Förster-Ruhrmann U, Kowalski ML, Olszewska-Ziaber A, Holtappels G, De Ruyck N, Wang X, Van Drunen C, Mullol J, Hellings P, Hox V, Toskala E, Scadding G, Lund V, Zhang L, Fokkens W, Bachert C. **Inflammatory endotypes of chronic rhinosinusitis based on cluster analysis of biomarkers.** *J Allergy Clin Immunol*. 137(5):1449-1456e4. IF: 12.485

5. Machado-Carvalho L, Martin M, Torres R, Gabasa M, Alobid I, Mullol J, Pujols L, Roca-Ferrer J, Picado C. **Low E-prostanoid 2 receptor levels and deficient induction of the IL-1beta/ IL-1 type I receptor/COX-2 pathway: Vicious circle in patients with aspirin-exacerbated respiratory disease.** *J Allergy Clin Immunol*. 137(1):99-107.e7. IF: 12.485

6. Wangorsch A, Larsson H, Messmer M, García-Moral A, Lauer I, Wolfheimer S, Schülke S, Bartra J, Vieths S, Lidholm J, Scheurer S. **Molecular cloning of plane pollen allergen Pla a 3 and its utility as diagnostic marker for peach associated plane pollen allergy.** *Clin Exp Allergy*. 46(5):764-74. IF: 5.587

7. Serrano-Candelas E, Martinez-Aranguren R, Valero A, Bartra J, Gastaminza G, Goikoetxea M J, Martin M, Ferrer M. **Comparable actions of omalizumab on mast cells and basophils.**

Clin Exp Allergy. 46(1):92-102. IF: 5.587

8. Pascal M, Munoz-Cano R, Mila J, Sanz ML, Diaz-Perales A, Sanchez-Lopez J, Garcia-Moral A, Juan M, Valero A, Yague J, Picado C, Bartra J. **Nonsteroidal anti-inflammatory drugs enhance IgE-mediated activation of human basophils in patients with food anaphylaxis dependent and independent of nonsteroidal anti-inflammatory drugs.** *Clin Exp Allergy*. 46(8):1111-1119. IF: 5.587

9. Downs ML, Simpson A, Custovic A, Semic-Jusufagic A, Bartra J, Fernandez-Rivas M, Taylor SL, Baumert JL, Mils EN. **Insoluble and soluble roasted walnut proteins retain antibody reactivity**. *Food Chem.* 194:1013-21. IF: 4.052

10. Inciarte-Mundo J, Ramirez J, Hernández MV, Ruiz-Esquide V, Cuervo A, Cabrera-Villalba SR, Pascal M, Yagüe J, Cañete JD, Sanmarti R. **Calprotectin and TNF trough serum levels identify power Doppler ultrasound synovitis in rheumatoid arthritis and psoriatic arthritis patients in remission or with low disease activity.** *Arthritis Res Ther*. 18(1):160. IF: 3.979

11. Langdon C, Guilemany JM, Valls M, Alobid I, Bartra J, Dávila I, Del Cuvillo A, Ferrer M, Jáuregui I, Montoro J, Sastre J, Valero A, Mullol J. **Allergic rhinitis causes loss of smell in children: The OLFAPEDRIAL study.** *Pediatr Allergy Immunol.* 27(8):867-870. IF: 3.947

12. D'Amelio CM, Goikoetxea MJ, Martinez-Aranguren R, Garcia BE, Gomez F, Fernandez J, Bartra J, Blanca-Lopez N, Diaz-Perales A, Sanz ML. **Is the performance of ImmunoCAP ISAC 112 sufficient to diagnose peach and apple allergies?** Ann Allergy Asthma Immunol. 116(2):162-163. IF: 3.475

13. Dallan I, Di Somma A, Prats-Galino A, Solari D, Alobid I, Turri-Zanoni M, Fiacchini G, Castelnuovo P, Catapano G, de Notaris M. **Endoscopic transorbital route to the cavernous sinus through the meningo-orbital band: a descriptive anatomical study.** *J Neurosurg.* 18:1-8. IF: 3.443

14. Inciarte-Mundo J, Victoria Hernández M, Ruiz-Esquide V, Raquel Cabrera-Villalba S, Ramirez J, Cuervo A, Pascal M, Yagüe J, Cañete JD, Sanmarti R. **Serum Calprotectin Versus Acute-Phase Reactants in the Discrimination of Inflammatory Disease Activity in Rheumatoid Arthritis Patients Receiving Tumor Necrosis Factor Inhibitors.** *Arthritis Care Res*. 68(7):899-906. IF: 3.229

15. Valls-Mateus M, Ortega A, Blanch JL, Sabater F, Bernal-Sprekelsen M, Vilaseca I. **Long-term quality of life after transoral laser microsurgery for laryngeal carcinoma.** *J Surg Oncol*. 114(7):789-95. IF: 3.151

16. Vilaseca I, Blanch JL, Berenguer J, Grau JJ, Verger E, Muxí Á, Bernal-Sprekelsen M. **Transoral laser microsurgery for locally advanced (T3-T4a) supraglottic squamous cell carcinoma: Sixteen years of experience.** *Head Neck-J Sci Spec Head Neck.* 38(7):1050-7. IF: 2.76

17. Martínez-Aranguren R, Martínez-Botas J, Díaz-Perales A, Villalba M, de la Hoz B, Gómez F, Bartra J, Blanca-López N, Alvarado MI, Moya C, Feo Brito F, Alonso MD, González-Mancebo E, Terrados S, García BE, Gamboa P, Parra A, D Amelio C, Goikoetxea MJ, Sanz ML. **Clinical Performance of Commercial ISAC 112 Allergen Microarray Versus Noncommercial RIRAAF Platform for the Diagnosis of Plant Food and Olive Pollen Allergies.** *J Investig Allergol Clin Immunol.* 26(3):185-7. IF: 2.131

18. Goikoetxea MJ, D'Amelio C M, Martínez-Aranguren R, Gamboa P, Garcia BE, Gómez F, Fernández J, Bartra J, Parra A, Alvarado MI, Alonso MI, González E, Terrados S, Moya C, Blanca N, Feo-Brito F, Villalba M, Díaz-Perales A, Sanz ML. **Is Microarray Analysis Really Useful and Sufficient to Diagnose Nut Allergy in the Mediterranean Area?** *J Investig Allergol Clin Immunol.* 26(1):31-9. IF: 2.131

19. García BE, Martínez-Aranguren R, Bernard Alonso A, Gamboa P, Feo Brito F, Bartra J, Blanca-López N, Gómez F, Alvarado MI, Fernández J, Alonso MD, Gonzalez-Mancebo E, Moya C, Parra A, Terrados S, Sola L, Goikoetxea MJ, Sanz M. **Is the ISAC 112 Microarray Useful in the Diagnosis of Pollinosis in Spain?** *J Investig Allergol Clin Immunol.* 26(2):92-9. IF: 2.131

20. Manzaneque A , López-Cabezas C, Mensa M , García-Moral A, Sánchez-López J, Bartra J, Luis Valero A. **Potentially inappropriate prescription in patients with a history of allergy to ß-lactam antibiotics: A health care challenge.** *J Investig Allergol Clin Immunol.* 26(1):55-56. IF: 2.131

21. Vennera MD, Valero A, Uria E, Forne C, Picado C. **Cost-Effectiveness Analysis of Omalizumab for the Treatment of Severe Persistent Asthma in Real Clinical Practice in Spain.** *Clin Drug Invest.* 36(7):567-78. IF: 1.806

22. Pascal M, Vazquez-Ortiz M, Folque MM, Jimenez-Feijoo R, Lozano J, Dominguez O, Piquer-Gibert M, Giner MT, Alvaro M, Dias da Costa M, García-Paba B, Machinena A, Alsina L, Yagüe J, Plaza-Martin AM. **Asymptomatic LTP sensitisation is common in plant-food allergic children from the Northeast of Spain.** *Allergol Immunopathol.* 44(4):351-358. IF: 1.689

23. Saranz RJ, Lozano A, Valero A, Lozano NA, Martijena MDPB, Agresta F, Ianiero L, Ponzio MF. **Impact of rhinitis on lung function in children and adolescents without asthma.** *Allergol Immunopathol.* 44(6):556-562. IF: 1.689

24. Machado-Carvalho L, Torres R, Perez-Gonzalez M, Alobid I, Mullol J, Pujols L, Roca-Ferrer J, Picado C. **Altered expression and signalling of EP2 receptor in nasal polyps of AERD patients: role in inflammation and remodelling.** *Rhinology.* 54(3):254-265. IF: 1.686

25. Langdon C, Herman P, Verillaud B, Carrau RL, Prevedello D, Nicolai P, Schreiber A, Padoan G, Castelnuovo P, Bernal-Sprekelsen M. **Expanded Endoscopic Endonasal Surgery for Advanced Stage Juvenile Angiofibromas: A retrospective multi-center study.** *Rhinology.* 54(3):239-46. IF: 1.686

26. Rioja E, Bernal-Sprekelsen M, Enriquez K, Enseñat J, Valero R, De Notaris M, Mullol J, Alobid I. **Long-term outcomes of endoscopic endonasal approach for skull base surgery: a prospective study.** *Eur Arch Otorhinolaryngol*. 273(7):1809-1817. IF: 1.627

Reviews / I.F.: 34.212

1. Bousquet J, Schünemann HJ, Hellings PW, Arnavielhe S, Bachert C, Bedbrook A, Bergmann KC, Bosnic-Anticevich S, Brozek J, Calderon M, Canonica GW, Casale TB, Chavannes NH, Cox L, Chrystyn H, Cruz AA, Dahl R, De Carlo G, Demoly P, Devillier P, Dray G, Fletcher M, Fokkens WJ, Fonseca J, Gonzalez-Diaz SN, Grouse L, Keil T, Kuna P, Larenas-Linnemann D, Carlsen KCL, Meltzer EO, Mullol J, Muraro A, Naclerio RN, Palkonen S, Papadopoulos NG, Passalacqua G, Price D, Ryan D, Samolinski B. **MACVIA clinical decision algorithm in adolescents and adults with allergic rhinitis.** *J Allergy Clin Immunol*. 138(2):367-374.e2. IF: 12.485

2. Klimek L, Mullol J, Hellings P, Gevaert P, Mosges R, Fokkens W. **Recent pharmacological developments in the treatment of perennial and persistent allergic rhinitis.** *Expert Opin Pharmacother.* 17(5):657-669. IF: 3.543

3. Liu Z, Zhang XH, Callejas-Diaz B, Mullol J. **MicroRNA in United Airway Diseases.** *Int J Mol Sci.* 17(5). IF: 3.257

4. Bousquet J, Hellings PW, Agache I, Bedbrook A, Bachert C, Bergmann KC, Bewick M, Bindslev-Jensen C, Bosnic-Anticevitch S, Bucca C, Caimmi DP, Camargos PA, Canonica GW, Casale T, Chavannes NH, Cruz AA, De Carlo G, Dahl R, Demoly P, Devillier P, Fonseca J, Fokkens WJ, Guldemond NA, Haahtela T, Illario M, Just J, Keil T, Klimek L, Kuna P, Larenas-Linnemann D, Morais-Almeida M, Mullol J, Murray R, Naclerio R, O'Hehir RE, Papadopoulos NG, Pawankar R, Potter P, Ryan D, Samolinski B, Schunemann HJ, Sheikh A, Simons FE, Stellato C, Todo-Bom A, Tomazic PV, Valiulis A, Valovirta E, Ventura MT, Wickman M, Young I, Yorgancioglu A, Zuberbier T, Aberer W, Akdis CA, Akdis M, Annesi-Maesano I, Ankri J, Ansotegui IJ, Anto JM, Arnavielhe S, Asarnoj A, Arshad H, Avolio F, Baiardini I, Barbara C, Barbagallo M, Bateman ED, Beghé B, Bel EH, Bennoor KS, Benson M, Białoszewski AZ, Bieber T, Bjermer L, Blain H, Blasi F, Boner AL, Bonini M, Bonini S, Bosse I, Bouchard J, Boulet LP, Bourret R, Bousquet PJ, Braido F, Briggs AH, Brightling CE, Brozek J, Buhl R, Bunu C, Burte E, Bush A, Caballero-Fonseca F, Calderon MA, Camuzat T, Cardona V, Carreiro-Martins P, Carriazo AM, Carlsen KH, Carr W, Cepeda Sarabia AM, Cesari M, Chatzi L, Chiron R, Chivato T, Chkhartishvili E, Chuchalin AG, Chung KF, Ciprandi G, de Sousa JC, Cox L, Crooks G, Custovic A, Dahlen SE, Darsow U, Dedeu T, Deleanu D, Denburg JA, De Vries G, Didier A, Dinh-Xuan AT, Dokic D, Douagui H, Dray G, Dubakiene R, Durham SR, Du Toit G, Dykewicz MS, Eklund P, El-Gamal Y, Ellers E, Emuzyte R, Farrell J, Fink Wagner A, Fiocchi A, Fletcher M, Forastiere F, Gaga M, Gamkrelidze A, Gemicioğlu B, Gereda JE, van Wick RG, González Diaz S, Grisle I, Grouse L, Gutter Z, Guzmán MA, Hellquist-Dahl B, Heinrich J, Horak F, Hourihane JO, Humbert M, Hyland M, Iaccarino G, Jares EJ, Jeandel C, Johnston SL, Joos G, Jonquet O, Jung KS, Jutel M, Kaidashev I, Khaitov M, Kalayci O, Kalyoncu AF, Kardas P, Keith PK, Kerkhof M, Kerstjens HA, Khaltaev N, Kogevinas M, Kolek V, Koppelman GH, Kowalski ML, Kuitunen M, Kull I, Kvedariene V, Lambrecht B, Lau S, Laune D, Le LT, Lieberman P, Lipworth B, Li J, Lodrup Carlsen KC, Louis R, Lupinek C, MacNee W, Magar Y, Magnan A, Mahboub B, Maier D, Majer I, Malva J, Manning P, De Manuel Keenoy E, Marshall GD, Masjedi MR, Mathieu-Dupas E, Maurer M, Mavale-Manuel S, Melén E, Melo-Gomes E, Meltzer EO, Mercier J, Merk H, Miculinic N, Mihaltan F, Milenkovic B, Millot-Keurinck J, Mohammad Y, Momas I, Mösges R, Muraro A, Namazova-Baranova L, Nadif R, Neffen H, Nekam K, Nieto A, Niggemann B, Nogueira-Silva L, Nogues M, Nyembue TD, Ohta K, Okamoto Y, Okubo K, Olive-Elias M, Ouedraogo S, Paggiaro P, Pali-Schöll I, Palkonen S, Panzner P, Papi A, Park HS, Passalacqua G, Pedersen S, Pereira AM, Pfaar O, Picard R, Pigearias B, Pin I, Plavec D, Pohl W, Popov TA, Portejoie F, Postma D, Poulsen LK, Price D, Rabe KF, Raciborski F, Roberts G, Robalo-Cordeiro C, Rodenas F, Rodriguez-Mañas L, Rolland C, Roman Rodriguez M, Romano A, Rosado-Pinto J, Rosario N, Rottem M, Sanchez-Borges M, Sastre-Dominguez J, Scadding GK, Scichilone N, Schmid-Grendelmeier P, Serrano E, Shields M, Siroux V, Sisul JC, Skrindo I, Smit HA, Solé D, Sooronbaev T, Spranger O, Stelmach R, Sterk PJ, Strandberg T, Sunyer J, Thijs C, Triggiani M, Valenta R, Valero A, van Eerd M, van Ganse E, van Hague M, Vandenplas O, Varona LL, Vellas B, Vezzani G, Vazankari T, Viegi G, Vontetsianos T, Wagenmann M, Walker S, Wang DY, Wahn U, Werfel T, Whalley B, Williams DM, Williams S, Wilson N, Wright J, Yawn BP, Yiallouros PK, Yusuf OM, Zaidi A, Zar HJ, Zernotti ME, Zhang L, Zhong N, Zidarn M. **ARIA 2016: Care pathways implementing emerging technologies for predictive medicine in rhinitis and asthma across the life cycle.** *Clin Transl Allergy.* 6:47. IF: 3.239

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6. Navinés-Ferrer A, Serrano-Candelas E, Molina-Molina GJ, Martín M. **IgE-Related Chronic Diseases and anti-IgE-based treatments.** *J Immunol Res*. 2016:8163803. IF: 2.812

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Chandra RK, Chiu A, Citardi MJ, Cohen NA, Del Gaudio J, Desrosiers M, Dhong H-J, Douglas R, Ferguson B, Fokkens WJ, Georgalas C, Goldberg A, Gosepath J, Hamilos DL, Han JK, Harvey R, Hellings P, Hopkins C, Jankowski R, Javer AR, Kern R, Kountakis S, Kowalski ML, Lane A, Lanza DC, Lebowitz R, Lee H-M, Lin SY, Lund VJ, Luong A, Mann W, Marple BF, McMains KC, Metson R, Naclerio R, Nayak JV, Otori N, Palmer JN, Parikh SR, Passali D, Peters A, Piccirillo J, Poetker DM, Psaltis AJ, Ramadan HH, Ramakrishnan VR, Riechelmann H, Roh H-J, Rudmik L; Sacks R, Schlosser RJ, Senior BA, Sindwani R, Stankiewicz JA, Stewart M, Tan BK, Toskala E, Voegels R, Wang DY, Weitzel EK, Wise S, Woodworth BA, Wormald P-J, Wright ED, Zhou B, Kennedy DW. **International Consensus Statement on Allergy and Rhinology: Rhinosinusitis.** *Int Forum Allergy Rhinol*. 6 Suppl 1:S22-209. IF: 2.35

8. Muñoz-Cano R, Picado C, Valero A, Bartra J. **Mechanisms of Anaphylaxis Beyond IgE.** *J Investig Allergol Clin Immunol.* 26(2):73-82. IF: 2.131

9. Bartra J, García-Moral A, Enrique E. **Geographical differences in food allergy [Geographische Unterschiede bei Nahrungsmittelallergien].** *Bundesgesundheitsblatt-Gesund.* 59(6):755-63. IF: 1.499

Letters / I.F.: 2.270

1. Klein O, Ngo-Nyekel F, Stefanache T, Torres R, Salomonsson M, Hallgren J, Rådinger M, Bambouskova M, Campbell M, Cohen-Mor S, Dema B, Rose CG, Abrink M, Charles N, Ainooson G, Paivandy A, Pavlova VG, Serrano-Candelas E, Yu Y, Hellman L, Jensen BM, Van Anrooij B, Grootens J, Gura HK, Stylianou M, Tobio A, Blank U, Öhrvik H, Maurer M. **Identification of Biological and Pharmaceutical Mast Cell- and Basophil-Related Targets.** *Scand J Immunol.* 83(6):465-72. IF: 2.270

Editorials / I.F.: 3.254

1. Bernal-Sprekelsen M, Laszig R, Remacle M. **Jan Olofsson, a man of great achievements.** *Eur Arch Otorhinolaryngol.* 273:1959. IF: 1.627

2. Dikkers FG, Klussmann JP, Bernal-Sprekelsen M, Mazurek C, Szyfter W. **Live surgery broadcast: who is benefiting?** *Eur Arch Otorhinolaryngol.* 273(6):1331-3. IF: 1.627

Clinical Guidelines / I.F.: 11.458

1. Klionsky DJ, Abdelmohsen K, Abe A, Marin C, et al (+ 2.000 authors). **Guidelines for the use and interpretation of assays for monitoring autophagy (3rd edition).** Autophagy. 12(1):1-222. IF: 9.108

2. Wormald PJ, Hoseman W, Callejas C, Weber RK, Kennedy DW, Citardi MJ, Senior BA, Smith TL, Hwang PH, Orlandi RR, Kaschke O, Siow JK, Szczygielski K, Goessler U, Khan M, Bernal-Sprekelsen M, Kuehnel T, Psaltis A. **The International Frontal Sinus Anatomy Classification (IFAC) and Classification of the Extent of Endoscopic Frontal Sinus Surgery (EFSS).** *Int Forum Allergy Rhinol.* 6(7):677-96. IF: 2.350

GRANTS FOR RESEARCH IN PROGRESS

Alobid I. **El impacto de la inflamación sobre el sentido del olfato en pacientes con poliposis nasal: el rol de los eosinófilos sobre la neurogenesis del neuroepitelio olfatorio.**
Sponsored by: Instituto de Salud Carlos III (ISCIII). PI15/00262
Duration: 01/01/2016 – 31/12/2018

Bartra J. **Anafilaxia por alergia alimentaria inducida por AINEs y ejercicio (AAAIA/E): Mecanismos de acción y efecto protector de PGE2.**
Sponsored by: Instituto de Salud Carlos III (ISCIII). PI11/01326
Duration: 01/01/2012 - 30/06/2016

Mullol J. **Impact of acute Traumatic Brain Injury on the sense of smell: The role of smell training and neuroprotection in post-trauma smell recovery.**
Sponsored by: Fundació La Marató de TV3. 110610
Duration: 03/01/2012 - 24/07/2016

Mullol J. **Función reguladora de los microRNA sobre los genes diana involucrados en la diferenciación epitelial de la mucosa nasosinusal en la poliposis nasal.**
Sponsored by: Instituto de Salud Carlos III, MINECO. PI15/00046
Duration: 01/01/2016 – 31/12/2018

Pujols L. **Identificación de biomarcadores asociados a la resistencia a los corticoides en la poliposis nasal.**
Sponsored by: Instituto de Salud Carlos III (ISCIIIÇ). PI13/01228
Duration: 01/01/2014 -31/12/2016

DOCTORAL THESES

Mullol J, Alobid I. **El Síndrome de Kallman: Correlación fenotipo-genotípica.**
PhD student: Alfons Garcia Piñero

2.9 Inflammation and repair in respiratory illnesses

LOCATION
CELLEX building

KEYWORDS
1. **COPD**
2. **Emphysema**
3. **Inflammation**
4. **Networks**
5. **Systems biology**

Original publications from 2014 to 2016

YEAR	I.F.	TOTAL	Q1	Q2
2014	89.07	17	15	-
2015	165.96	20	12	5
2016	111.89	18	11	4

TEAM INVOLVED IN
CIBERES

AWARDS

ESTS Institutional Quality Certification
Institution: European Society of Thoracic Surgeons
Awardee/s: Dr. Laureano Molins

Highly Cited Research in Respiratory Medicine
Institution: The Editors of Respiratory Medecine.
Awardee/s: Dr. Alvar Agustí

Premio Juan Letona 2016
Institution: Juan Letona
Awardee/s: Dra. Rosa Faner

Name of the award: Premio Jóvenes Investigadores EPOC.
Institution: Astrazeneca
Awardee/s: Dra. Rosa Faner



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COLLABORATOS
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STRATEGIC OBJECTIVES

The objective of the group is to investigate the biological processed underling the clinical heterogeneity and complexity of chronic obstructive pulmonary disease (COPD) and lung cancer. To investigate the clinical functional correlation and the diagnostic, prognostic and therapeutic value the group uses systems network methods.

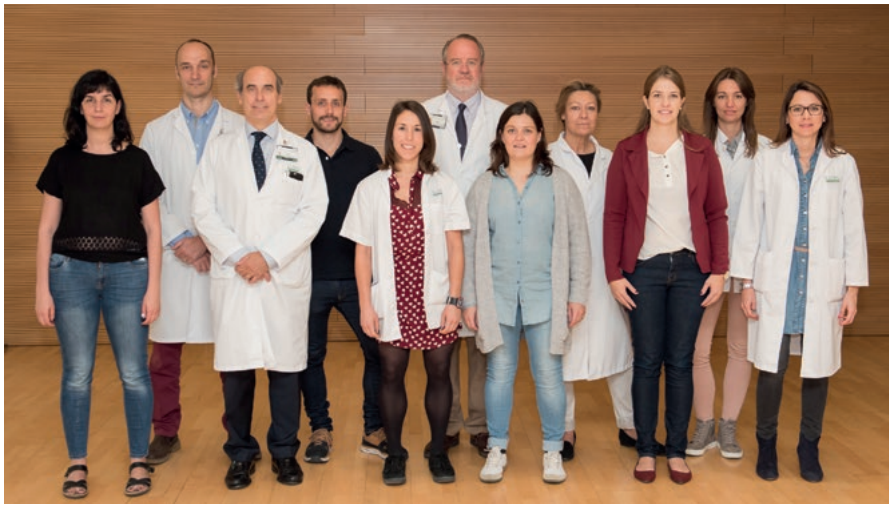
MAIN LINES OF RESEARCH

1. Mechanism of abnormal repair in COPD related to the inflammation present in COPD patients.
2. Mechanisms of oncogenesis in COPD.
4. Application systems biology to COPD to understand its natural history.

PUBLICATIONS

Originals / I.F.: 111.890

1. Molina R, Marrades RM, Auge JM, Escudero JM, Vinolas N, Reguart N, Ramirez J, Filella X, Molins L, Agusti A. **Assessment of a Combined Panel of Six Serum Tumor Markers for Lung Cancer.** *Am J Respir Crit Care Med.* 193(4):427-437. IF: 13.118



TEAM Alvar Agustí

2. Singh D, Roche N, Halpin D, Agusti A, Wedzicha JA, Martinez FJ. **Current Controversies in the Pharmacological Treatment of Chronic Obstructive Pulmonary Disease.** *Am J Respir Crit Care Med.* 194(5):541-549. IF: 13.118

3. Hobbs BD, Parker MM, Chen H, Lao TT, Hardin M, Qiao DD, Hawrylkiewicz I, Sliwinski P, Yim JJ, Kim WJ, Kim DK, Castaldi PJ, Hersh CP, Morrow J, Celli BR, Pinto-Plata VM, Criner GJ, Marchetti N, Bueno R, Agusti A, Make BJ, Crapo JD, Calverley PM, Donner CF, Lomas DA, Wouters Efm, Vestbo J, Pare PD, Levy RD, Rennard SI, Zhou XB, Laird NM, Lin XH, Beaty TH, Silverman EK, Cho MH. **Exome Array Analysis Identifies a Common Variant in IL27 Associated with Chronic Obstructive Pulmonary Disease.** *Am J Respir Crit Care Med.* 194(1):48-57. IF: 13.118

4. Faner R, Cruz T, Casserras T, Lopez-Giraldo A, Noell G, Coca I, Tal-Singer R, Miller B, Rodriguez-Roisin R, Spira A, Kalko SG, Agusti A. **Network Analysis of Lung Transcriptomics Reveals a Distinct B Cell Signature in Emphysema.** *Am J Respir Crit Care Med.* 193(11):1242-53. IF: 13.118

5. Wurst KE, Rheault TR, Edwards L, Tal-Singer R, Agusti A, Vestbo J. **A comparison of COPD patients with and without ACOS in the ECLIPSE study.** *Eur Heart J.* 47(5):1559-1562. IF: 8.332

6. Rabinovich RA, Miller BE, Wrobel K, Ranjit K, Williams MC, Drost E, Edwards LD, Lomas DA, Rennard SI, Agusti A, Tal-Singer R, Vestbo J, Wouters EF, John M, van Beek EJ, Murchison JT, Bolton. **Circulating desmosine levels do not predict emphysema progression but are associated with cardiovascular risk and mortality in COPD.** *Eur Heart J.* 47(5):1365-1373. IF: 8.332

7. Cosio BG, Shafiek H, Iglesias A, Yanez A, Cordova R, Palou A, Rodriguez-Roisin R, Peces-Barba G, Pascual S, Gea J, Sibila O, Barnes PJ, Agusti A. **Oral Low-dose Theophylline on Top of Inhaled Fluticasone-Salmeterol Does Not Reduce Exacerbations in Patients With Severe COPD: A Pilot Clinical Trial.** *Chest.* 150(1):123-130. IF: 6.136. IF: 6,136. IF: . 6,136. Artículo

8. Castellano JJ, Navarro A, Viñolas N, Marrades RM, Moises J, Cordeiro A, Saco A, Muñoz C, Fuster D, Molins L, Ramirez J, Monzo M. **LincRNA-p21 Impacts Prognosis in Resected Non-Small Cell Lung Cancer Patients through Angiogenesis Regulation.** *J Thorac Oncol.* 11(12):2173-2182. IF: 5.040

9. Lugo R, Gabasa M, Andriani F, Puig M, Facchinetti F, Ramírez J, Gómez-Caro A, Pastorino U, Fuster G, Almendros I, Gascon P, Davalos A, Reguart N, Roz L, Alcaraz J. **Heterotypic paracrine signaling drives fibroblast senescence and tumor progression of large cell carcinoma of the lung.** *Oncotarget.* 7(50):82324-82337-82337. IF: 5.008

10. Ruiz-Martinez M, Navarro A, Marrades RM, Viñolas N, Santasusagna S, Muñoz C, Ramírez J, Molins L, Monzo M. **YKT6 expression, exosome release, and survival in non-small cell lung cancer.** *Oncotarget.* 7(32):51515-51524. IF: 5.008

11. Hardin M, Cho M H, Mcdonald M L, Wan E, Lomas D A, Coxson H O, Macnee W, Vestbo J, Yates J C, Agusti A, Calverley P M, Celli B, Crim C, Rennard S, Wouters E, Bakke P, Bhatt S P, Kim V, Ramsdell J, Regan E A, Make B J, Hokanson J E, Crapo J D, Beaty T H, Hersh C P, ECLIPSE and COPDGene Investigators; COPDGene Investigators—clinical centers. **A genome-wide analysis of the response to inhaled beta-agonists in chronic obstructive pulmonary disease.** *Pharmacogenomics J.* 16(4):326-335. IF: 3.784

12. Ramon M A, Ferrer J, Gimeno-Santos E, Donaire-Gonzalez D, Rodriguez E, Balcells E, De Batlle J, Benet M, Guerra S, Sauleda J, Ferrer A, Farrero E, Gea J, Barbera J A, Agusti A, Rodriguez-Roisin R, Anto J M, Garcia-Aymerich J. **Inspiratory capacity-to-total lung capacity ratio and dyspnoea predict exercise capacity decline in COPD.** *Respirology.* 21(3):476-482. IF: 3.078

13. Agustí A, Jones PW, Vogelmeier C. **Highlights and hot topics in the management of COPD: where are we heading?** *Int J Chron Obstruct Pulmon Dis.* 11 Spec Iss(NULL):1-2-. IF: 3.046

14. Andrianopoulos V, Celli BR, Franssen FM, Pinto-Plata VM, Calverley PM, Vanfleteren LE, Vogiatzis I, Vestbo J, Agusti A, Bakke PS, Rennard SI, MacNee W, Tal-Singer R, Yates JC, Wouters EF, Spruit MA. **Determinants of exercise-induced oxygen desaturation including pulmonary emphysema in COPD: Results from the ECLIPSE study.** *Respir Med.* 119:87-95. IF: 3.036

15. Shafiek H, Fiorentino F, Cosio BG, Kersul A, Thiberville L, Gomez C, Riera M, Martin ML, Martinez R, Noguera MA, Agusti A, Sauleda J. **Usefulness of Bronchoscopic Probe-Based Confocal Laser Endomicroscopy in the Diagnosis of Pneumocystis jirovecii Pneumonia.** *Respiration.* 92(1):40-47. IF: 2.651

16. Wedzicha JA, Agusti A, Donaldson G, Chuecos F, Lamarca R, Garcia Gil E. **Effect of Aclidinium Bromide on Exacerbations in Patients with Moderate-to-Severe COPD: A Pooled Analysis of Five Phase III, Randomized, Placebo-Controlled Studies.** *COPD-J Chronic Obstr Pulm Dis.* 13(6):669-676. IF: 2.160

17. Rivas E, Arismendi E, Agustí A, Gistau C, Wagner PD, Rodriguez-Roisin R. **Postural effects on pulmonary gas exchange abnormalities in severe obesity before and after bariatric surgery.** *Minerva Anestesiol.* 82(4):403-410. IF: 2.036

18. Nunez B, Sauleda J, Garcia-Aymerich J, Noguera A, Monsó E, Gomez F, Barreiro E, Marin A, Antó JM, Agustí A. **Lack of Correlation Between Pulmonary and Systemic Inflammation Markers in Patients with Chronic Obstructive Pulmonary Disease: A Simultaneous, Two-Compartmental Analysis.** *Arch Bronconeumol.* 52(7):361-367. IF: 1.771

Reviews / **I.F.: 27.767**

1. Roversi S, Fabbri LM, Sin DD, Hawkins NM, Agusti A. **Chronic Obstructive Pulmonary Disease and Cardiac Diseases An Urgent Need for Integrated Care.** *Am J Respir Crit Care Med.* 194(11):1319-1336. IF: 13.118

2. Agusti A, Bel E, Thomas M, Vogelmeier C, Brusselle G, Holgate S, Humbert M, Jones P, Gibson PG, Vestbo J, Beasley R, Pavord ID. **Treatable traits: toward precision medicine of chronic airway diseases.** *Eur Heart J.* 47(2):410-419. IF: 8.332

3. Bousquet J, Farrell J, Crooks G, Hellings P, Bel EH, Bewick M, Chavannes NH, de Sousa JC, Cruz AA, Haahtela T, Joos G, Khaltaev N, Malva J, Muraro A, Nogues M, Palkonen S, Pedersen S, Robalo-Cordeiro C, Samolinski B, Strandberg T, Valiulis A, Yorgancioglu A, Zuberbier T, Bedbrook A, Aberer W, Adachi M, Agustí A, Akdis CA, Akdis M, Ankri J, Alonso A, Annesi-Maesano I, Ansotegui IJ, Antó JM, Arnavielhe S, Arshad H, Bai C, Baiardini I, Bachert C, Baigenzhin AK. **Scaling up strategies of the chronic respiratory disease programme of the European Innovation Partnership on Active and Healthy Ageing (Action Plan B3: Area 5).** *Clin Transl Allergy.* 6:29. IF: 3.239

4. Agusti A, Gea J, Faner R. **Biomarkers the control panel and personalized COPD medicine.** *Respirology.* 21(1):24-33. IF: 3.078

Letters / **I.F.: 15.328**

1. Agustí, A. **Simple versus complex COPD: implications for health-care management.** *Lancet Resp Med.* 4(2):e6-e7. IF: 15.328

Editorials / **I.F.: 8.332**

1. Pavord ID, Agusti A. **Blood eosinophil count: a biomarker of an important treatable trait in patients with airway disease.** *Eur Heart J.* 47(5):1299-1303. IF: 8.332

GRANTS FOR RESEARCH IN PROGRESS

Agustí A. **Análisis multinivel en red de las similitudes y diferencias moleculares entre enfisema y cáncer de pulmón en pacientes con enfermedad pulmonar obstructiva crónica: papel de la respuesta inmune y de las células madre mesenquimales pulmonares.**
Sponsored by: Instituto de Salud Carlos III.
PI15/00799
Duration: 01/01/2016-31/12/2018

DOCTORAL THESES

Rodriguez Roisin R, Agustí A. **Pulmonary gas exchange and severe obesity: bariatric surgery effects.**
PhD student: Eva Rivas Ferreira

2.10 Genetic and urological tumours

LOCATION
CELLEX building

KEYWORDS
1. **Bladder cancer**
2. **Prostate cancer**
3. **Upper tract urothelial carcinoma**
4. **Kidney cancer**
5. **Biomarkers for diagnosis, prognosis and treatment response**

Original publications from 2014 to 2016

YEAR	I.F.	TOTAL	Q1	Q2
2014	34.72	10	9	-
2015	33.55	12	5	1
2016	28.18	10	4	2

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COLLABORATORS
Agustín Franco (HCB)

STRATEGIC OBJECTIVES

The group is focused on the translational research in urological oncology, aimed at generating knowledge that provides a direct benefit to patients.

1. Develop non-invasive tools for the diagnosis and prognosis of bladder and prostate cancer.
2. Identify biomarkers to predict the response to chemotherapy in bladder cancer.
3. Determine molecular prognostic factors in upper urinary tract tumours.

MAIN LINES OF RESEARCH

1. Non-invasive diagnosis and prognosis of bladder tumors.

- Development of a gene/miRNA expression signatures in urine samples.
- Identification of DNA aneuploidies in urine samples by FISH.
- Determination of methylation profiles of urine samples.

2. Predictive biomarkers of prognosis and response to treatments.

- Markers of disseminated cells from bladder tumours in lymph nodes and peripheral blood.
- Markers of response to neoadjuvant chemotherapy in bladder cancer patients.
- Prognostic markers in upper urinary tract tumors.

3. Non-invasive diagnosis and prognosis of prostate tumours.

- Development of a gene/miRNA expression signature in post-prostatic massage urine samples.
- Prognostic biomrakers for prostate cancer.

PUBLICATIONS

Originals / I.F.: 28.178

1. van der Heijden AG, Mengual L, Lozano JJ, Ingelmo-Torres M, Ribal MJ, Fernandez PL, Oosterwijk E, Schalken JA, Alcaraz A, Witjes JA. **A five-gene expression signature to predict progression in T1G3 bladder cancer.** *Eur J Cancer.* 64:127-36. IF: 6.163

2. Ribal MJ, Mengual L, Lozano JJ, Ingelmo-Torres M, Palou J, Rodríguez-Faba O, Witjes JA, Van Der Heijden AG, Medina R, Conde JM, Marberger M, Schmidbauer J, Fernandez PL, Alcaraz A. **Gene expression test for the non-invasive diagnosis of bladder cancer: A prospective, blinded, international and multicenter validation study.** *Eur J Cancer.* 54:131-8. IF: 6.163

3. Mengual L, Lozano JJ, Ingelmo-Torres M, Izquierdo L, Musquera M, Ribal MJ, Alcaraz A. **Using gene expression from urine sediment to diagnose prostate cancer: development of a new multiplex mRNA urine test and validation of current biomarkers.** *BMC Cancer.* 16:76. IF: 3.265

4. Sole M, Campistol J, Musquera M, Paredes D, Oppenheimer F, Sánchez-Escuredo A, Sagasta A. **Pre-implantation**

analysis of kidney biopsies from expanded criteria donors: Testing the accuracy of frozen section technique and the adequacy of their assessment by on-call pathologists. *Transpl Int.* 29(2):234-240. IF: 2.835

5. Lope V, García-Esquinas E, Ruiz-Dominguez JM, Llorca J, Jimenez-Moleon JJ, Ruiz-Cerda JL, Alguacil J, Tardon A, Dierssen-Sotos T, Tabernero A, Mengual L, Kogevinas M, Aragones N, Castaño-Vinyals G, Pollan M, Perez-Gomez B. **Perinatal and childhood factors and risk of prostate cancer in adulthood: MCC-Spain case-control study.** *Cancer Epidemiol.* 43:49-55. IF: 2.644

6. Sanchez-Escuredo A, Oppenheimer F, Sole M, Revuelta I, Cid J, Lozano M, Blasco M, Esforzado N, Ricart MJ, F C, Torregrosa JV, Paredes D, Musquera M, Ercilla G, Campistol JM, Diekmann F. **Borderline rejection in ABO-Incompatible Kidney Transplantation.** *Clin Transplant.* 30(8):872-879. IF: 1.844

7. Carrion A, Huguet J, García-Cruz E, Izquierdo L, Mateu L, Musquera M, Ribal MJ, Alcaraz A. **Intraoperative prognostic factors and atypical patterns of recurrence in patients with upper urinary tract urothelial carcinoma treated with laparoscopic radical nephroureterectomy.** *Scand J Urol.* 50(4):305-312. IF: 1.346

8. Carrion A, García-Cruz E, Fernandez C, D'Anna M, Melnick A, Peri L, Franco A, Alcaraz A. **Prior Lubrication of the Urethra Does Not Reduce Pain Perception in Men Undergoing Flexible Cystoscopy.** *Urol Int.* 97(4):392-396. IF: 1.313

9. Vilaseca A, Huguet J, Perez M, Camacho D, García-Cruz E, José Ribal M, Alcaraz A. **The Role of Surgery in Local Recurrences after Radical Cystectomy for Bladder Cancer.** *Urol Int.* 96(2):132-135. IF: 1.313

10. Alcaraz A, Carballido-Rodriguez J, Unda-Urzaiz M, Medina-Lopez R, Ruiz-Cerda JL, Rodriguez-Rubio F, Garcia-Rojo D, Brenes-Bermudez FJ, Cozar-Olmo JM, Baena-Gonzalez V, Manasanch J. **Quality of life in patients with lower urinary tract symptoms associated with BPH: change over time in real-life practice according to treatment-the QUALIPROST study.** *Int Urol Nephrol.* 48(5):645-656. IF: 1.292

Reviews / I.F.: 7.311

1. Maroto P, Solsona E, Gallardo E, Mellado B, Morote J, Arranz JA, Gómez-Veiga F, Unda M, Climent MA, Alcaraz A. **Expert opinion on first-line therapy in the treatment of castration-resistant prostate cancer.** *Crit Rev Oncol Hematol.* 100:127-36. IF: 5.039

2. Merseburger A, Alcaraz A, von Klot CA. **Androgen deprivation therapy as backbone therapy in the management of prostate cancer.** *Oncotargets Ther.* 9:7263-74. IF: 2.272

Editorials / I.F.: 14.976

1. Ribal MJ. **Challenging already established statements on the therapy of renal angiomiolypoma.** *Eur Urol.* 70(1):91-2. IF: 14.976

GRANTS FOR RESEARCH IN PROGRESS

Alcaraz A. **Prostate Predict. Desarrollo de una prueba de pronóstico para predecir la probabilidad de enfermedad agresiva después de la cirugía.**
Sponsored by: Ministerio de Economía y Competitividad. IPT-2012-1311-300000
Duration: 01/01/2013-30/04/2016

Alcaraz A. **Validación Clínica Robot Quirúrgico.**
Sponsored by: Ministerio de Economía y Competitividad. RTC-2015-3926-1
Duration: 01/03/2015- 31/12/2017

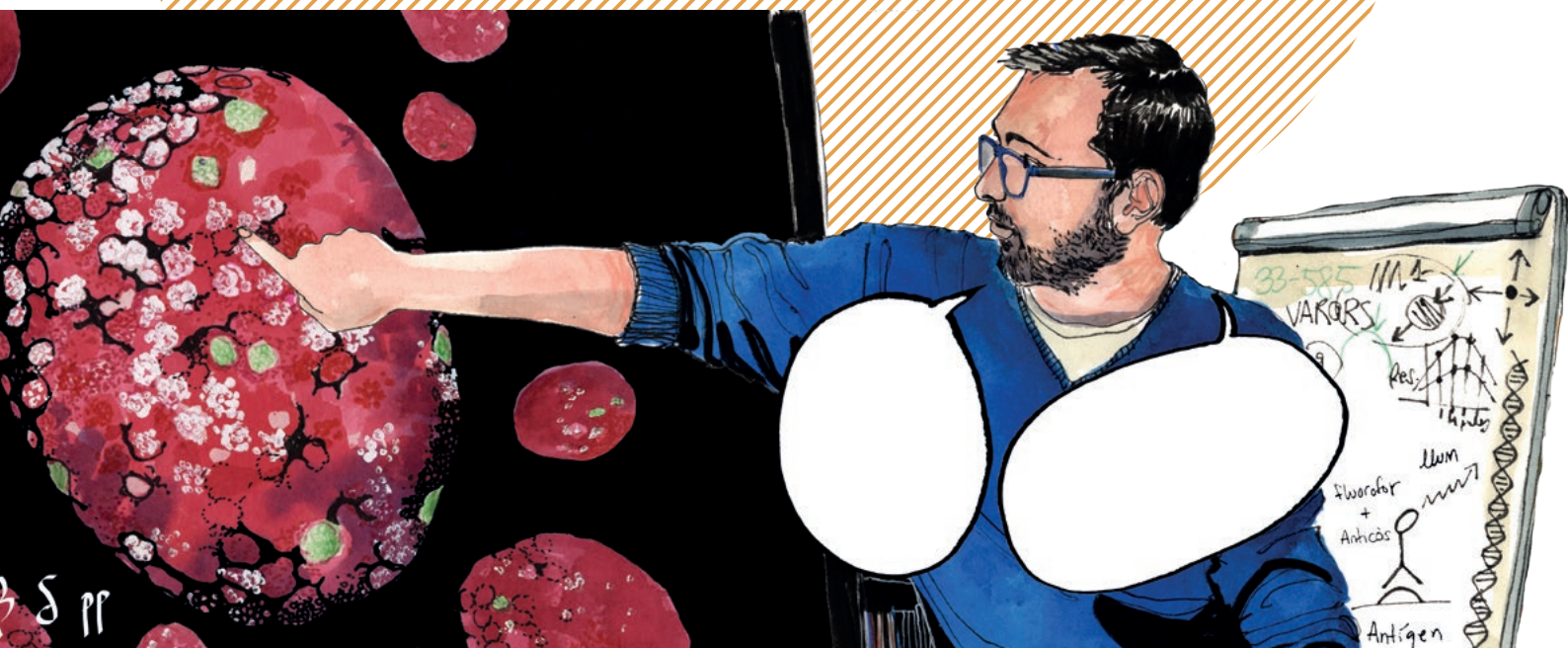
Mengual L. **Caracterización de los perfiles de expresión génica del tumor vesical no músculo invasivo de bajo riesgo en orinas. Desarrollo de un modelo diagnóstico no invasivo para el cáncer vesical.**
Sponsored by: Instituto de Salud Carlos III (ISCIII). PI13/00284
Duration: 01/01/2014-31/12/2016

DOCTORAL THESES

Alcaraz A, Lloreta J. **Estudi inmunohistoquímic de marcadors de resposta al dany del DNA en el carcinoma de cèl·lules transicionals.**
PhD student: Albert Francés i Comalat

Alcaraz A, Musquera M. **Desenvolupament de la nefrectomia NOTES híbrida transvaginal.**
PhD student: Lluís Peri Cusí

3



AREA 3

Liver, digestive system and metabolism

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3.1

Gynecological endocrinology and human reproduction

LOCATION
HCB building

KEYWORDS
1. **Human papillomavirus**
2. **Endometrial cancer**
3. **Assisted reproductive technologies**
4. **Recurrent miscarriage**
5. **Gynecological laparoscopy**
6. **Endometriosis**

Original publications from 2014 to 2016

YEAR	I.F.	TOTAL	Q1	Q2
2014	27.51	10	5	1
2015	51.33	17	10	4
2016	30.28	10	5	1

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STRATEGIC OBJECTIVES

The global aim of this research group for the coming years is to advance in the knowledge of different aspects relating to the physiopathology of human reproduction: from endocrinological considerations to the most important benign and malignant pathological processes of the female reproductive system, as well as the investigation and treatment of human reproduction failure.

MAIN LINES OF RESEARCH

1. **Reproductive failure markers**
To find new markers of hemostasis alterations in early and advanced pregnancy in patients with or without antiphospholipid syndrome and in endometriosis patients. To assess the usefulness of immunohistochemical and proteomic parameters in the human endometrium as markers of endometrial receptiveness.

2. **Ovarian dysfunction and stimulation/hyperstimulation**
Investigation of the possibilities of ultrasound, hormonal, endocrinemetabolic and genetic markers in relation to the prediction of ovarian response. To assess the role of the ovarian follicular cells in the pathogenesis of ovarian hyperstimulation syndrome in order to improve the results of assisted reproduction techniques.

3. **Optimization of the surgical management of diseases of the reproductive apparatus**
To analyze the role of the surgical variables allowing improvement of the results and reduction of the morbidity in the surgical treatment of benign and malignant gynaecological disorders. To define the prognostic value of human papillomavirus detection and viral typing as progression markers of precancerous lesions of the cervix, vagina and vulva.

PUBLICATIONS

Originals / I.F.: 30.275

1. Sagasta A, Castillo P, Saco A, Torne A, Esteve R, Marimon L, Ordi J, Del Pino M. **p16 staining has limited value in predicting the outcome of histological low-grade squamous intraepithelial lesions of the cervix.** *Mod Pathol.* 29(1):51-59. IF: 5.485

2. Sepulveda M, Ros C, Martinez-Lapiscina E H, Sola-Valls N, Hervas M, Llufriu S, La Puma D, Casals E, Blanco Y, Villoslada P, Graus F, Castelo-Branco C, Saiz A. **Pituitary-ovary axis and ovarian reserve in fertile women with multiple sclerosis: A pilot study.** *Mult Scler J.* 22(4):564-568. IF: 4.671

3. Martínez-Zamora MA, Tassies D, Creus M, Reverter JC, Puerto B, Monteagudo J, Carmona F, Balasch J. **Higher levels of procoagulant microparticles in women with recurrent miscarriage are**

not associated with antiphospholipid antibodies. *Hum Reprod.* 31(1):46-52. IF: 4.621

4. Gonzalez-Foruria I, Penarrubia J, Borras A, Manau D, Casals G, Peralta S, Creus M, Ferreri J, Vidal E, Carmona F, Balasch J, Fabregues F. **Age independent from ovarian reserve status is the main prognostic factor in natural cycle in vitro fertilization.** *Fertil Steril.* 106(2):342-347.e2. IF: 4.426

5. Martínez-Zamora MA, Tassies D, Reverter JC, Creus M, Casals G, Cívico S, Carmona F, Balasch J. **Increased circulating cell-derived microparticle count is associated with recurrent implantation failure after IVF and embryo transfer.** *Reprod Biomed Online.* 33(2):168-173. IF: 2.796

6. Bruyniks N, Nappi RE, Castelo-Branco C, de Villiers TJ, Simon J. **Effect of ospemifene on moderate or severe symptoms of vulvar and vaginal atrophy.** *Climacteric.* 19(1):60-5. IF: 2.492

7. Valenzuela-Alcaraz B, Crispi F, Manau D, Cruz-Lemini M, Borras A, Balasch J, Gratacos E. **Differential effect of mode of conception and infertility treatment on fetal growth and prematurity.** *J Matern-Fetal Neonatal Med.* 29(23):3879-3884. IF: 1.674

8. Castelo-Branco Camil, Hernandez-Angeles Claudio, Alvarez-Olivares Lina, Balasch Juan. **Long-term satisfaction and tolerability with low-dose flutamide: a 20-year surveillance study on 120 hyperandrogenic women.** *Gynecol Endocrinol.* 32(9):723-727. IF: 1.413

9. Lara-Dominguez M D, Arjona-Berral J E, Dios-Palomares R, Castelo-Branco C. **Outpatient hysteroscopic polypectomy: bipolar energy system (Versapoint(R)) versus diode laser - randomized clinical trial.** *Gynecol Endocrinol.* 32(3):196-200. IF: 1.413

10. Munmany M, Gracia M, Nonell R, Cardona M, Pons M, Martin M, Alcolea A, Balasch J, Carmona F. **The use of inhaled sevoflurane during operative hysteroscopy is associated with increased glycine absorption compared to intravenous propofol for maintenance of anesthesia.** *J Clin Anesth.* 31:202-207. IF: 1.284

Reviews / I.F.: 10.669

1. Hernández-Angeles C, Castelo-Branco C. **Cardiovascular risk in climacteric women: focus on diet.** *Climacteric.* 19(3):215-21. IF: 2.492

2. Garrido-Oyarzún MF, Castelo-Branco C. **Controversies over the use of GnRH agonists for reduction of chemotherapy-induced gonadotoxicity.** *Climacteric.* 19(6):522-525. IF: 2.492

3. Hernandez-Angeles C, Castelo-Branco C. **Early menopause: A hazard to a woman's health.** *Indian J Med Res.* 143:420-427. IF: 1.446

4. Lorente Gonzalez J, Rios Castillo J E, Pomares Toro E, Romero Nieto M I, Castelo-Branco C, Arjona Berral J E. **Essure a novel option for the treatment of hydrosalpinx: a case series and literature review.** *Gynecol Endocrinol.* 32(2):166-70. IF: 1.413

5. Garrido Oyarzun MF, Castelo-Branco C. **Sexuality and quality of life in congenital hypogonadisms.** *Gynecol Endocrinol.* 32(12):947-950. IF: 1.413

6. Milman N, Paszkowski T, Cetin I, Castelo-Branco C. **Supplementation during pregnancy: beliefs and science.** *Gynecol Endocrinol.* 32(7):509-16. IF: 1.413

GRANTS FOR RESEARCH IN PROGRESS

Torne A. **Detección intraoperatoria del VPH en el cervix residual tras la conización como marcador precoz de fracaso terapéutico en la neoplasia cervical intraepitelial.**
Sponsored by: Instituto de Salud Carlos III (ISCIII). PI12/01231
Duration: 01/01/2013-31/12/2016

Del Pino M. **mRNA biomarker detection applying GeneXpert ® in the immediate triage of anal lesions in HIV-MSM (Anal RNA-Xpert).**
Sponsored by: CEPHEID
Duration: 21/07/2015-21/07/2018

Del Pino M. **mRNA biomarker detection applying GeneXpert ® in the immediate triage of women with HPV infection (Cervical RNA-Xpert).**
Sponsored by: CEPHEID
Duration: 21/07/2015-21/07/2018

Del Pino M. **VALID-SCREEN: methylation analysis as a triage test.**
Sponsored by: Self-screen. This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 666800.
Duration: 01/12/2016-31/12/2018

DOCTORAL THESES

Puerto B, Comas C. **Valoración ecográfica prenatal del cono medular fetal.**
PhD student: Maria Angeles Rodríguez Pérez

Del Pino M, Ordi J. **Marcadores moleculares de lesión cervical premaligna en mujeres con infección por el Virus del Papiloma Humano.**
PhD student: Amaya Sagasta.

3.2 Fetal and perinatal medicine

LOCATION
Maternitat building

FOR FURTHER INFORMATION
http://medicinafetalbarcelona.org

KEYWORDS
1. **Prenatal diseases**
2. **Intrauterine growth restriction**
3. **Fetal programming**
4. **Fetal brain damage**
5. **Prematurity**

Original publications from 2014 to 2016

YEAR	I.F.	TOTAL	Q1	Q2
2014	152.72	44	34	9
2015	112.21	30	29	1
2016	149.32	44	33	5

TEAM INVOLVED IN
CIBERER
AGAUR_SGR14: 083, 928



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STRATEGIC OBJECTIVES

Our main objectives are to develop new imaging and molecular tools for early diagnosis and monitoring prenatal diseases, to provide new clinical solutions for improving fetal growth, to develop and validate new technological solutions for fetal surgery and to consolidate animal models for better characterizing fetal programming.

MAIN LINES OF RESEARCH

1. **Prematurity:** This line focuses on patients at risk of preterm labor, investigating non-invasive diagnostic tools such as quantitative ultrasound textures analysis and biomarkers for intraamniotic inflammation and infection.
2. **Placental Disease.** We aim to identify suboptimal fetal growth before birth providing new diagnosis tools for the correct classification of small babies at highest perinatal risk and optimal timing to delivery
3. **Fetal Brain Development.** We aim to develop quantitative imaging biomarkers for early diagnosis of neurodevelopmental disorders of prenatal origin based on ultrasound and magnetic resonance.
4. **Fetal Programming.** We focus on the long-term impact of prenatal conditions such as fetal growth restriction, preeclampsia, assisted reproductive technologies, perinatal infections or congenital heart disease, providing a better phenotypic characterization and testing preventive strategies for fetal growth restriction.
5. **Fetal Therapy and Surgery.** This research line aims to characterize neuroprotective therapies that could mitigate the neurodevelopmental impairment related to fetal growth restriction and to develop new technological solutions for fetal surgery.

PUBLICATIONS

Originals / I.F.: 149.316

1. Padilla N, Fransson P, Donaire A, Figueras F, Arranz A, Sanz-Cortés M, Tenorio V, Bargallo N, Junqué C, Lagercrantz H, Ådén U, Gratacós E. **Intrinsic Functional Connectivity in Preterm Infants with Fetal Growth Restriction Evaluated at 12 Months Corrected Age.** *Cereb Cortex.* IF: 8.285

2. Lopez M, Figueras F, Coll O, Gonce A, Hernandez S, Lonca M, Vila J, Gratacos E, Palacio M. **Inflammatory Markers Related to Microbial Translocation Among HIV-Infected Pregnant Women: A Risk Factor of Preterm Delivery.** *J Infect Dis.* 213(3):343-350. IF: 6.344

3. Palacio M, Ronzoni S, Sánchez-Ramos L, Murphy KE. **Progestogens as Maintenance Treatment in Arrested Preterm Labor: A Systematic Review and Meta-analysis.** *Obstet Gynecol.* 128(5):989-1000. IF: 5.656

4. Eixarch E, Munoz-Moreno E, Bargallo N, Batalle D, Gratacos E. **Motor and cortico-striatal-thalamic connectivity alterations in intrauterine growth restriction.** *Am J Obstet Gynecol.* 214(6):725.e1-725.e9. IF: 4.681

5. Musilova I, Bestvina T, Hudeckova M, Michalec I, Cobo T, Jacobsson B, Kacerovsky M. **Vaginal fluid interleukin-6 concentrations as a point-of-care test is of value in women with preterm prelabor rupture of membranes.** *Am J Obstet Gynecol.* 215(5):619.e1-619.e12. IF: 4.681

6. Sepulveda M, Ros C, Martinez-Lapiscina E H, Sola-Valls N, Hervas M, Llufriu S, La Puma D, Casals E, Blanco Y, Villoslada P, Graus F, Castelo-Branco C, Saiz A. **Pituitary-ovary axis and ovarian reserve in fertile women with multiple sclerosis: A pilot study.** *Mult Scler J.* 22(4):564-568. IF: 4.671

7. Gregoir C, Engels AC, Gomez O, Dekoninck P, Lewi L, Gratacos E, Deprest

JA. **Fertility pregnancy and gynecological outcomes after fetoscopic surgery for congenital diaphragmatic hernia.** *Hum Reprod.* 31(9):2024-2030. IF: 4.621

8. Garrabou G, Hernàndez A-S, Catalán García M, Moren C, Tobias E, Cordoba S, Lopez M, Figueras F, Grau JM, Cardellach F. **Molecular basis of reduced birth weight in smoking pregnant women: Mitochondrial dysfunction and apoptosis.** *Addict Biol.* 21(1):159-170. IF: 4.547

9. Garcia-Otero L, Lopez M, Gomez O, Gonce A, Bennasar M, Martinez JM, Valenzuela-Alcaraz B, Rodriguez-Lopez M, Sitges M, Lonca M, Bijnens B, Crispi F, Gratacos E. **Zidovudine treatment in HIV-infected pregnant women is associated with fetal cardiac remodelling.** *Aids.* 30(9):1393-1401. IF: 4.407

10. Batalle D, Muñoz-Moreno E, Tornador C, Bargallo N, Deco G, Eixarch E, Gratacos E. **Altered resting-state whole-brain functional networks of neonates with intrauterine growth restriction.** *Cortex.* 77:119-131. IF: 4.314

11. Ortiz J U, Eixarch E, Peguero A, Lobmaier S M, Bennasar M, Martinez J M, Gratacos E. **Chorioamniotic membrane separation after fetoscopy in monochorionic twin pregnancies: incidence and impact on perinatal outcome.** *Ultrasound Obstet Gynecol.* 47(3):345-349. IF: 4.254

12. Triunfo S, Crovetto F, Scazzocchio E, Parra-Saavedra M, Gratacos E, Figueras F. **Contingent versus routine third-trimester screening for late fetal growth restriction.** *Ultrasound Obstet Gynecol.* 47(1):81-88. IF: 4.254

13. Cruz-Lemini M, Crispi F, Valenzuela-Alcaraz B, Figueras F, Sitges M, Bijnens B, Gratacos E. **Fetal cardiovascular remodelling persists at 6 months of life in infants with intrauterine growth restriction.** *Ultrasound Obstet Gynecol.* IF: 4.254

14. Crovetto F, Triunfo S, Crispi F, Rodriguez-Sureda V, Roma E, Dominguez C, Gratacos E, Figueras F. **First trimester screening with specific algorithms for early and late onset fetal growth restriction.** *Ultrasound Obstet Gynecol.* 48(3):340-348. IF: 4.254

15. Masoller N, Sanz-Cortes M, Crispi F, Gomez O, Bennasar M, Egana-Ugrinovic G, Bargallo N, Martinez JM, Gratacos E. **Mid-gestation brain Doppler and head biometry in fetuses with congenital heart disease predict abnormal brain development at birth.** *Ultrasound Obstet Gynecol.* 47(1):65-73. IF: 4.254

16. Miranda J, Triunfo S, Rodriguez-Lopez M, Sairanen M, Kouru H, Parra-Saavedra M, Crovetto F, Figueras F, Crispi F, Gratacos E. **Performance of a third trimester combined screening model for the prediction of adverse perinatal outcome.** *Ultrasound Obstet Gynecol.* IF: 4.254

17. Miranda J, Rodriguez-Lopez M, Triunfo S, Sairanen M, Kouru H, Parra-Saavedra M, Crovetto F, Figueras F, Crispi F, Gratacos E. **Prediction of fetal growth restriction using estimated fetal weight versus a combined screening model at 32-36 weeks of gestation.** *Ultrasound Obstet Gynecol.* IF: 4.254

18. Palacio M, Cobo T, Antolin E, Ramirez M, Cabrera F, Mozo de Rosales F, Bartha JL, Juan M, Marti A, Oros D, Rodriguez A, Scazzocchio E, Olivares JM, Varea S, Rios J, Gratacos E. **Vaginal progesterone as maintenance treatment after an episode of preterm labour (PROMISE) study: a multicentre, double-blind, randomised, placebo-controlled trial.** *BJOG.* 123(12):1990-1999. IF: 4.096

19. Muñoz-Moreno E, Fischi-Gomez E, Batalle D, Borradori-Tolsa C, Eixarch E, Thiran JP, Gratacós E, Hüppi PS. **Structural brain network reorganization and social cognition related to adverse perinatal condition from infancy to early adolescence.** *Front Neurosci.* 10:560. IF: 3.398

20. Hallingström M, Lenco J, Vajrychova M, Link M, Tambor V, Liman V, Bullarbo M, Nilsson S, Tsiartas P, Cobo T, Kacerovsky M, Jacobsson B. **Proteomic Analysis of Early Mid-Trimester Amniotic Fluid Does Not Predict Spontaneous Preterm Delivery.** *PLoS One.* 11(5):e0155164. IF: 3.057

21. Sáez-López E, Guiral E, Fernández-Orth D, Villanueva S, Goncé A, López M, Teixidó I, Pericot A, Figueras F, Palacio M, Cobo T, Bosch J, Soto SM. **Vaginal versus Obstetric Infection Escherichia coli Isolates among Pregnant Women: Antimicrobial Resistance and Genetic Virulence Profile.** *PLoS One.* 11(1):e0146531. IF: 3.057

22. Figueroa H, Cifuentes J, Lozano M, Alvarado C, Cabezas C, Eixarch E, Fernández E, Contreras L, Illanes SE, Hernández-Andrade E, Gratacós E, Irarrazabal CE. **Nitric oxide synthase and changes in oxidative stress levels in embryonic kidney observed in a rabbit model of intrauterine growth restriction.** *Prenat Diagn.* 36(7):628-35. IF: 3.043

23. Triunfo S, Crovetto F, Crispi F, Rodriguez-Sureda V, Dominguez C, Nadal A, Peguero A, Gratacos E, Figueras F. **Association of first-trimester angiogenic factors with placental histological findings in late-onset preeclampsia.** *Placenta.* 42:44-50. IF: 2.972

24. Grande M, Sabrià J, Borobio V, Mercadé I, Stergiotou I, Masoller N, Borrell A. **Effectiveness of ovarian age as the background risk for aneuploidy screening in an unselected pregnant population.** *Reprod Biomed Online.* 33(4):500-505. IF: 2.796

25. Rodriguez-Lopez M, Osorio L, Acosta R, Figueras J, Cruz-Lemini M, Figueras F, Bijnens B, Gratacos E, Crispi F. **Influence of breastfeeding and postnatal nutrition on cardiovascular remodeling induced by fetal growth restriction.** *Pediatr Res.* 79(1):100-106. IF: 2.761

26. Rodriguez-Sureda V, Crovetto F, Triunfo S, Sanchez O, Crispi F, Llurba E, Gratacos E, Figueras F, Dominguez C. **Increased secretory sphingomyelinase activity in the first trimester of pregnancy in women later developing preeclampsia: a nested case-control study.** *Biol Chem.* 397(3):269-279. IF: 2.71

27. Gomez O, Soveral I, Bennasar M, Crispi F, Masoller N, Marimon E, Bartrons J, Gratacos E, Martinez J M. **Accuracy of Fetal Echocardiography in the Differential Diagnosis between Truncus Arteriosus and Pulmonary Atresia with Ventricular Septal Defect.** *Fetal Diagn Ther.* 39(2):90-99. IF: 2.7

28. Triunfo S, Parra-Saavedra M, Rodriguez-Sureda V, Crovetto F, Dominguez C, Gratacos E, Figueras F. **Angiogenic Factors and Doppler Evaluation in Normally Growing Fetuses at Routine Third-Trimester Scan: Prediction of Subsequent Low Birth Weight.** *Fetal Diagn Ther.* 40(1):13-20. IF: 2.7

29. Cruz-Lemini M, Valenzuela-Alcaraz B, Figueras F, Sitges M, Gomez O, Martinez JM, Bijnens B, Gratacos E, Crispi F. **Comparison of Two Different Ultrasound Systems for the Evaluation of Tissue Doppler Velocities in Fetuses.** *Fetal Diagn Ther.* 40(1):35-40. IF: 2.7

30. Parra-Cordero M, Bennasar M, Martinez JM, Eixarch E, Torres X, Gratacos E. **Cord Occlusion in Monochorionic Twins with Early Selective Intrauterine Growth Restriction and Abnormal Umbilical Artery Doppler: A Consecutive Series of 90 Cases.** *Fetal Diagn Ther.* 39(3):186-191. IF: 2.7

31. Rius M, Cobo T, Garcia-Posadas R, Hernandez S, Teixido I, Barrau E, Abad C, Palacio M. **Emergency Cerclage: Improvement of Outcomes by Standardization of Management.** *Fetal Diagn Ther.* 39(2):134-139. IF: 2.7

32. Borrell A, Grande M, Meler E, Sabrià J, Mazarico E, Muñoz A, Rodriguez-Revenga L, Badenas C, Figueras F. **Genomic Microarray in Fetuses with Early Growth Restriction: A Multicenter Study.** *Fetal Diagn Ther.* IF: 2.7

33. Cruz-Martínez R, Cruz-Lemini M, Mendez A, Illa M, García-Baeza V, Martinez JM, Gratacós E. **Learning Curve for Intrapulmonary Artery Doppler in Fetuses with Congenital Diaphragmatic Hernia.** *Fetal Diagn Ther.* 39(4):256-260. IF: 2.7

34. Gomez-Roig MD, Mazarico E, Cardenas D, Fernandez MT, Diaz M, de Gauna BR, Vela A, Gratacos E, Figueras F. **Placental 11B-Hydroxysteroid Dehydrogenase Type 2 mRNA Levels in Intrauterine Growth Restriction versus Small-for-Gestational-Age Fetuses.** *Fetal Diagn Ther.* 39(2):147-151. IF: 2.7

35. Masoller N, Sanz-Cortés M, Crispi F, Gómez O, Bennasar M, Egaña-Ugrinovic G, Bargalló N, Martínez JM, Gratacós E. **Severity of Fetal Brain Abnormalities in Congenital Heart Disease in Relation to the Main Expected Pattern of in utero Brain Blood Supply.** *Fetal Diagn Ther.* 39(4):269-278. IF: 2.7

36. Rodriguez-Trujillo A, Cobo T, Vives I, Bosch J, Kacerovsky M, Posadas DE, Angeles MA, Gratacos E, Jacobsson B, Palacio M. **Gestational age is more important for short-term neonatal outcome than microbial invasion of the amniotic cavity or intra-amniotic inflammation in preterm prelabor rupture of membranes.** *Acta Obstet Gynecol Scand.* 95(8):926-933. IF: 2.191

37. Blázquez A, García D, Rodríguez A, Vassena R, Figueras F, Vernaeve V. **Is oocyte donation a risk factor for preeclampsia? A systematic review and meta-analysis.** *J Assist Reprod Genet.* 33(7):855-63. IF: 1.858

38. Balcells C, Botet F, Gayete S, Marcos MÁ, Dorronsoro I, de Alba C, Figueras-Aloy J, Castrillo Study Group. **Vertically transmitted cytomegalovirus infection in newborn preterm infants.** *J Perinat Med.* 44(5):485-90. IF: 1.798

39. Egana-Ugrinovic G, Gonce A, Garcia L, Marcos M A, Lopez M, Nadal A, Figueras F. **Congenital cytomegalovirus infection among twin pairs.** *J Matern-Fetal Neonatal Med.* 29(21):3439-3444. IF: 1.674

40. Valenzuela-Alcaraz B, Crispi F, Manau D, Cruz-Lemini M, Borras A, Balasch J, Gratacos E. **Differential effect of mode of conception and infertility treatment on fetal growth and prematurity.** *J Matern-Fetal Neonatal Med.* 29(23):3879-3884. IF: 1.674

41. Grande M, Goncé A, Stergiotou I, Bennasar M, Borrell A. **Intertwin crown-rump length discordance in the prediction of fetal anomalies, fetal loss and adverse perinatal outcome.** *J Matern-Fetal Neonatal Med.* 29(17):2883-8. IF: 1.674

42. Stepan M, Cobo T, Maly J, Navratilova M, Musilova I, Hornychova H, Jacobsson B, Kacerovsky M. **Neonatal outcomes in subgroups of women with preterm prelabor rupture of membranes before 34 weeks.** *J Matern-Fetal Neonatal Med.* 29(14):2373-7. IF: 1.674

43. Burke Ó, Benton S, Szafranski P, von Dadelszen P, Buhimschi SC, Cetin I, Chappell L, Figueras F, Galindo A, Herraiz I, Holzman C, Hubel C, Knudsen U, Kronborg C, Laivuori H, Lapaire O, McElrath T, Moertl M, Myers J, Ness RB, Oliveira L, Olson G, Poston L, Ris-Stalpers C, Roberts JM, Schalekamp-Timmermans S, Schlembach D, Steegers E, Stepan H, Tsatsaris V, van der Post JA, Verlohren S, Villa PM, Williams D, Zeisler H, Redman CW, Staff AC; Global Pregnancy Collaboration. **Extending the scope of pooled analyses of individual patient biomarker data from heterogeneous laboratory platforms and cohorts using merging algorithms.** *Pregnancy Hypertens.* 6(1):53-9. IF: 1.308

44. Ortigosa N, Rodriguez-Lopez M, Bailón R, Sarvari SI, Sitges M, Gratacos E, Bijnens

B, Crispi F, Laguna P. **Heart morphology differences induced by intrauterine growth restriction and preterm birth measured on the ECG at preadolescent age.** *J Electrocardiol.* 49(3):401-9. IF: 1.29

Reviews / I.F.: 1.733

1. Sehgal A, Skilton MR, Crispi F. **Human fetal growth restriction: a cardiovascular journey through to adolescence.** *Journal of Developmental Origins of Health and Disease.* 7(6):1-10-635. IF: 1.733

Clinical guidelines / I.F.: 5.928

1. Khalil A, Rodgers M, Baschat A, Bhide A, Gratacos E, Hecher K, Kilby M D, Lewi L, Nicolaides K, Oepkes D, Reed K, Raine-Fenning N, Salomon L J, Sotiradis A, Thilaganathan B, Ville Y. **ISUOG Practice Guidelines: The Role of Ultrasound in Twin Pregnancy.** *Ultrasound Obstet Gynecol.* 47(2):247-263. IF: 4.254

2. Stergiotou I, Borobio V, Bennasar M, Goncé A, Mula R, Nuruddin M, Soler A, Borrell A. **Transcervical chorionic villus sampling: a practical guide.** *J Matern-Fetal Neonatal Med.* 29(8):1244-51. IF: 1.674

GRANTS FOR RESEARCH IN PROGRESS

Eixarch E. **Desarrollo de biomarcadores basados en conectividad cerebral para el diagnóstico precoz de las alteraciones del neurodesarrollo de origen prenatal.**
Sponsored by: Instituto de Salud Carlos III (ISCIII).PI042902
Duration: 01/01/2014-31/12/2016

Eixarch E. **Aplicación del estudio de la conectividad cerebral para el diagnóstico precoz de las alteraciones del neurodesarrollo de origen prenatal.**
Sponsored by: Fundación Dexeus Salud de la Mujer
Duration: 31/01/2014-30/01/2016

Figueras F. **Prevención de la lesión neurológica por hipoxia crónica perinatal en un modelo animal de coneja gestante.**
Sponsored by: Instituto de Salud Carlos III (ISCIII). PI12/00851
Duration: 01/01/2013-31/12/2016

Figueras F. **Ácido acetil salicílico para la mejora de la invasión trofoblástica en gestantes con Doppler patológico de las uterinas a las 11-14 semanas de gestación.**
Sponsored by: Ministerio de Sanidad, Política Social e Igualdad. EC11-169
Duration: 01/01/2012-31/12/2016

Gratacós E. **EVERREST - Does vascular endothelial growth factor gene therapy safely improve outcome in severe early-onset fetal growth restriction?**
Sponsored by: European Commission. 305823
Duration: 01/01/2013-31/12/2018

Gratacós E. **Preventing the neurological and cardiovascular consequences of fetal growth restriction.**
Sponsored by: Obra Social Fundación La Caixa
Duration: 01/01/2015 - 31/12/2018

Crispi F. **Impacto de la restricción de crecimiento intrauterino en la dinámica del remodelado cardiovascular en las diferentes etapas de la vida.**
Sponsored by: Instituto de Salud Carlos III (ISCIII). PI14/00226
Duration: 01/01/2015-31/12/2017

Borrell A. **Pérdida gestacional precoz: causas genéticas y riesgo de recurrencia.**
Sponsored by: Instituto De Salud Carlos III. PI14/00588
Duration: 01/01/2015-31/12/2017

Figueras F. **Papel del factor de crecimineto placentario en el manejo de la preeclampsia no severa: estudio aleatorizado. Estudio MAP.**
Sponsored by: Instituto de Salud Carlos III. PI15/00903
Duration: 01/01/2016-31/12/2018

Gratacós E. **Identificación de moduladores y dianas terapéuticas en el remodelado y enfermedad cardiovascular del adulto asociada a retraso de crecimiento intrauterino.**
Sponsored by: Instituto de Salud Carlos III. PI15/00130
Duration: 01/01/2016-31/12/2018

Cobo T. **Validación de biomarcadores proteómicos y metabolómicos de inflamación intraamniótica en el parto prematuro en muestras cervico-vaginales y desarrollo de algoritmos clínicos predictores.**
Sponsored by: Instituto de Salud Carlos III. PI15/00344
Duration: 01/01/2016-31/12/2018

Gratacós R, Crispi F. **Targeting endothelial dysfunction in highly prevalent diseases: characterization and validation of prognostic biomarkers and identification of potential therapeutic strategies.**
Sponsored by: Instituto de Salud Carlos III. PIE15/00027
Duration: 01/01/2016-31/12/2018

DOCTORAL THESES

Crispi F, Gratacós E. **Cardiovascular assessment in fetuses and children conceived by assisted reproductive technologies.**
PhD student: Brenda Iveth Valenzuela Alcaraz

Junqué C, Gratacós E. **Brain imaging in preterm infants with and without intrauter**ine growth restriction.
PhD student: Nelly Fabiola Padilla Gomes

Gratacós E, Martínez-Crespo JM. **Estudi del desenvolupament cerebral en els fetus afectes de cardiopatia congénita.**
PhD student: Narcís Masoller Casas

Deprest J, Gratacos E. **Perinatal interventions to modulate lung development.**
PhD student: Julio Jiménez Grez

3.3

Viral hepatitis in the immunocompetent host and in liver transplant patients

LOCATION
CEK building

KEYWORDS
1. **Hepatitis C virus**
2. **Direct-acting antivirals (DAA)**
3. **Next-generation sequencing**
4. **Cell culture**
5. **Hepatitis B virus**

Original publications from 2014 to 2016

YEAR	I.F.	TOTAL	Q1	Q2
2014	184.41	15	11	1
2015	186.06	23	15	7
2016	135.49	22	18	2

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STRATEGIC OBJECTIVES

- Efficacy of new antiviral regimens against HCV and the relevance of resistance-associated substitutions in treatment failure.
- Influence of virological and immunological factors on the natural history and treatment response in chronic hepatitis B and C.
- Characterization of the life cycle of HBV and HCV using cell culture models.

MAIN LINES OF RESEARCH

- Efficacy of new antiviral regimens against HCV and dynamics of resistance-associated substitutions during therapy by massive sequencing.
- Study of the innate immune response in patients with chronic hepatitis C receiving direct-acting antivirals.
- Impact of HCV elimination on the natural history of liver cirrhosis: clinical decompensation and hepatocellular carcinoma.



TEAM Xavier Forns

- Natural history of chronic hepatitis C: development of predictive models of risk of progression to cirrhosis.
- Characterization of viral and cellular factors involved in HCV infection using cell culture models in vitro.
- Molecular epidemiology and phylogenetic analysis of acute hepatitis C in HIV-coinfected patients.
- Influence of viral and host factors in the natural history and response to treatment in chronic hepatitis B.
- Molecular mechanisms and clinical significance of cccDNA persistence in HBV infection.
- Natural history of chronic HBV infection in inactive carriers and patients in the "gray zone".
- Validation of non-invasive diagnostic methods of liver fibrosis in HBV-infected patients.

PUBLICATIONS

Originals / I.F.: 135.492

1. Manns M, Samuel D, Gane EJ, Mutimer D, Mccaughan G, Buti M, Prieto M, Calleja JL, Peck-Radosavljevic M, Mullhaupt B, Agarwal K, Angus P, Yoshida EM, Colombo M, Rizzetto M, Dvory-Sobol H, Denning J, Arterburn S, Pang PS, Brainard D, Mchutchison JG, Dufour JF, Van Vlierberghe H, Van Hoek B, Forns X. **Ledipasvir and sofosbuvir plus ribavirin in patients with genotype 1 or 4 hepatitis C virus infection and advanced liver disease: a multicentre, open-label, randomised, phase 2 trial.** *Lancet Infect Dis.* 16(6):685-697. IF: 21.372

2. Gambato M, Perez-Del-Pulgar S, Hedskog C, Svarovskia ES, Brainard D, Denning J, Curry MP, Charlton M, Caro-Pérez N, Londono MC, Koutsoudakis G, Forns X. **Hepatitis C Virus RNA Persists in Liver Explants of Most Patients Awaiting Liver Transplantation Treated With an Interferon-Free Regimen.** *Gastroenterology.* 151(4):633-636.e3. IF: 18.187

3. Reig M, Marino Z, Perello C, Inarrairaegui M, Ribeiro A, Lens S, Diaz A, Vilana R, Darnell A, Varela M, Sangro B, Calleja JL, Forns X, Bruix J. **Unexpected early tumor recurrence in patients with hepatitis C virus -related hepatocellular carcinoma undergoing interferon-free therapy: a note of caution.** *J Hepatol.* 65(4):719-726. IF: 10.59

4. Shiffman ML, Rustgi V, Bennett M, Forns X, Asselah T, Planas Vila R, Liu L, Pedrosa M, Moller J, Reau N. **Safety and Efficacy of Ombitasvir/Paritaprevir/Ritonavir Plus Dasabuvir With or Without Ribavirin in HCV-Infected Patients Taking Concomitant Acid-Reducing Agents.** *Am J Gastroenterol.* 111(6):845-851. IF: 10.383

5. Buti M, Gordon SC, Zuckerman E, Lawitz E, Calleja J L, Hofer H, Gilbert C, Palcza J, Howe A Y, Dinubile M J, Robertson M N, Wahl J, Barr E, Forns X. **Grazoprevir Elbasvir and Ribavirin for Chronic Hepatitis C Virus Genotype 1 Infection After Failure of Pegylated Interferon and Ribavirin With an Earlier-Generation Protease Inhibitor: Final 24-Week Results From C-SALVAGE.** *Clin Infect Dis.* 62(1):32-6. IF: 8.736

6. Perello MC, Fernandez-Carrillo C, Londono MC, Arias-Loste T, Hernandez-Conde M, Llerena S, Crespo J, Forns X, Calleja JL. **Reactivation of Herpesvirus in Patients With Hepatitis C Treated With Direct-Acting Antiviral Agents.** *Clin Gastroenterol Hepatol.* 14(11):1662-1666.e1. IF: 7.68

7. Lens S, Torres F, Puigvehi M, Marino Z, Londono MC, Martinez SM, Garcia-Juarez I, Garcia-Criado A, Gilabert R, Bru C, Sola R, Sanchez-Tapias J M, Carrion J A, Forns X. **Predicting the development of liver cirrhosis by simple modelling in patients with chronic hepatitis C.** *Aliment Pharmacol Ther.* 43(3):364-374. IF: 6.32

8. Taubert R, Danger R, Londoño MC, Christakoudi S, Martinez-Picola M, Rimola A, Manns MP, Sánchez-Fueyo A, Jaeckel E. **Hepatic Infiltrates in Operational Tolerant Patients After Liver Transplantation Show Enrichment of Regulatory T Cells Before Proinflammatory Genes Are Downregulated.** *Am J Transplant.* 16(4):1285-93. IF: 5.669

9. Bonaccorsi-Riani E, Pennycuick A, Londoño MC, Lozano JJ, Benítez C, Sawitzki B, Martínez-Picola M, Bohne F, Martínez-Llordella M, Miquel R, Rimola A, Sánchez-Fueyo A. **Molecular Characterization of Acute Cellular Rejection Occurring During Intentional Immunosuppression Withdrawal in Liver Transplantation.** *Am J Transplant.* 16(2):484-96. IF: 5.669

10. Londoño MC, Manzardo C, Rimola A, Ruiz P, Costa J, Forner A, Ambrosioni J, Aguero F, Laguno M, Lligona A, Moreno A, Miro JM. **IFN-free therapy for HIV/HCV-coinfected patients within the liver transplant setting.** *J Antimicrob Chemother.* 71(11):3195-3201. IF: 4.919

11. Dumontet E, Danger R, Vagefi PA, Londoño MC, Pallier A, Lozano JJ, Giral M, Degauque N, Soulillou JP, Martínez-Llordella M, Lee H, Latournerie M, Boudjema K, Dulong J, Tarte K, Sanchez-Fueyo A, Feng S, Brouard S, Conchon S. **Peripheral phenotype and gene expression profiles of combined liver-kidney transplant patients.** *Liver Int.* 36(3):401-9. IF: 4.47

12. Fontana RJ, Brown RS Jr, Moreno-Zamora A, Prieto M, Joshi S, Londoño MC, Herzer K, Chacko KR, Stauber RE, Knop V, Jafri SM, Castells L, Ferenci P, Torti C, Durand CM, Loiacono L, Lionetti R, Bahirwani R, Weiland O, Mubarak A, ElSharkawy AM, Stadler B, Montalbano M, Berg C, Pellicelli AM, Stenmark S, Vekeman F, Ionescu-Ittu R, Emond B, Reddy KR. **Daclatasvir combined with sofosbuvir or simeprevir in liver transplant recipients with severe recurrent hepatitis C infection.** *Liver Transpl.* 22(4):446-58. IF: 3.951

13. Crespo G, Castro-Narro G, Garcia-Juarez I, Benitez C, Ruiz P, Sastre L, Colmenero J, Miquel R, Sanchez-Fueyo

A, Forns X, Navasa M. **Usefulness of liver stiffness measurement during acute cellular rejection in liver transplantation.** *Liver Transpl.* 22(3):298-304. IF: 3.951

14. Vilajeliu A, Ferrer L, Munros J, Gonce A, Lopez M, Costa J, Bayas JM. **Pertussis vaccination during pregnancy: Antibody persistence in infants.** *Vaccine.* 34(33):3719-3722. IF: 3.413

15. Sarrazin C, Manns M, Calleja JL, Garcia-Samaniego J, Forns X, Kaste R, Bai X, Wu J, Stern JO. **HCVerso3: An open-label, phase IIb study of faldaprevir and deleobuvir with ribavirin in hepatitis C virus genotype-1b-infected patients with cirrhosis and moderate hepatic impairment.** *PLoS One.* 11(12):e0168544. IF: 3.057

16. Wedemeyer H, Forns X, Hézode C, Lee SS, Scalori A, Voulgari A, Pogam SL, Nájera I, Thommes JA. **Mericitabine and either boceprevir or telaprevir in combination with peginterferon ALFA-2a plus ribavirin for patients with chronic hepatitis c genotype 1 infection and prior null response: The randomized DYNAMO 1 and DYNAMO 2 studies.** *PLoS One.* 11(1):e0145409. IF: 3.057

17. Embade N, Marino Z, Diercks T, Cano A, Lens S, Cabrera D, Navasa M, Falcon-Perez JM, Caballeria J, Castro A, Bosch J, Mato JM, Millet O. **Metabolic Characterization of Advanced Liver Fibrosis in HCV Patients as Studied by Serum H-1-NMR Spectroscopy.** *PLoS One.* 11(5):e0155094. IF: 3.057

18. Gambato M, Caro-Pérez N, Gonzalez P, Canete N, Marino Z, Lens S, Bonacci M, Bartres C, Sanchez-Tapias JM, Carrion JA, Forns X, Juan M, Perez-Del-Pulgar S, Londoño MC. **Neutrophil and Monocyte Function in Patients with Chronic Hepatitis C Undergoing Antiviral Therapy with Regimens Containing Protease Inhibitors with and without Interferon.** *PLoS One.* 11(11):e0166631. IF: 3.057

19. Gambato M, Crespo G, Torres F, LLovet L, Carrion J, Londono M, Lens S, Marino Z, Bartres C, Miquel R, Navasa M, Forns X. **Simple prediction of long-term clinical outcomes in patients with mild hepatitis C recurrence after liver transplantation.** *Transpl Int.* 29(6):698-706. IF: 2.835

20. Citores MJ, Perez-Pulgar S, Duca A, Crespo G, de la Fuente S, Vilches C, Navasa M, Cuervas-Mons V. **Rapidity of fibrosis progression in liver transplant recipients with recurrent hepatitis C is influenced by toll-like receptor 3 polymorphism.** *Clin Transplant.* 30(7):810-818. IF: 1.844

21. Forns X, Didier S, Mutimer D, Fagiuoli S, Navasa M, Agarwal K, Berenguer M, Colombo M, Herzer K, Nevens F, Daems B, Janssen K, Ouwerkerk-Mahadevan S, Kimko H, Lathouwers E, Witek J, Solingen-Ristea RV. **Efficacy of telaprevir-based therapy in stable liver transplant patients with chronic genotype 1 hepatitis C.** *Ann Hepatol.* 15(4):512-23. IF: 1.816

22. Crespo G, Gambato M, Millan O, Casals G, Ruiz P, Londono MC, Mira A, Forns X, Brunet M, Jimenez W, Navasa M. **Early non-invasive selection of patients at high risk of severe hepatitis C recurrence after liver transplantation.** *Transpl Infect Dis.* 18(3):471-479. IF: 1.459

Reviews / I.F.: 6.247

1. Kumar R, Pérez-Del-Pulgar S, Testoni B, Lebossé F, Zoulim F. **Clinical relevance of the study of hepatitis B virus covalently closed circular DNA.** *Liver Int.* 36 Suppl 1:72-7. IF: 4.470

2. Bonacci M, Lens S, Mariño Z, Forns X. **Challenges in Special Populations: HIV/HCV Coinfection, Liver Transplantation and Patients with End-Stage Renal Disease.** *Dig Dis.* 34(4):317-326. IF: 1.777

Letters / I.F.: 10.590

1. Reig M, Torres F, Marino Z, Forns X, Bruix J. **Reply to "Direct antiviral agents and risk for hepatocellular carcinoma (HCC) early recurrence: Much ado about nothing".** *J Hepatol.* 65:864-865. IF: 10.590

Editorials / I.F.: 14.541

1. Forns X, Berg T. **Hepatitis C virus - A teacher of clinical research, cell biology and immunology.** *J Hepatol.* 65(1):S1. IF: 10.59

2. Londoño MC, Mariño Z, Forns X. **"Targeting" hepatitis C after liver transplantation.** *Liver Transpl.* 22(1):9-11. IF: 3.951

Clinical guidelines / I.F.: 10.590

1. Burra P, Burroughsy A, Graziadei I, Pirenne J, Valdecasas JC, Muiesan P, Samuel D, Forns X, Burroughs A. **European Association for the Study of the Liver. EASL Clinical Practice Guidelines: Liver transplantation.** *J Hepatol.* 64(2):433-485. IF: 10.59

Consortium publications / I.F.: 11.711

1. Aguero F, Forner A, Manzardo C, Valdivieso A, Blanes M, Barcena R, Rafecas A, Castells L, Abradelo M, Torre-Cisneros J, Gonzalez-Dieguez L, Salcedo M, Serrano T, Jimenez-Perez M, Herrero JI, Gastaca M, Aguilera V, Fabregat J, Del Campo S, Bilbao I, Romero CJ, Moreno A, Rimola A, Miro JM, FIPSE Investigators. **Human immunodeficiency virus infection does not worsen prognosis of liver transplantation for hepatocellular carcinoma.** *Hepatology.* 63(2):488-498. IF: 11.711

GRANTS FOR RESEARCH IN PROGRESS

Forns X. **Estudio de los factores virológicos e inmunológicos relacionados con la recurrencia de la infección por los virus de la hepatitis C y B tras la interrupción del tratamiento antiviral.**

Sponsored by: Instituto de Salud Carlos III. PI15/00151
Duration: 01/01/2016-31/12/20183

Forns X. **Virological and immunological factors associated with hepatitis C and hepatitis B virus infection recurrence after treatment discontinuation.**
Sponsored by: Gilead. GLD15/00274
Duration: 07/03/2016-06/03/2018

Pérez del Pulgar S. **Factores virológicos e inmunológicos relacionados con el tratamiento antiviral y la recurrencia de la hepatitis C después del trasplante hepático.**
Sponsored by: Instituto de Salud Carlos III (ISCIII). PI13/00155
Duration: 01/01/2014-31/03/2017

Forns X. **Hepatitis Víriques a l'hoste immunocompetent i al trasplantat hepàtic.**
Sponsored by: Agència de Gestió d'Ajuts Universitaris i de Recerca. AGAUR. 2014-SGR-605
Duration: 01/01/2014-31/04/2017

Forns X. **Human monoclonal antibody therapy to prevent hepatitis C virus reinfection of liver transplants: advancing lead monoclonal antibodies into clinical trial.**
Sponsored by: European Commission. 305600
Duration: 01/01/2013-31/12/2017

Forns X. **Cultivo de virus de la hepatitis C (genotipos 1 y 3) a partir de suero de pacientes trasplantados hepáticos (TH). Estudio del efecto del TH en la cuasispecie viral mediante pirosecuenciación.**
Sponsored by: Instituto de Salud Carlos III (ISCIII). PI11/01907
Duration: 01/01/2012-30/04/2016

DOCTORAL THESES

Forns X. **Historia natural de la infección crónica por Hepatitis C e impacto del tratamiento en pacientes con cirrosis o manifestaciones extrahepáticas.**
PhD student: Sabela Lens García

3.4 Mechanisms of Liver Disease and Complications of Cirrhosis

LOCATION
CEK building

KEYWORDS
1. **Cirrhosis**
2. **Non-alcoholic steatohepatitis**
3. **Liver Stem cells**
4. **Kidney Failure**
5. **Chronic liver diseases**

Original publications from 2014 to 2016

YEAR	I.F.	TOTAL	Q1	Q2
2014	152.90	18	16	2
2015	171.20	23	19	3
2016	182.19	25	21	2

TEAM INVOLVED IN
CIBEREHD
AGAUR_SGR14: 219, 428, 708

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STRATEGIC OBJECTIVES

To investigate new therapeutic and diagnostic strategies in the most common complications present in chronic liver diseases. The basic and translational studies investigate the mechanisms implicated in disease progression of chronic liver diseases as well as the role of progenitor cells in liver regeneration and tissue repair.
To assess the role of bioactive lipid mediators on the onset and resolution of systemic and tissue inflammatory responses in chronic liver disease.

MAIN LINES OF RESEARCH

1. To explore new therapeutic targets useful in the treatment of endothelial dysfunction, vascular remodeling, hepatic fibrosis and the characteristic hemodynamic disturbances of chronic liver diseases.
2. To search for molecular strategies to stimulate a functional liver regeneration.
3. To identify novel serum biomarkers of liver disease progression and complications of cirrhosis.
4. To investigate molecular pathways of acute-on-chronic liver failure development (ACLF) and identify new biomarkers of ACLF.
5. To investigate the role of liver progenitor cells in liver regeneration
6. Mechanisms of liver inflammation, with particular emphasis on the role of lipid mediators generated from both omega-6 and omega-3 polyunsaturated fatty acids.
7. Mechanisms of resolution of inflammation in adipose tissue and its relationship with obesity-associated complications, particularly non-alcoholic steatohepatitis.
8. To study the role of systemic inflammation in Acute-on-Chronic Liver Failure.

RESEARCH GROUP

CHRONIC LIVER DISEASES: MOLECULAR MECHANISMS AND CLINICAL CONSEQUENCES



GROUP LEADER

Pere Ginès (HCB)

Our group focuses on the study of chronic liver diseases and progression to advance disease via clinical and basic-translational studies. Main areas:
Role of urine biomarkers in diagnosis and treatment of renal dysfunction in cirrhotic patients, the relationship between systemic inflammatory biomarkers and disease progression. Analysis of liver samples at varying stages of disease to assess molecular networks relevant to disease progression and possible influence of extrahepatic factors. Identifying points of intervention in cirrhosis using cell cultures and experimental models of cirrhosis. Role of liver progenitor cells (lpc) during liver regeneration in end-stage liver diseases. The mechanisms regulating lpc expansion and differentiation, to identify the factors that lead to their aberrant regulation in chronic liver diseases.





GROUP Pere Ginès and Pau Sancho (up)

RESEARCH GROUP
INFLAMMATION AND LIVER DISEASE



GROUP LEADER
Joan Clària (HCB)

Our research group conducts both basic and experimental studies to translate them to patients afflicted with chronic liver disease. Our main focus is on the study of inflammatory mediators, especially lipid mediators generated from polyunsaturated fatty acids of both omega-6 and omega-3 series and their role in the progression of an uncontrolled inflammatory response. Special attention is given to the recently-characterized pro-resolving lipid mediators that control the timely resolution of inflammation and the return of tissues and cells to homeostasis.

RESEARCH GROUP
TRANSLATIONAL RESEARCH GROUP IN NEW THERAPEUTIC AND DIAGNOSTIC STRATEGIES IN LIVER DISEASES



GROUP LEADER
Wladimiro Jiménez (HCB)

Our group have an extensive research experience on the pathophysiological and molecular bases of the most common complications present in patients with chronic liver disease. The projects have a profound translational character, with special interest in identifying new therapeutic tools to stop or reverse the progression of the fibroproliferative events. We also intend that the knowledge generated in these studies result in substantial improvements in the biochemical diagnosis of patients, which also constitutes a substantial part of our activity. This would represent an improvement from the point of view of comfort, diagnosis, monitoring and treatment of patients with liver disease.

PUBLICATIONS

Originals / I.F.: 182.185

1. Blaya D, Coll M, Rodrigo-Torres D, Vila-Casadesús M, Altamirano J, Llopis M, Graupera I, Perea L, Aguilar-Bravo B, Diaz A, Banales JM, Claria J, Lozano JJ, Bataller R, Caballeria J, Gines P, Sancho-Bru P. **Integrative microRNA profiling**



GROUP Joan Clària



GROUP Wladimiro Jiménez

in alcoholic hepatitis reveals a role for microRNA-182 in liver injury and inflammation. *Gut.* 65(9):1535-1545. IF: 14.921

2. Morales-Ibanez O, Affo S, Rodrigo-Torres D, Blaya D, Millan C, Coll M, Perea L, Odena G, Knorpp T, Templin MF, Moreno M, Altamirano J, Miquel R, Arroyo V, Gines P, Caballeria J, Sancho-Bru P, Bataller. **Kinase analysis in alcoholic hepatitis identifies p90RSK as a potential mediator of liver fibrogenesis.** *Gut.* 65(5):840-851. IF: 14.921

3. Pauta M, Rotllan N, Fernandez-Hernando A, Langhi C, Ribera J, Lu M, Boix L, Bruix J, Jimenez W, Suarez Y, Ford D A, Baldan A, Birnbaum M J, , Fernandez-Hernando C. **Akt-mediated FoxO1 inhibition is required for liver regeneration.** *Hepatology.* 63(5):1660-1674. IF: 11.711

4. Claria J, Stauber RE, Coenraad MJ, Moreau R, Jalan R, Pavesi M, Amoros A, Titos E, Alcaraz-Quiles J, Oettl K, Morales-Ruiz M, Angeli P, Domenicali M, Alessandria C, Gerbes A, Wendon J, Nevens F, Trebicka J, Laleman W, Saliba F, Welzel TM, Albillos A, Gustot T, Benten D, Durand F, Gines P, Bernardi M, Arroyo V. **Systemic inflammation in decompensated cirrhosis. Characterization and role in acute-on-chronic liver failure.** *Hepatology.* 64(4):1249-1264. IF: 11.711

5. Fernandez-Varo G, Oro D, Cable E E, Reichenbach V, Carvajal S, de la Presa B G, Wisniewski K, Gines P, Harris G, Jimenez W. **Vasopressin 1a receptor partial agonism increases sodium excretion and reduces portal hypertension and ascites in cirrhotic rats**. *Hepatology.* 63(1):207-216. IF: 11.711

6. Oro D, Yudina T, Fernandez-Varo G, Casals E, Reichenbach V, Casals G, Gonzalez De La Presa B, Sandalinas S, Carvajal S, Puntes V, Jimenez W. **Cerium oxide nanoparticles reduce steatosis portal hypertension and display antiinflammatory properties in rats with liver fibrosis.** *J Hepatol.* 64(3):691-698. IF: 10.590

7. Grønbæk H, Rødgaard-Hansen S, Aagaard NK, Arroyo V, Moestrup SK, Garcia E, Sola E, Domenicali M, Piano S, Vilstrup H, Møller HJ. **Macrophage activation markers predict mortality in patients with liver cirrhosis without or with acute-on-chronic liver failure (ACLF).** *J Hepatol.* 64(4):813-822. IF: 10.590

8. Ariza X, Graupera I, Coll M, Sola E, Barreto R, Garcia E, Moreira R, Elia C, Morales-Ruiz M, Llopis M, Huelin P, Sole C, Fabrellas N, Weiss E, Nevens F, Gerbes A, Trebicka J, Saliba F, Fondevila C, Hernández-Gea V Fernández J Bernardi M Arroyo V Jiménez W Deulofeu C Pavesi M Angeli P Jalan R Moreau R Sancho-Bru P, Ginès P. **Neutrophil gelatinase-associated lipocalin is a biomarker of acute-on-chronic liver failure and prognosis in cirrhosis.** *J Hepatol.* 65(1):57-65. IF: 10.590

9. Sola E, Kerbert AJ, Verspaget HW, Moreira R, Pose E, Ruiz P, Cela R, Morales-Ruiz M, Lopez E, Graupera I, Sole C, Huelin P, Navarro AA, Ariza X, Jalan R, Fabrellas N, Benten D, de Prada G, Durand F, Jimenez W, van der Reijden JJ, Fernandez J, Van Hoek B, Coenraad MJ, Gines P. **Plasma copeptin as biomarker of disease progression and prognosis in cirrhosis.** *J Hepatol.* 65(5):914-920. IF: 10.590

10. Helsen Nicky, Debing Yannick, Paeshuyse Jan, Dallmeier Kai, Boon Ruben, Coll Mar, Sancho-Bru Pau, Claes Christel, Neyts Johan, Verfaillie Catherine M. **Stem cell-derived hepatocytes: A novel model for hepatitis E virus replication.** *J Hepatol.* 64(3):565-573. IF: 10.590

11. Mookerjee R P, Pavesi M, Thomsen K L, Mehta G, Macnaughtan J, Bendtsten F, Coenraad M, Sperl J, Gines P, Moreau R, Arroyo V, Jalan R. **Treatment with non-selective beta-blockers is associated with reduced severity of systemic inflammation and improved survival of patients with acute-on-chronic liver failure.** *J Hepatol.* 64(3):574-582. IF: 10.590

12. Blasi A, Hessheimer AJ, Beltran J, Pereira A, Fernandez J, Balust J, Martinez-Palli G, Fuster J, Navasa M, Garcia-Valdecasas JC, Taura P, Fondevila C. **Liver Transplant From Unexpected Donation After Circulatory Determination of Death Donors: A Challenge in Perioperative Management.** *Am J Transplant.* 16(6):1901-1908. IF: 5.669

13. Li H, Chen LY, Zhang NN, Li ST, Zeng B, Pavesi M, Amorós À, Mookerjee RP, Xia Q, Xue F, Ma X, Hua J, Sheng L, Qiu DK, Xie Q, Foster GR, Dusheiko G, Moreau R, Gines P, Arroyo V, Jalan R. **Characteristics, Diagnosis and Prognosis of Acute-on-Chronic Liver Failure in Cirrhosis Associated to Hepatitis B.** *Sci Rep.* 6:25487. IF: 5.228

14. Sole C, Sola E, Morales-Ruiz M, Fernandez G, Huelin P, Graupera I, Moreira R, de Prada G, Ariza X, Pose E, Fabrellas N, Kalko SG, Jimenez W, Gines P. **Characterization of Inflammatory Response in Acute-on-Chronic Liver Failure and Relationship with Prognosis.** *Sci Rep.* 6:32341. IF: 5.228

15. Odena G, Chen J, Lozano JJ, Altamirano J, Rodrigo-Torres D, Affo S, Morales-Ibanez O, Matsushita H, Zou J, Dumitru R, Caballeria J, Gines P, Arroyo V, You M, Rautou PE, Valla D, Crews F, Seki E, Sancho-Bru P, Bataller R. **LPS-TLR4 Pathway Mediates Ductular Cell Expansion in Alcoholic Hepatitis.** *Sci Rep.* 6:35610. IF: 5.228

16. Titos E, Rius B, Lopez-Vicario C, Alcaraz-Quiles J, Garcia-Alonso V, Lopategi A, Dalli J, Lozano JJ, Arroyo V, Delgado S, Serhan CN, Claria J. **Signaling and Immunoresolving Actions of Resolvin D1 in Inflamed Human Visceral Adipose Tissue.** *J Immunol.* 197(8):3360-3370. IF: 4.985

17. Ulldemolins M, Martín-Loeches I, Llauradó-Serra M, Fernández J, Vaquer S, Rodríguez A, Pontes C, Calvo G, Torres A, Soy D. **Piperacillin population pharmacokinetics in critically ill patients with multiple organ dysfunction syndrome receiving continuous venovenous haemodiafiltration: effect of type of dialysis membrane on dosing**

requirements. *J Antimicrob Chemother.* 71(6):1651-9. IF: 4.919

18. Perea RJ, Morales-Ruiz M, Ortiz-Perez JT, Bosch X, Andreu D, Borras R, Acosta J, Penela D, Prat-Gonzalez S, de Caralt TM, Martinez M, Morales-Romero B, Lasalvia L, Donnelly J, Jimenez W, Mira A, Mont L, Berruezo A. **Utility of galectin-3 in predicting post-infarct remodeling after acute myocardial infarction based on extracellular volume fraction mapping.** *Int J Cardiol.* 223():458-464. IF: 4.638

19. Marfà S, Martí J, Reyes A, Casals G, Fernández-Varo G, Carvajal S, Garcia-Valdecasas JC, Fuster J, Jimenez W. **Metastatic tissue proteomic profiling predicts 5-year outcomes in patients with colorectal liver metastases.** *Transl Oncol.* 9(5):445-452. IF: 3.077

20. Garcia-Alonso V, Titos E, Alcaraz-Quiles J, Rius B, Lopategi A, Lopez-Vicario C, Jakobsson PJ, Delgado S, Lozano J, Claria J. **Prostaglandin E2 Exerts Multiple Regulatory Actions on Human Obese Adipose Tissue Remodeling Inflammation Adaptive Thermogenesis and Lipolysis.** *PLoS One.* 11(4):e0153751. IF: 3.057

21. Graupera I, Sola E, Fabrellas N, Moreira R, Sole C, Huelin P, de la Prada G, Pose E, Ariza X, Risso A, Albertos S, Morales-Ruiz M, Jimenez W, Gines P. **Urine Monocyte Chemoattractant Protein-1 Is an Independent Predictive Factor of Hospital Readmission and Survival in Cirrhosis.** *PLoS One.* 11(6):e0157371. IF: 3.057

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23. Marfa S, Morales-Ruiz M, Oro D, Ribera J, Fernandez-Varo G, Jimenez W. **Sipa1l1 is an early biomarker of liver fibrosis in CCl4-treated rats.** *Biol Open.* 5(6):858-865. IF: 2.135

24. Blasi A, Hernandez V, Fernandez J, Colmenero J, Beltran J, Garcia-Valdecasas JC, Reverter JC. **Venous Thrombotic Events After Liver Transplantation.** *Clin Appl Thromb-Hemost.* 1:1076029616680477. IF: 1.973

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Reviews / I.F.: 60.871

1. Fernández J, Tandon P, Mensa J, Garcia-Tsao G. **Antibiotic prophylaxis in cirrhosis: Good and bad.** *Hepatology.* 63(6):2019-31. IF: 11.711

2. Nadim MK, Durand F, Kellum JA, Levitsky J, O'Leary JG, Karvellas CJ, Bajaj JS, Davenport A, Jalan R, Angeli P, Caldwell SH, Fernandez J, Francoz C, Garcia-Tsao G, Gines P, Ison MG, Kramer DJ, Mehta RL, Moreau R, Mulligan D, Olson JC, Pomfret EA, Senzolo M, Steadman RH, Subramanian RM, Vincent J-L, Genyk YS. **Management of the critically ill patient with cirrhosis: A multidisciplinary perspective.** *J Hepatol.* 64(3):717-735. IF: 10.590

3. Fernandez J, Bert F, Nicolas-Chanoine MH. **The Challenges of Multidrug Resistance in Hepatology.** *J Hepatol.* 65:1043-1054. IF: 10.590

4. Durand F, Graupera I, Ginès P, Olson JC, Nadim MK. **Pathogenesis of Hepatorenal Syndrome: Implications for Therapy.** *Am J Kidney Dis.* 67(2):318-28. IF: 6.269

5. Sola E, Fernandez J, Gines P. **Acute-on-Chronic Liver Failure: The Role of Precipitating Illness.** *Semin Liver Dis.* 36(2):117-122. IF: 5.667

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Letters / I.F.: 4.470

1. Sole C, Sola E, Gines P. **Response to nosocomial spontaneous bacterial peritonitis: discussing a specific infection treatment algorithm.** *Liver Int.* 36(7):1075-1076. IF: 4.470

Editorials / I.F.: 19.312

1. Ginès P. **Management of Hepatorenal Syndrome in the Era of Acute-on-Chronic Liver Failure: Terlipressin and Beyond.** *Gastroenterology.* 150(7):1525-7. IF: 18.187

2. Sancho-Bru P, Ginès P. **Targeting the renin-angiotensin system in liver fibrosis.** *Hepatol Int.* 10(5):730-2. IF: 1.125

Clinical guidelines / I.F.: 9.108

1. Klionsky DJ, Abdelmohsen K, Abe A, et al. **Guidelines for the use and interpretation**

of assays for monitoring autophagy (3rd edition). *Autophagy.* 12(1):1-222. IF: 9.108

GRANTS FOR RESEARCH IN PROGRESS

Ginès P. **Insuficiencia hepática crónica agudizada y disfunción multiorgánica: Mecanismos moleculares y evaluación de nuevos métodos diagnósticos y terapéuticos.**
Sponsored by: Instituto de Salud Carlos III (ISCIII). PI12/00330
Duration: 01/01/2013-31/12/2017

Morales M. **Potencialidad terapéutica del fosfoproteoma de Akt/PKB en la regeneración hepática y en la cirrosis.**
Sponsored by: Ministerio de Economía y Competitividad. SAF2013-41840-R
Duration: 01/01/2014-31/12/2016

Ginès P. **Clinical evaluation of carbons of controlled porosity as a new therapy for the treatment of liver cirrhosis and non-alcoholic fatty liver disease.**
Sponsored by: PHC 2014 Horizon 2020 (CARBALIVE)
Duration: 01/05/2015-31/10/2019

Sancho P. **Papel de las células progenitoras hepáticas en la hepatitis alcohólica y su potencial como nueva diana terapéutica.**
Sponsored by: Instituto De Salud Carlos III. PI14/00320
Duration: 01/01/2015-31/12/2017

Sancho P. **Generación de un cultivo organotípico hepático con células no-parenquimales derivadas de iPS. Nuevas herramientas celulares para estudios de toxicología.**
Sponsored by: Ministerio De Economia Y Competitividad (MINECO). BIO2014-61654-EXP
Duration: 01/09/2015-31/08/2016

Casals G. **Evaluación de las propiedades antioxidantes y antiinflamatorias de las nanopartículas de óxido de cerio como nueva estrategia terapéutica en la esteatosis hepática.**
Sponsored by: Instituto de Salud Carlos III. PI15/00777
Duration: 01/01/2016-31/12/2018

Claria J. **Mecanismos moleculares determinantes de la resolución inadecuada de la inflamación en tejido adiposo obeso. Nuevas oportunidades en la prevención de comorbilidades metabólicas.**
Sponsored by: Ministerio de Economia y Competitividad. SAF2015-63674-R
Duration: 01/01/2016-31/12/2019

Arroyo V. **Investigació hepàtica: recerca bàsica i experimental.**
Sponsored by: Agència de Gestió d'Ajuts Universitaris i de Recerca (AGAUR). 2014_SGR_428.
Duration: 01/01/2014-31/12/2016

Claria J. **Identification of novel modulators of chronic inflammation in prevalent diseases: unveiling divergent mechanisms of disease.**
Sponsored by: Ministerio de Economia y Competitividad (PIE14/00045)
Duration: 01/01/2015-31/12/2017

Jiménez W and Fernández-Varo G. **Utilidad terapéutica de las Nanopartículas de Óxido de Cerio en las enfermedades hepáticas.**
Sponsored by: Ministerio de Economia y Competitividad. SAF2015-64126-R
Duration: 01/01/2016-31/12/2018

Jiménez W. **Effect of a new formulation of human serum albumin on systemic hemodynamics, inflammatory mediators and oxidative stress in rats with cirrhosis and ascites.**
Sponsored by: European Foundation for the study of chronic liver failure.
Duration: 1/1/2016 to 31/12/2016.

Morales M. **Potencialidad terapéutica del fosfoproteoma de Akt/PKB en la regeneración hepática y en la cirrosis.**
Sponsored by: Ministerio de Economia y Competitividad. SAF13-41840-R, MINECO.
Duration: 1/1/2014 to 31/5/2017.

Morales M. **Estimulación de la regeneración funcional de hígados cirróticos mediante la normalización vascular intrahepática y la modulación de dianas de Akt.**
Sponsored by: Ministerio de Economia y Competitividad. SAF2016-75358-R
Duration: 30/12/2016-29/12/2019

DOCTORAL THESES

Clària J. **Papel de PGE2 en la inflamación, remodelación y conversión de los adipocitos blancos a células beige en el tejido adiposo blanco.**
PhD student: Verónica García Alonso

Gines P. **Biomarcadors urinaris a la cirrosi hepàtica. Implicacions en la insuficiència renal i en la síndrome d'Acute-on-Chronic Liver Failure.**
PhD student: Xavier Ariza Solé

Ginès P, Guevara M. **Investigación de nuevos aspectos clínicos y terapéuticos del síndrome hepato-renal en la cirrosis hepática.**
PhD student: Gustavo Henrique Santos Pereira

Jiménez W. **Nuevos tratamientos contra la hipertensión portal en la cirrosis hepática experimental: 1. Nanopartículas de óxido de cerio y 2. Agonismo parcial del receptor V1a de la vasopresina.**
PhD student: Denise Oró Bozzini

Sancho Bru P. **Paper de les cèl.lules progenitores hepàtiques en l'hepatitis alcohòlica i la regeneració hepàtica.**
PhD student: Daniel Rodrigo Torres

3.5 Hepatic oncology

LOCATION
HCB
CEK building

FOR FURTHER INFORMATION
www.bclc.cat

KEYWORDS
1. **Hepatocellular Carcinoma**
2. **Intrahepatic cholangiocarcinoma**
3. **Biomarker profiling**
4. **Treatment**
5. **Outcomes research**

Original publications from 2014 to 2016

YEAR	I.F.	TOTAL	Q1	Q2
2014	118.98	8	8	-
2015	173.10	13	13	-
2016	186.48	17	16	1

TEAM INVOLVED IN
CIBEREHD
AGAUR_SGR14: 233, 1162, 785

AWARDS

Scientific Career Award
Institution: European Association for the Study of the Liver (EASL)
Awardee/s: Jordi Bruix



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STRATEGIC OBJECTIVES

It is a multidisciplinary team, known internationally as "Barcelona Clinic Liver Cancer (BCLC) group", which develops an intense clinical and translational research in liver cancer. The aim of the team is to investigate the efficacy of clinical and therapeutic interventions as well as the mechanisms regulating the disease progression.

MAIN LINES OF RESEARCH

The team investigates how to refine the selection criteria for potentially curative treatment (surgical resection, transplantation, percutaneous approach with ablation) with the aim of ensuring maximum efficacy in terms of survival. Evaluations are made of the options for improving the efficacy of non-curative therapies which have been shown to improve survival (arterial chemoembolization, sorafenib, regorafenib). In this sense, phase 1, 2 and 3 studies are carried out and led at international level together with the Biomedical Industry, with a view to determining the efficacy of new molecular agents in phase 1, 2 and 3. The team is also actively involved in studies about diagnosis and treatment of cholangiocarcinoma. Translational research by the two subgroups investigates the pathogenesis and signalling pathways of liver cancer. Human cell lines have been developed to allow mechanistic investigations.



GROUP Josep M. Llovet



GROUP Albert Morales

RESEARCH GROUP
TRANSLATIONAL RESEARCH IN HEPATIC ONCOLOGY



GROUP LEADER
Josep M. Llovet (ICREA-IDIBAPS)

The group aims to identify new therapeutic targets. There are several lines of research within two international consortiums involving the BCLC-IDIBAPS, the Mount Sinai School of Medicine, the Dana-Farber Cancer Institute, the Broad Institute (Boston), INSERM (Paris), the National Tumor Institute (Milan), and several others. These explore: - molecular classification of hepatocellular carcinoma and Intrahepatic cholangiocarcinoma. - drivers and signalling pathways, - role of co-morbidities in the pathogenesis of HCC (EU-grant HEP-CAR), - characterization of immune subclasses in HCC and the impact of checkpoint inhibitor in treatment response.

RESEARCH GROUP
HEPATOCELULAR SIGNALING AND CANCER



GROUP LEADER
Albert Morales (IIBB-CSIC)

Our work is focused on identifying cellular targets with therapeutic potential in liver cancer and the development of prognostic

markers of antitumor efficacy for the treatment of the hepatocellular carcinoma (HCC). In particular, mitochondrial-directed and lipid-based therapies that may improve current HCC management, and help to overcome sorafenib resistance, are under present evaluation. Protein and RNA signatures that categorize potential candidates for each specific treatment are another area of interest in our research.

PUBLICATIONS

Originals / I.F.: 186.477

1. Moran S, Martínez-Cardús A, Sayols S, Musulén E, Balañá C, Estival-Gonzalez A, Moutinho C, Heyn H, Diaz-Lagares A, de Moura MC, Stella GM, Comoglio PM, Ruiz-Miró M, Matias-Guiu X, Pazo-Cid R, Antón A, Lopez-Lopez R, Soler G, Longo F, Guerra I, Fernandez S, Assenov Y, Plass C, Morales R, Carles J15, Bowtell D, Mileshkin L, Sia D, Tothill R, Tabernero J, Llovet JM, Esteller M. **Epigenetic profiling to classify cancer of unknown primary: a multicentre, retrospective analysis.** *Lancet Oncol.* 17(10):1386-1395. IF: 26.509

2. Nakagawa S, Wei L, Song WM, Higashi T, Ghoshal S, Kim RS, Bian CB, Yamada S, Sun X, Venkatesh A, Goossens N, Bain G, Lauwers GY, Koh AP, El-Abtah M, Ahmad NB, Hoshida H, Erstad DJ, Gunasekaran G, Lee Y, Yu ML, Chuang WL, Dai CY, Kobayashi M, Kumada H, Beppu T, Baba H, Mahajan M, Nair VD, Lanuti M, Villanueva A, Sangiovanni A, Iavarone M, Colombo M, Llovet JM, Subramanian A, Tager AM, Friedman SL, Baumert TF, Schwarz ME, Chung RT, Tanabe KK, Zhang B, Fuchs BC, Hoshida Y. **Molecular Liver Cancer Prevention in Cirrhosis by Organ Transcriptome Analysis and Lysophosphatidic Acid Pathway Inhibition.** *Cancer Cell.* 30(6):879-890. IF: 23.214

3. Martinez-Quetglas I, Pinyol R, Dauch D, Torrecilla S, Tovar V, Moeini A, Alsinet C, Portela A, Rodriguez-Carunchio L, Solé M, Lujambio A, Villanueva A, Thung S, Esteller M, Zender L, Llovet JM. **IGF2 Is Up-regulated by Epigenetic Mechanisms in Hepatocellular Carcinomas and Is an Actionable Oncogene Product in Experimental Models.** *Gastroenterology.* 151(6):1192-1205. IF: 18.187

4. Zhang DY, Goossens N, Guo J, Tsai MC, Chou HI, Altunkaynak C, Sangiovanni A, Iavarone M, Colombo M, Kobayashi M, Kumada H, Villanueva A, Llovet JM, Hoshida Y, Friedman SL. **A hepatic stellate cell gene expression signature associated with outcomes in hepatitis C cirrhosis and hepatocellular carcinoma after curative resection.** *Gut.* 65(10):1754-64. IF: 14.921

5. Pauta M, Rotllan N, Fernandez-Hernando A, Langhi C, Ribera J, Lu M, Boix L, Bruix J, Jimenez W, Suarez Y, Ford D A, Baldan A, Birnbaum M J, Morales-Ruiz M, Fernandez-Hernando C. **Akt-mediated FoxO1 inhibition is required for liver regeneration.** *Hepatology.* 63(5):1660-1674. IF: 11.711

6. Agüero F, Forner A, Manzardo C, Valdivieso A, Blanes M, Barcena R, Rafecas A, Castells L, Abradelo M, Torre-Cisneros J, Gonzalez-Dieguez L, Salcedo M, Serrano T, Jimenez-Perez M, Herrero JI, Gastaca M, Aguilera V, Fabregat J, Del Campo S, Bilbao I, Romero CJ, Moreno A, Rimola A, Miro JM. **Human immunodeficiency virus infection does not worsen prognosis of liver transplantation for hepatocellular carcinoma.** *Hepatology.* 63(2):488-98. IF: 11.711

7. Sapisochin G, Facciuto M, Rubbia-Brandt L, Marti J, Mehta N, Yao F, Vibert E, Cherqui D, Grant DR, Hernandez-Alejandro R, Dale C, Cucchetti A, Pinna A, Hwang S, Lee S, Agopian V, Busuttil R, Rizvi S, Heimbach J, Montenovo M, Reyes J, Cesaretti M, Soubrane O, Reichman T, Seal J, Tw Kim P, Klintmalm G, Sposito C, Mazzaferro V, Dutkowski P, Clavien PA, Toso C, Majno P, Kneteman N, Saunders C, Bruix J. **Liver transplantation for 'very early' intrahepatic cholangiocarcinoma. international retrospective study supporting a prospective assessment.** *Hepatology.* 64(4):1178-1188. IF: 11.711

8. Ferrer-Fàbrega J, Forner A, Liccioni A, Miquel R, Molina V, Navasa M, Fondevila C, Garcia-Valdecasas JC, Bruix J, Fuster J. **Prospective validation of ab initio liver transplantation in hepatocellular carcinoma upon detection of risk factors for recurrence after resection.** *Hepatology.* 63(3):839-849. IF: 11.711

9. Lencioni R, Llovet JM, Han G, Tak WY, Yang J, Guglielmi A, Paik SW, Reig M, Kim DY, Chau GY, Luca A, del Arbol LR, Leberre MA, Niu W, Nicholson K, Meinhardt G, Bruix J. **Sorafenib or placebo plus TACE with doxorubicin-eluting beads for intermediate stage HCC: The SPACE trial.** *J Hepatol.* 64(5):1090-8. IF: 10.59

10. Reig M, Marino Z, Perello C, Inarrairaegui M, Ribeiro A, Lens S, Diaz A, Vilana R, Darnell A, Varela M, Sangro B, Calleja JL, Forns X, Bruix J. **Unexpected early tumor recurrence in patients with hepatitis C virus -related hepatocellular carcinoma undergoing interferon-free therapy: a note of caution.** *J Hepatol.* 65(4):719-726. IF: 10.59

11. Lens S, Torres F, Puigvehi M, Marino Z, Londono M C, Martinez S M, Garcia-Juarez I, Garcia-Criado A, Gilabert R, Bru C, Sola R, Sanchez-Tapias J M, Carrion J A, Forns X. **Predicting the development of liver cirrhosis by simple modelling in patients with chronic hepatitis C.** *Aliment Pharmacol Ther.* 43(3):364-374. IF: 6.32

12. Blasi A, Hessheimer AJ, Beltran J, Pereira A, Fernandez J, Balust J, Martinez-Palli G, Fuster J, Navasa M, Garcia-Valdecasas JC, Taura P, Fondevila C. **Liver Transplant From Unexpected Donation After Circulatory Determination of Death Donors: A Challenge in Perioperative Management.** *Am J Transplant.* 16(6):1901-1908. IF: 5.669

13. Podlipnik S, Carrera C, Sanchez M, Arguis P, Olondo ML, Vilana R, Rull R, Vidal-Sicart S, Vilalta A, Conill C, Malvehy J, Puig S. **Performance of diagnostic tests**

in an intensive follow-up protocol for patients with American Joint Committee on Cancer (AJCC) stage IIB, IIC, and III localized primary melanoma: A prospective cohort study. *J Am Acad Dermatol.* 75(3):516-524. IF: 5.621

14. Boix L, Lopez-Oliva JM, Rhodes AC, Bruix J. **Restoring miR122 in human stem-like hepatocarcinoma cells prompts tumor dormancy through Smad-independent TGF-beta pathway.** *Oncotarget.* 7(44):71309-71329. IF: 5.008

15. Stefanovic M, Tutusaus A, Martinez-Nieto GA, Bárcena C, de Gregorio E, Moutinho C, Barbero-Camps E, Villanueva A, Colell A, Marí M, García-Ruiz C, Fernandez-Checa JC, Morales A. **Targeting glucosylceramide synthase upregulation reverts sorafenib resistance in experimental hepatocellular carcinoma.** *Oncotarget.* 7(7):8253-67. IF: 5.008

16. Londoño MC, Manzardo C, Rimola A, Ruiz P, Costa J, Forner A, Ambrosioni J, Agüero F, Laguno M, Lligoña A, Moreno A, Miró JM. **IFN-free therapy for HIV/HCV-coinfected patients within the liver transplant setting.** *J Antimicrob Chemother.* 71(11):3195-3201. IF: 4.919

17. Marfà S, Martí J, Reyes A, Casals G, Fernández-Varo G, Carvajal S, Garcia-Valdecasas JC, Fuster J, Jimenez W. **Metastatic tissue proteomic profiling predicts 5-year outcomes in patients with colorectal liver metastases.** *Transl Oncol.* 9(5):445-452. IF: 3.077

Reviews / I.F.: 47.937

1. Bruix J, Reig M, Sherman M. **Evidence-Based Diagnosis Staging and Treatment of Patients With Hepatocellular Carcinoma.** *Gastroenterology.* 150(4):836-853. IF: 18.187

2. Moeini A, Sia D, Bardeesy N, Mazzaferro V, Llovet JM. **Molecular Pathogenesis and Targeted Therapies for Intrahepatic Cholangiocarcinoma.** *Clin Cancer Res.* 22(2):291-300. IF: 8.738

3. Llovet JM, Zucman-Rossi J, Pikarsky E, Sangro B, Schwartz M, Sherman M, Gores G. **Hepatocellular carcinoma.** *Nat Rev Dis Primers.* 2:16018. IF: 6.389

4. Chen H, Turon F, Hernandez-Gea V, Fuster J, Garcia-Criado A, Barrufet M, Darnell A, Fondevila C, Garcia-Valdecasas J C, Garcia-Pagan J C. **Non-Tumoral portal vein thrombosis in patients awaiting liver transplantation.** *Liver Transpl.* 22(3):352-65. IF: 3.951

5. Díaz-González Á, Forner A. **Surveillance for hepatocellular carcinoma.** *Best Pract Res Clin Gastroenterol.* 30(6):1001-1010. IF: 3.897

6. Ribeiro de Souza A, Reig M, Bruix J. **Systemic treatment for advanced hepatocellular carcinoma: the search of new agents to join sorafenib in the effective therapeutic armamentarium.** *Expert Opin Pharmacother.* 17(14):1923-1936. IF: 3.543

7. Diaz-Gonzalez A, Reig M, Bruix J. **Treatment of Hepatocellular Carcinoma.** *Dig Dis.* 34(5):597-602. IF: 1.777

8. Díaz-González Á1, Forner A2, Rodríguez de Lope C3, Varela M. **New challenges in clinical research on hepatocellular carcinoma.** *Rev Esp Enferm Dig.* 108(8):485-93. IF: 1.455

Letters / I.F.: 31.770

1. Forner A, Rimola J, Ayuso C. **Conclusive HCC diagnosis with hepatocyte-specific contrast-enhanced magnetic resonance imaging? Not yet.** *J Hepatol.* 65(3):648-9. IF: 10.590

2. Marí M, Tutusaus A, García de Frutos P, Morales A. **Genetic and clinical data reinforce the role of GAS6 and TAM receptors in liver fibrosis.** *J Hepatol.* 64(4):983-4. IF: 10.590

3. Reig M, Torres F, Marino Z, Forns X, Bruix J. **Reply to "Direct antiviral agents and risk for hepatocellular carcinoma (HCC) early recurrence: Much ado about nothing".** *J Hepatol.* 65:864-865. IF: 10.590

Editorials / I.F.: 5.667

1. Bruix J, Gores GJ. **Inheriting a Jewel: A Thrilling Challenge.** *Semin Liver Dis.* 36(1):3. IF: 5.667

Clinical guidelines / I.F.: 11.857

1. European Association for the Study of the Liver (EASL). **EASL Clinical Practice Guidelines on the management of benign liver tumours.** *J Hepatol.* 65(2):386-98. IF: 10.59

2. Forner A, Reig M, Varela M, Burrel M, Feliu J, Briceño J, Sastre J, Martí-Bonmati L, Llovet JM, Bilbao JI, Sangro B, Pardo F, Ayuso C, Bru C, Tabernero J, Bruix J. **Diagnosis and treatment of hepatocellular carcinoma. Update consensus document from the AEEH, SEOM, SERAM, SERVEI and SETH.** *Med Clin.* 146(11):511.e1-511.e22. IF: 1.267

Consortium publications / I.F.: 5.669

1. Agüero F, Rimola A, Stock P, Grossi P, Rockstroh JK, Agarwal K, Garzoni C, Barcan LA, Maltez F, Manzardo C, Mari M, Ragni MV, Anadol E, Di Benedetto F, Nishida S, Gastaca M, Miró JM; FIPSE/NIH HIVTR/NEAT023 Investigators. **Liver Retransplantation in Patients With HIV-1 Infection: An International Multicenter Cohort Study.** *Am J Transplant.* 16(2):679-87. IF: 5.669

GRANTS FOR RESEARCH IN PROGRESS

Bruix J. **Influencia de la heterogeneidad del micro-ambiente tumoral en la respuesta terapéutica del carcinoma hepatocelular humano (CHC).**
Sponsored by: Instituto de Salud Carlos III (ISCIII). PI14/00962
Duration: 01/01/2015-31/12/2017

Reig M. **Evaluación clínica prospectiva del perfil genético-inmuno/inflamatorio en el tratamiento del carcinoma hepatocelular con sorafenib para predecir tolerancia y supervivencia.**
Sponsored by: Instituto de Salud Carlos III (ISCIII). PI115/00145
Duration: 01/01/2016-31/12/2018

Bruix J. **Molecular regulation of the progression from hepatic steatosis to cirrhosis and hepatocellular carcinoma: Role and therapeutic potential of CPEB proteins.**
Sponsored by: Asociación Española Contra el Cáncer (AECC)
Duration: 01/01/2015-31/12/2020

Fuster J. **Ligadura de la vena porta y transección hepática simultánea como método de regeneración del hígado remanente. Estudio en un modelo experimental ovino.**
Sponsored by: Instituto de Salud Carlos III (ISCIII). PI13/01044
Duration: 01/01/2014-31/12/2016

Llovet J.M. **Integrative Genomic Analysis of Human Intrahepatic Cholangiocarcinoma.**
Sponsored by: Asociación Española Contra el Cáncer (AECC). GCA110347LLOV
Duration: 01/09/2011-28/02/2018

Llovet J.M. **Identificación de nuevas alteraciones moleculares asociadas a mal pronóstico y evaluación como dianas terapeuticas en el carcinoma hepatocelular.**
Sponsored by: Ministerio de Economía y Competitividad. SAF2013-41027-R
Duration: 01/01/2014-31/12/2017

Llovet JM. **Mecanismos de resistencia adquirida a sorafenib en el carcinoma hepatocelular.**
Sponsored by: Ministerio de Economia y Competitividad. SAF2016-76390-R
Duration: 30/12/2016-29/12/2019

Llovet J.M. **Mechanisms underlying hepatocellular carcinoma pathogenesis and impact of co-morbidities.**
Sponsored by: Horizon 2020-PHC-2015. Proposal number 667273-2. Acronym: HEP-CAR.
Period: 01/01/2016-31/12/2019.

Morales A. **Terapia lipídica en daño hepatocelular y cáncer: bases moleculares y modelos experimentales.**
Sponsored by: Instituto de Salud Carlos III (ISCIII), PI12/00110
Duration: 01/01/2013-30/06/2016

Morales A. **Regulación terapéutica de la transición EMT/MET y la quimioresistencia en enfermedad hepática crónica.**
Sponsored by: Ministerio de Economía y Competitividad. SAF2015-66515-R
Duration: 01/01/2016-31/12/2018

DOCTORAL THESES

Santamaría G, Ayuso C. **Introducción del CAD (computer-aided detection) en un programa de detección precoz de cáncer de mama.**
PhD student: Xavier Bargalló Castelló

3.6

Hepatic hemodynamics and portal hypertension. Hemorrhage from ruptured gastroesophageal varices

LOCATION
CEK building

KEYWORDS
1. **Portal hypertension**
2. **Cirrhosis of the liver**
3. **Angiogenesis**
4. **Obesity**
5. **Liver sinusoidal endothelial cells**
6. **Vascular Liver Diseases**

Original publications from 2014 to 2016

YEAR	I.F.	TOTAL	Q1	Q2
2014	197.42	23	20	1
2015	223.61	26	22	2
2016	151.24	16	16	-

TEAM INVOLVED IN
CIBEREHD
AGAUR_SGR14: 209

AWARDS

Young Investigator in Hepatology 2016
Institution: European Association for the Study of the Liver (EASL)
Awardee/s: Jordi Gracia-Sancho

CaixaImpulse 2016 – Liver on a Chip
Institution: Caixa Capital Risk & Fundació Privada La Caixa
Awardee/s: Jordi Gracia-Sancho

Best idea in Science – Liver on a Chip
Institution: Diario Médico – Best ideas of 2016
Awardee/s: Jordi Gracia-Sancho

Doctor Honoris Causa
Institution: University of Cluj-Napoca
Awardee/s: Jaume Bosch



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Estefanía de Gregorio Robles (IDIBAPS)
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COLLABORATORS
Anna Baiges (FCRB)
Lara Orts (CIBER)
Rosa Sáez (CIBER)

VISITING SCIENTISTS
Gustavo Juan Hein (ICIVET-LITORAL-CONICET)

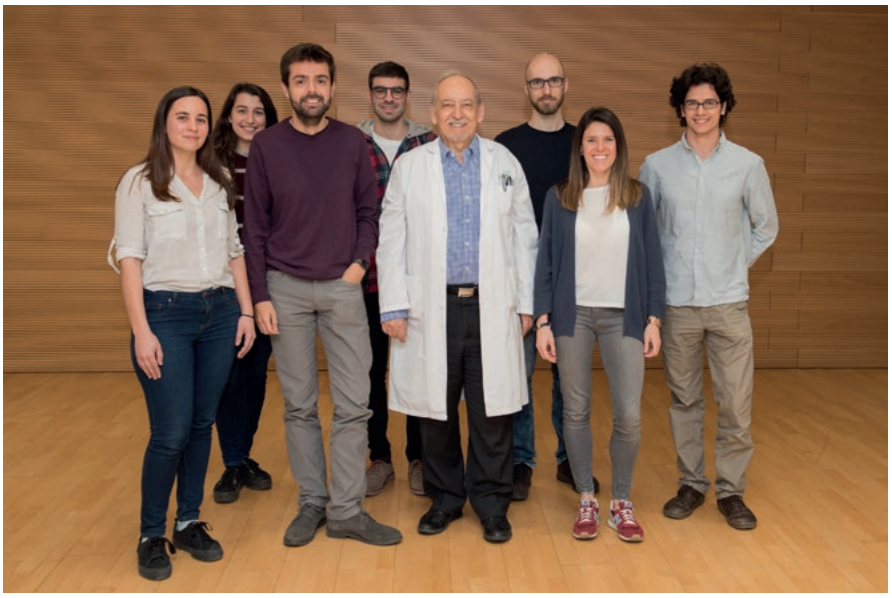
STRATEGIC OBJECTIVES

Translational research aimed at advancing in the knowledge of the pathophysiology of portal hypertension, which represents the main complication of chronic liver diseases. Discovery of new therapeutic targets, introduction of new treatments for this syndrome, and development of new non-invasive techniques for its clinical evaluation.
In addition, the group is active in the fields of vascular liver diseases, angiogenesis abnormalities in liver disease and on organ preservation.

MAIN LINES OF RESEARCH

1. Factors regulating liver microcirculation under normal conditions and in cirrhosis, based on isolated liver perfusion studies and studies in isolated liver sinusoid endothelial cells.
2. Regulation of the phenotype of liver sinusoidal endothelial cells: relevance in the pathophysiology of chronic liver disease, portal hypertension, liver preservation, and in the complications of cirrhosis.
3. Liver protection from external injury in healthy and cirrhotic livers.
4. Angiogenesis in chronic liver disease: function, regulation/dysregulation and therapeutic potential

5. Impact of obesity on chronic liver disease: pathogenic mechanisms and therapeutic implications
6. Molecular regulation of the progression from liver steatosis to cirrhosis and liver cancer. Identification of new therapeutic targets
7. New non-invasive methods for evaluating cirrhosis.
8. Randomized clinical studies of novel treatments for portal hypertension.
9. Hepatic vascular diseases (Budd-Chiari syndrome, Portal Vein Thrombosis; Idiopathic non-cirrhotic portal hypertension).
10. Prevention of decompensation of cirrhosis.
11. Discovery of diagnostic biomarkers for idiopathic portal hypertension and for risk-stratification.





GROUP Juan Carlos Garcia-Pagán and Jordi Gràcia-Sancho (up)

RESEARCH GROUP

REGULATION OF LIVER MICROCIRCULATION IN CIRRHOSIS AND HEPATIC VASCULAR DISEASES



GROUP LEADER

Juan Carlos García-Pagán (HCB)

Increased hepatic vascular resistance is one of the main mechanisms responsible for the development of portal hypertension in cirrhosis. Better understanding the mechanisms involved in the increased intrahepatic resistance in cirrhosis and their potential modulation will allow us to design new therapeutic strategies for the treatment of portal hypertension.
Liver vascular disorders, particularly Budd-Chiari syndrome, non-cirrhotic portal thrombosis and idiopathic portal hypertension, are infrequent causes of portal hypertension. For a number of years our group has served as a reference center for these illnesses allowing us to advance in their knowledge (prognosis, diagnosis and treatment).

RESEARCH GROUP
ANGIOGENESIS IN LIVER DISEASES



GROUP LEADER
Mercedes Fernández (IDIBAPS)

Our research (http://www.mercedesfernandezlab.com) focuses on identifying the causes and drivers of chronic liver diseases, including cirrhosis of the liver and liver cancer, which affect millions of humans beings and are leading causes of death and liver transplantation worldwide. This is essential to fully elucidate unresolved pathogenetic mechanisms of disease, and to facilitate the identification of novel therapeutic avenues to improve human health. Our specific research projects include: (1) Angiogenesis in chronic liver disease: function, regulation/dysregulation and therapeutic potential; (2) Impact of obesity on chronic liver disease: pathogenic mechanisms and therapeutic implications; (3) Molecular regulation of the progression from liver steatosis to cirrhosis and liver cancer: identification of new therapeutic targets.

PUBLICATIONS

Originals / I.F.: 151.239

1. Abraldes JG, Villanueva C, Aracil C, Turnes J, Hernandez-Guerra M, Genesca J, Rodriguez M, Castellote J, Garcia-Pagan JC, Torres F, Calleja JL, Albillos A, Bosch J, BLEPS Study Group. **Addition of Simvastatin to Standard Therapy for the Prevention of Variceal Rebleeding Does Not Reduce Rebleeding but Increases Survival in Patients With Cirrhosis.** *Gastroenterology.* 150(5):1160-1170.e3. IF: 18.187

2. Calderone V, Gallego J, Fernandez-Miranda G, Garcia-Pras E, Maillo C, Berzigotti A, Mejias M, Bava FA, Angulo-Urarte A, Graupera M, Navarro P, Bosch J, Fernandez M, Mendez R. **Sequential Functions of CPEB1 and CPEB4 Regulate Pathologic Expression of Vascular Endothelial Growth Factor and Angiogenesis in Chronic Liver Disease.** *Gastroenterology.* 150(4):982-997.e30. IF: 18.187

3. Villanueva C, Albillos A, Genesca J, Abraldes J G, Calleja J L, Aracil C, Banares R, Morillas R, Poca M, Penas B, Augustin S, Garcia-Pagan J C, Pavel O, Bosch J. **Development of hyperdynamic circulation and response to beta-blockers in compensated cirrhosis with portal hypertension.** *Hepatology.* 63(1):197-206. IF: 11.711

4. Escorsell À, Pavel O, Cárdenas A, Morillas R, Llop E, Villanueva C, Garcia-Pagán JC, Bosch J; Variceal Bleeding Study Group. **Esophageal balloon tamponade versus esophageal stent in controlling acute refractory variceal bleeding: A multicenter randomized, controlled trial.** *Hepatology.* 63(6):1957-67. IF: 11.711

5. Noronha Ferreira C, Seijo S, Plessier A, Silva-Junior G, Turon F, Rautou P-E, Baiges A, Bureau C, Bosch J, Hernández-Gea V, Valla D, Garcia-Pagan JC. **Natural history and management of esophagogastric varices in chronic noncirrhotic, nontumoral portal vein thrombosis.** *Hepatology.* 63(5):1640-1650. IF: 11.711

6. Abraldes JG, Bureau C, Stefanescu H, Augustin S, Ney M, Blasco H, Procopet B, Bosch J, Genesca J, Berzigotti A; Anticipate Investigators. **Noninvasive tools and risk of clinically significant portal hypertension and varices in compensated cirrhosis: The "Anticipate" study.** *Hepatology.* 64(6):2173-2184. IF: 11.711

7. Bissonnette J, Garcia-Pagan JC, Albillos A, Turon F, Ferreira C, Tellez L, Nault JC, Carbonell N, Cervoni JP, Abdel Rehim M, Sibert A, Bouchard L, Perreault P, Trebicka J, Trottier-Tellier F, Rautou PE, Valla DC Plessier A. **Role of the Transjugular Intrahepatic Portosystemic Shunt in the Management of Severe Complications of Portal Hypertension in Idiopathic Noncirrhotic Portal Hypertension.** *Hepatology.* 64(1):224-31. IF: 11.711

8. Cerini F, Vilaseca M, Lafoz E, Garcia-Irigoyen O, Garcia-Caldero H, Tripathi DM, Avila M, Reverter JC, Bosch J, Gracia-Sancho J, Garcia-Pagan, JC. **Enoxaparin reduces hepatic vascular resistance and portal pressure in cirrhotic rats.** *J Hepatol.* 64(4):834-842. IF: 10.590



GROUP Mercedes Fernández

9. Ariza X, Graupera I, Coll M, Sola E, Barreto R, Garcia E, Moreira R, Elia C, Morales-Ruiz M, Llopis M, Huelin P, Sole C, Fabrellas N, Weiss E, Nevens F, Gerbes A, Trebicka J, Saliba F, Fondevila C, Hernández-Gea V, Fernández J, Bernardi M, Arroyo V, Jiménez W, Deulofeu C, Pavesi M, Angeli P, Jalan R, Moreau R, Sancho-Bru P, Ginès P; CANONIC Investigators, EASL CLIF Consortium. **Neutrophil gelatinase-associated lipocalin is a biomarker of acute-on-chronic liver failure and prognosis in cirrhosis.** *J Hepatol.* 65(1):57-65. IF: 10.590

10. Sandahl TD, McGrail R, Moller HJ, Reverter E, Moller S, Turon F, Hernandez-Gea V, Bendtsen F, Vilstrup H, Garcia-Pagan JC, Gronbaek H. **The macrophage activation marker sCD163 combined with markers of the Enhanced Liver Fibrosis (ELF) score predicts clinically significant portal hypertension in patients with cirrhosis.** *Aliment Pharmacol Ther.* 43(11):1222-1231. IF: 6.320

11. Cornide-Petronio M E, Negrete-Sanchez E, Mendes-Braz M, Casillas-Ramirez A, Bujaldon E, Meroño N, Martínez-Carreres L, Gracia-Sancho J, Rodes J, Jimenez-Castro M B, Peralta C. **The Effect of High-Mobility Group Box 1 in Rat Steatotic and Nonsteatotic Liver Transplantation From Donors After Brain Death.** *Am J Transplant.* 16(4):1148-1159. IF: 5.669

12. de Mingo Á, de Gregorio E, Moles A, Tarrats N, Tutusaus A, Colell A, Fernandez-Checa JC, Morales A, Marí M. **Cysteine cathepsins control hepatic NF-κB-dependent inflammation via sirtuin-1 regulation.** *Cell Death Dis.* 7(11):e2464. IF: 5.378

13. Hide D, Ortega-Ribera M, Garcia-Pagan J-C, Peralta C, Bosch J, Gracia-Sancho J. **Effects of warm ischemia and reperfusion on the liver microcirculatory phenotype of rats: Underlying mechanisms and pharmacological therapy.** *Sci Rep.* 6:22107. IF: 5.228

14. Stefanovic M, Tutusaus A, Martinez-Nieto GA, Bárcena C, de Gregorio E, Moutinho C, Barbero-Camps E, Villanueva A, Colell A, Marí M, García-Ruiz C, Fernandez-Checa JC, Morales A. **Targeting glucosylceramide synthase upregulation reverts sorafenib resistance in experimental hepatocellular carcinoma.** *Oncotarget.* 7(7):8253-67. IF: 5.008

15. Seijo S, Lozano JJ, Alonso C, Miquel R, Berzigotti A, Reverter E, Turon F, Martínez-Chantar ML, Castro A, Mato JM, Hernández-Gea V, Bosch J, García-Pagán JC. **Metabolomics as a diagnostic tool for idiopathic non-cirrhotic portal hypertension.** *Liver Int.* 36(7):1051-8. IF: 4.470

16. Embade N, Marino Z, Diercks T, Cano A, Lens S, Cabrera D, Navasa M, Falcon-Perez JM, Caballeria J, Castro A, Bosch J, Mato JM, Millet O. **Metabolic Characterization of Advanced Liver Fibrosis in HCV Patients as Studied by Serum H-1-NMR Spectroscopy.** *PLoS One.* 11(5):e0155094. IF: 3.057

Reviews / I.F.: 38.962

1. Shneider B L, De Ville De Goyet J, Leung D, Srivastava A, Ling S C, Duche M, Mckiernan P, Superina R, Squires R H, Bosch J, Groszmann R, Sarin S, De Franchis R, Mazariegos G. **Primary Prophylaxis of Variceal Bleeding in Children and the Role of MesoRex Bypass-Summary of the Baveno VI Pediatric Satellite Symposium.** *Hepatology.* 63(4):1368-1380. IF: 11.711

2. Bosch J, Sauerbruch T. **Esophageal varices: Stage-dependent treatment algorithm.** *J Hepatol.* 64(3):746-748. IF: 10.590

3. Marrone G, Shah VH, Gracia-Sancho J. **Sinusoidal communication in liver fibrosis and regeneration.** *J Hepatol.* 65(3):608-617. IF: 10.590

4. Chen H, Turon F, Hernandez-Gea V, Fuster J, Garcia-Criado A, Barrufet M, Darnell A, Fondevila C, Garcia-Valdecasas J C, Garcia-Pagan, J C. **Non-Tumoral portal vein thrombosis in patients awaiting liver transplantation.** *Liver Transpl.* 22(3):352-65 . IF: 3.951

5. Nair H, Berzigotti A, Bosch J. **Emerging therapies for portal hypertension in cirrhosis.** *Expert Opin Emerg Drugs.* 21(2):167-81. IF: 2.120

Letters / I.F.: 68.270

1. Abraldes JG, Torres F, Bosch J; BLEPS study group. **Reply.** *Gastroenterology.* 151(5):1037-1038. IF: 18.187

2. D'Amico G, Malizia G, Bosch J. **Beta-blockers in 2016: Still the safest and most useful drugs for portal hypertension?** *Hepatology.* 63(6):1771-3. IF: 11.711

3. Blasi A; Hernández-Gea V; Reverter JC; García-Pagán JC. **Reply.** *Hepatology.* 64(1):321-2. IF: 11.711

4. Marí M, Tutusaus A, García de Frutos P, Morales A. **Genetic and clinical data reinforce the role of GAS6 and TAM receptors in liver fibrosis. J Hepatol.** IF: 10.590

5. Bosch J, García-Pagán JC. **Calculating Hepatic Venous Pressure Gradient: Feel Free to Stay Free.** *J Vasc Interv Radiol.* 27(8):1138-9. IF: 2.570

6. Escorsell A, Bosch J. **Reply.** *Hepatology.* 64(4):1377. IF: 11.711

Editorials / I.F.: 23.230

1. Berzigotti A, Bosch J. **Editorial: increased cardiac output in cirrhosis - non-invasive assessment of regional blood flow by magnetic resonance angiography.** *Aliment Pharmacol Ther.* 43(12):1340-2. IF: 6.320

2. Sandahl TD, Moller HJ, Moller S, Garcia-Pagan JC, Vilstrup H, Gronbaek H. **Editorial: measuring inflammatory and fibrotic components of portal hypertension - a non-invasive hepatic venous pressure gradient? Authors' reply.** *Aliment Pharmacol Ther.* 44(2):205-206. IF: 6.320

3. Bosch J. **EASL International Recognition Award Recipient 2016: Prof. Roberto J Groszmann.** *J Hepatol.* 64(5):996-997. IF: 10.590

Case reports / I.F.: 1.790

1. Falgàs N, Alfaro I, Crespo G, Berenguer J, García-Pagán JC, Muñoz E. **Aphasia in a patient with acute hepatic encephalopathy associated with multifocal cortical brain lesions.** *Neurologia. pii:* S0213-4853(16)30026-3. IF: 1.790

Clinical guidelines / I.F.: 16.224

1. Garcia-Pagàn JC, Buscarini E, Janssen HL, Leebeck FW, Plessier A, Rubbia-Brandt L, Senzolo M, Schouten JN, Tripodi A, Valla DC. **EASL Clinical Practice Guidelines: Vascular diseases of the liver.** *J Hepatol.* 64(1):179-202. IF: 10.59

2. Spaander MC, Baron TH, Siersema PD, Fuccio L, Schumacher B, Escorsell À, Garcia-Pagán JC, Dumonceau JM, Conio M, de Ceglie A, Skowronek J, Nordsmark M, Seufferlein T, Van Gossum A, Hassan C, Repici A, Bruno MJ. **Esophageal stenting for benign and malignant disease: European Society of Gastrointestinal Endoscopy (ESGE) Clinical Guideline.** *Endoscopy.* 48(10):939-48. IF: 5.634

GRANTS FOR RESEARCH IN PROGRESS

Bosch J. **Contrast-enhanced uLtrasound for livEr-disease eValuation: development and validation of a novel E-Health-software for Risk-stratification (CLEVER).**
Sponsored by: European Commission. FP7/612273
Duration: 01/10/2013-30/09/2017

Bosch J. **Proyecto Integrado de Excelencia - Understanding obesity (Ob), metabolic syndrome (MetS), type 2 diabetes (T2DM) and fatty liver disease (FL): a multidisciplinary approach.**
Sponsored by: Instituto de Salud Carlos III (ISCIII). PIE14/00031
Duración 01/01/2015-31/12/2017

Bosch J. **Hemodinámica hepática e hipertensión portal en la cirrosis. Avances en la fisiopatología y tratamiento (Estudios clínicos y experimentales).**
Sponsored by: Instituto de Salud Carlos III (ISCIII). PI13/00341
Duration: 01/01/2014-31/12/2016

Fernandez M. **Mecanismos moleculares y celulares implicados en la interacción entre obesidad y enfermedad hepática crónica: papel y potencial terapéutico de la angiogénesis y proteínas CPEB.**
Sponsored by: Ministerio de Economía y Competitividad SAF2014-55473-R
Duration: 01/01/2015-01/01/2018

Fernandez M. **Regulación molecular de la interacción obesidad- enfermedad hepática crónica.**
Sponsored by: Ministerio de Economía y Competitividad BES2015-071399
Duration: 01/01/2015-01/01/2019

Fernandez M. **Molecular regulation of the progression from hepatic steatosis to cirrhosis and hepatocellular carcinoma: Role and therapeutic potential of CPEB proteins.**
Sponsored by: Asociación Española Contra el Cáncer (AECC)
Duration: 01/09/2015-01/09/2020

Fernandez M. **Role and therapeutic potential of CPEB proteins in the transition from cirrhosis to hepatocellular carcinoma.**
Sponsored by: Worldwide Cancer Research
Duration: 01/01/2016-01/01/2019

García-Pagán J.C. **Mecanismos moleculares implicados en las alteraciones estructurales y funcionales en el hígado en la progresión a cirrosis con hipertensión portal.**
Sponsored by: Ministerio de Economía y Competitividad. SAF2013-44723-R
Duration: 01/01/2014-31/12/2016

García-Pagán J.C. **Estudio prospectivo multicéntrico, aleatorizado del efecto de Rivaroxaban sobre la supervivencia y el desarrollo de complicaciones de la hipertensión portal en pacientes con cirrosis.**
Sponsored by: Instituto de Salud Carlos III (ISCIII). ICI14/00133
Duration: 01/01/2015-31/12/2017

García-Pagán JC. **Proyecto Integrado de Excelencia. Targeting endothelial dysfunction in highly prevalent diseases: characterization and validation of prognostic biomarkers and identification of potential therapeutic strategies.**
Sponsored by: Instituto de Salud Carlos III. PIE15/00027
Duration: 01/01/2016-31/12/2018

X Forns, J Bosch, J Bruix. **Impacto del tratamiento con nuevos antivirales en la historia natural de la cirrosis por el virus de la hepatitis C. Identificación de factores predictivos de no respuesta. Plan Nacional Hepatitis C**
Sponsored by: CIBEREHD intramural competitive grant.
Duration: 01/11/2015-03/11/2017

Gracia-Sancho J. **El sinusoide hepático en la vejez: caracterización de los mecanismos celulares fisiopatológicos para el desarrollo de nuevas estrategias terapéuticas.**

Sponsored by: Instituto de Salud Carlos III (ISCIII). FIS PI14/00029
Duration: 01/01/2015-31/12/2017

Gracia-Sancho J. **Exosomes in liver diseases.**
Sponsored by: CIBEREHD intramural competitive grant.
Duration: 01/11/2016-01/11/2018

Gracia-Sancho J. **BioLiver: La Deconstrucción aplicada a la Hepatología.**
Sponsored by: MINECO - Explora BIO2014-61377-EXP.
Duration: 01/09/2015-31/08/2016

Gracia-Sancho J. **Capillarization of the liver sinusoidal endothelium: Orchestration by miRNAs.**
Sponsored by: Gilead Sciences International Fellowship Program.
Duration: 02/08/2016-01/08/2018

Hernandez-Gea V. **Papel de la autofagia en la modulación de la disfunción endotelial y la fibrosis: caracterización de una nueva diana terapéutica para el desarrollo de nuevos tratamientos antifibróticos.**
Sponsored by: Instituto de Salud Carlos III (ISCIII). FIS PI14/00182
Duration: 01/01/2015-31/12/2017

Escorsell A. **Eficacia de la derivación portosistémica intrahepática (TIPS) en el tratamiento de la hemorragia aguda por varices gástricas: estudio aleatorizado y controlado vs tratamiento convencional.**
Sponsored by: Instituto de Salud Carlos III (ISCIII).
Duration: 01/01/2015-31/12/2017

Marí M. **Caracterización y potencial terapéutico del eje Catepsina-Sirtuina 1 en fibrosis e inflamación hepática.**
Sponsored by: Instituto de Salud Carlos III. PI3/00374
Duration: 01/01/2014-31/12/2017

DOCTORAL THESES

Bosch J, Gracia-Sancho J. **Advances in ischemia and reperfusion injury: effects on liver microcirculation and therapeutic strategies for sinusoidal protection.**
PhD student: Diana Hide Alférez

Bosch J, García-Pagán JC. **Alteraciones inmunológicas y hemodinámicas asociadas a la traslocación bacteriana estimada por la presencia de fragmentos de ADN bacteriano en pacientes con cirrosis hepática.**
PhD student: Pablo Bellot Garcia

Bosch J, Garcia-Pagan JC. **Avenços en l'estudi de la hipertensió portal i en la definició del pronòstic de l'hemorràgia digestiva per varius esofàgiques en la cirrosi hepática.**
PhD student: Enric Reverter Segura

3.7 Inflammatory bowel disease

LOCATION
CEK building

KEYWORDS
1. **Inflammatory bowel diseases**
2. **Crohn's disease**
3. **Ulcerative colitis**
4. **Cell therapy**
5. **Cross-sectional imaging**

Original publications from 2014 to 2016

YEAR	I.F.	TOTAL	Q1	Q2
2014	93.68	12	7	3
2015	166.73	15	14	-
2016	229.49	20	17	2

TEAM INVOLVED IN
CIBEREHD
AGAUR_SGR14: 347, 702

AWARDS
Premi extraordinary Tesi
Institution: Hospital Clínic de Barcelona, Universitat de Barcelona, IDIBAPS
Awardee/s: Ingrid Ordás Jiménez



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Alejandro Vara (IDIBAPS)

STRATEGIC OBJECTIVES

This IDIBAPS research team has a translational orientation, aimed at generating knowledge in the area of inflammatory bowel diseases to provide a direct benefit to patients suffering from Crohn's disease or ulcerative colitis in the near future, with a special emphasis on the discovery of disease biomarkers and new molecular and cellular targets.

MAIN LINES OF RESEARCH

1. Autologous hematopoietic stem cell autotransplantation in refractory Crohn's disease. Characterization of host, immune and intestinal microbiota related



TEAM Julián Panés

factors in the therapeutic response.
2. Evaluation of the efficacy and safety of treatment with autologous tolerogenic dendritic cells derived from peripheral blood monocytes in refractory Crohn's disease.
3. Efficacy of mesenchymal stem cells for treatment of fistulizing Crohn's disease
4. Development and optimization of intestinal epithelial stem cells production. Application of the technology for characterization of pathobiological aspects of inflammatory bowel diseases
5. Transcriptional analysis in IBD as a tool to understand the pathophysiology of IBD and to evaluate therapeutic responses.
6. Microbial antigen specific responses in the pathophysiology of Crohn's disease.
7. Optimization of cross sectional imaging techniques, for evaluation of the extent, severity and prognosis of the inflammatory lesions in Crohn's disease. Study permanent damage in ulcerative colitis.
8. Advanced endoscopic techniques for diagnosis and treatment of IBD

PUBLICATIONS

Originals / I.F.: 229.486

1. Panes J, Garcia-Olmo D, Van Assche G, Colombel JF, Reinisch W, Baumgart DC, Dignass A, Nachury M, Ferrante M, Kazemi-Shirazi L, Grimaud JC, de la Portilla F, Goldin E, Richard MP, Leselbaum A, Danese S, ADMIRE CD Study Group Collaborators. **Expanded allogeneic adipose-derived mesenchymal stem cells (Cx601) for complex perianal fistulas in Crohn's disease: A phase 3 randomised, double-blind controlled trial.** *Lancet.* 388(10051):1281-1290. IF: 44.002

2. Colombel JF, Ordas I, Ullman T, Rutgeerts P, Chai A, O'Byrne S, Lu TT, Panes J. **Agreement Between Rectosigmoidoscopy and Colonoscopy Analyses of Disease Activity and Healing in Patients With Ulcerative Colitis.** *Gastroenterology.* 150(2):389-395.e3. IF: 18.187

3. Tew GW, Hackney JA, Gibbons D, Lamb CA, Luca D, Egen JG, Diehl L, Eastham Anderson J, Vermeire S, Mansfield JC, Feagan BG, Panes J, Baumgart DC, Schreiber S, Dotan I, Sandborn WJ, Kirby JA, Irving PM, De Hertogh G, Van Assche GA, Rutgeerts P, O'Byrne S, Hayday A, Keir ME. **Association Between Response to Etrolizumab and Expression of Integrin alphaE and Granzyme A in Colon Biopsies of Patients With Ulcerative Colitis.** *Gastroenterology.* 150(2):477-487. e9-. IF: 18.187

4. Calderon-Gómez E, Bassolas-Molina H, Mora-Buch R, Dotti I, Planell N, Esteller M, Gallego M, Marti M, Garcia-Martin C, Martinez-Torro C, Ordas I, Singh S, Panes J, Benitez-Ribas D, Salas A. **Commensal-Specific CD4(+) Cells From Patients With Crohn's Disease Have a T-Helper 17 Inflammatory Profile.** *Gastroenterology.* 151(3):489-500.e3. IF: 18.187

5. Sandborn WJ, Panés J, Zhang H, Yu D, Niezychowski W, Su C. **Correlation Between Concentrations of Fecal Calprotectin and Outcomes of Patients With Ulcerative Colitis in a Phase 2 Trial.** *Gastroenterology.* 150(1):96-102. IF: 18.187

6. Dotti I, Mora-Buch R, Ferrer-Picón E, Planell N, Jung P, Masamunt MC, Leal RF, De Carpi JM, Llach J, Ordás I; Batlle E; Panes J; Salas A. **Alterations in the epithelial stem cell compartment could contribute to permanent changes in the mucosa of patients with ulcerative colitis.** *Gut.* pii: gutjnl-2016-312609 . IF: 14.921

7. Siegel CA, Whitman CB, Spiegel BMR, Feagan B, Sands B, Loftus EV, Jr, Panaccione R, D'Haens G, Bernstein CN, Gearry R, Ng SC, Mantzaris GJ, Sartor B, Silverberg MS, Riddell R, Koutroubakis IE, O'Morain C, Lakatos PL, McGovern DPB, Halfvarson J, Reinisch W, Rogler G, Kruis W, Tysk C, Schreiber S, Danese S, Sandborn W, Griffiths A, Moum B, Gasche C, Pallone F, Travis S, Panes J, Colombel J-F, Hanauer S, Peyrin-Biroulet L. **Development of an index to define overall disease severity in IBD.** *Gut.* pii: gutjnl-2016-312648 . IF: 14.921

8. Jauregui-Amezaga A, Rovira M, Marin P, Salas A, Pino-Donnay S, Feu F, Elizalde J I, Fernandez-Aviles F, Martinez C, Gutierrez G, Rosinol L, Carreras E, Urbano A, Lozano M, Cid J, Suarez-Lledo M, Mensa J, Rimola J, Rodriguez S, Masamunt M C, Comas D, Ruiz I, Ramirez-Morros A, Gallego M, Ordas I, Panes J, Ricart E. **Improving safety of autologous haematopoietic stem cell transplantation in patients with Crohn's disease.** *Gut.* 65(9):1456-1462. IF: 14.921

9. Marin-Jimenez I, Nos P, Domenech E, Riestra S, Gisbert JP, Calvet X, Cortes X, Iglesias E, Huguet JM, Taxonera C, Fernandez R, Carpio D, Gutierrez A, Guardiola J, Laria LC, Sicilia B, Bujanda L, Cea-Calvo L, Romero C, Rincon O, Julia B, Panes J. **Diagnostic Performance of the Simple Clinical Colitis Activity Index Self-Administered Online at Home by Patients With Ulcerative Colitis: CRONICA-UC Study.** *Am J Gastroenterol.* 111(2):261-268. IF: 10.383

10. Nunes T, Etchevers MJ, Garcia-Sanchez V, Ginard D, Marti E, Barreiro-de Acosta M, Gomollon F, Arroyo M, Bastida G, Gonzalez B, Monfort D, Garcia-Planella E, Figueroa C, Panes J, Sans M. **Impact of Smoking Cessation on the Clinical Course of Crohn's Disease Under Current Therapeutic Algorithms: A Multicenter Prospective Study.** *Am J Gastroenterol.* 111(3):411-419. IF: 10.383

11. Garcia-Bosch O, Ordas I, Aceituno M, Rodriguez S, Ramirez AM, Gallego M, Ricart E, Rimola J, Panes J. **Comparison of Diagnostic Accuracy and Impact of Magnetic Resonance Imaging and Colonoscopy for the Management of Crohn's Disease.** *J Crohns Colitis.* 10(6):663-669. IF: 6.585

12. Panes J, Su C, Bushmakin AG, Cappelleri JC, Healey P. **Direct and indirect effects of tofacitinib on treatment satisfaction in patients with ulcerative colitis.** *J Crohns Colitis.* 10(11):1310-1315. IF: 6.585

13. Reinisch S, Schweiger K, Pablik E, Collet-Fenetrier B, Peyrin-Biroulet L, Alfaro I,

Panes J, Moayyedi P, Reinisch W. **An index with improved diagnostic accuracy for the diagnosis of Crohn's disease derived from the Lennard-Jones criteria.** *Aliment Pharmacol Ther.* 44(6):601-611. IF: 6.320

14. Coimbra A J, Rimola J, O'Byrne S, Lu T T, Bengtsson T, De Crespigny A, Luca D, Rutgeerts P, Bruining D H, Fidler J L, Sandborn W J, Santillan C S, Higgins P D, Al-Hawary M M, Vermeire S, Vanbeckevoort D, Vanslembrouck R, Peyrin-Biroulet L, Laurent V, Herrmann K A, Panes J. **Magnetic resonance enterography is feasible and reliable in multicenter clinical trials in patients with Crohn's disease, and may help select subjects with active inflammation.** *Aliment Pharmacol Ther.* 43(1):61-72. IF: 6.320

15. Mora-Buch R, Dotti I, Planell N, Calderon-Gómez E, Jung P, Masamunt M C, Llach J, Ricart E, Batlle E, Panes J, Salas A. **Epithelial IL-1R2 acts as a homeostatic regulator during remission of ulcerative colitis.** *Mucosal Immunol.* 9(4):950-959. IF: 6.103

16. Florez-Grau G, Rocas P, Cabezon R, Espana C, Panes J, Rocas J, Albericio F, Benitez-Ribas D. **Nanoencapsulated budesonide in self-stratified polyurethane-polyurea nanoparticles is highly effective in inducing human tolerogenic dendritic cells.** *Int J Pharm.* 511(2):785-793. IF: 3.994

17. Lacima G, Pera M, González-Argenté X, Torrents A, Valls-Sole J, Espuña-Pons M. **Is electromyography a predictive test of patient response to biofeedback in the treatment of fecal incontinence?** *Neurourol Urodyn.* 35(3):390-394. IF: 3.128

18. Ricart E, Panes J. **Can we monitor a patient with inflammatory bowel disease and adapt treatment without endoscopy?** *Curr Drug Targets.* 17(10):-. IF: 3.029

19. Aldecoa I, Atares B, Tarragona J, Bernet L, Sardon JD, Pereda T, Villar C, Mendez MC, Gonzalez-Obeso E, Elorriaga K, Alonso GL, Zamora J, Planell N, Palacios J, Castells A, Matias-Guiu X, Cuatrecasas M. **Molecularly determined total tumour load in lymph nodes of stage I-II colon cancer patients correlates with high-risk factors. A multicentre prospective study.** *Virchows Arch.* 469(4):385-394. IF: 2.627

20. Garcia-Bosch O, Aceituno M, Ordas I, Etchevers J, Sans M, Feu F, Panes J, Ricart E. **Long-Term Follow-Up of Patients Treated with Infliximab for Ulcerative Colitis: Predictive Factors of Response-An Observational Study.** *Dig Dis Sci.* 61(7):2051-2059. IF: 2.516

Reviews / I.F.: 29.186

1. Danese S; Fiocchi C; Panes J. **Drug development in IBD: From novel target identification to early clinical trials.** *Gut.* 65(8):1233-1239. IF: 14.921

2. Peyrin-Biroulet L, Panes J, Sandborn W J, Vermeire S, Danese S, Feagan B G, Colombel J F, Hanauer S B, Rycroft B. **Defining Disease Severity in Inflammatory Bowel Diseases: Current and Future Directions.** *Clin Gastroenterol Hepatol.* 14(3):348-354.e17 . IF: 7.680

3. Panes J, Feagan BG, Hussain F, Levesque BG, Travis SP. **Central Endoscopy Reading in Inflammatory Bowel Diseases.** *J Crohns Colitis.* 10 Suppl 2:S542-7. IF: 6.585

Letters / I.F.: 28.446

1. Marin-Jimenez I, Panes J. **Response to Gracie and Ford.** *Am J Gastroenterol.* 111(6):901-2. IF: 10.383

2. Nunes T, Gomollon F, Panes J, Sans M. **Response to To et al.** *Am J Gastroenterol.* 111(8):1198-1199. IF: 10.383

3. Sandborn W, Colombel JF, D'Haens G, Ghosh S, Panaccione R, Panés J, Travis S, Peyrin-Biroulet L. **The Crohn's Disease–Ulcerative Colitis Clinical Appraisal Update: Emerging Trends in Clinical Practice.** *Clin Gastroenterol Hepatol.* 14(9):e121-e122. IF: 7.680

Case reports / I.F.: 6.585

1. Jauregui-Amezaga A, Rovira M, Lopez A, Marin P, Rodriguez S, Rimola J, Ordas I, Alfaro I, Panes J, Ricart E. **Long lasting remission induced by syngeneic hematopoietic stem cell transplantation in a patient with refractory Crohn's disease.** *J Crohns Colitis.* 10(9):1122-1124. IF: 6.585

Consortium publications / I.F.: 8.005

1. Alonso A, Julià A, Vinaixa M, Domènech E, Fernández-Nebro A, Cañete JD, Ferrándiz C, Tornero J, Gisbert JP, Nos P, Casbas AG, Puig L, González-Álvaro I, Pinto-Tasende JA, Blanco R, Rodríguez MA, Beltran A, Correig X, Marsal S; IMID Consortium. **Urine metabolome profiling of immune-mediated inflammatory diseases.** *BMC Med.* 14(1):133. IF: 8.005

GRANTS FOR RESEARCH IN PROGRESS

Salas A. **Exploring the therapeutic potential of intestinal stem cell transplantation in inflammatory bowel diseases.**
Sponsored by: Fundació La Marató de TV3. 122931
Duration: 11/01/2013-10/07/2016

Salas A. **Cellular mechanisms in Crohn's Disease: unraveling new therapeutic avenues.**
Sponsored by: The Leona M & Harry B Helmsley Charitable Trust
Duration: 01/08/2014-31/07/2017

Salas A. **Transplante autólogo de células madre hematopoyéticas en la enfermedad de crohn: factores moleculares, inmunes y microbiológicos implicados en el control de la enfermedad.**

Sponsored by: Ministerio de Economia y Competitividad. SAF2015-66379-R
Duration: 01/01/2016-31/12/2018

Salas A. **Microenvironment Interactions in the Pathogenesis of Lymphoid Neoplasms and Chronic Inflammatory Disorders. Identification of Biomarkers and Design of New Therapeutic Strategies.**
Sponsored by: Instituto de Salud Carlos III: Proyectos Integrados de Excelencia PIE13/00033
Duration: 01/01/2014-31/12/2016

DOCTORAL THESES

Panes J, Ricart E. **Cell therapy for Crohn's disease.**
PhD student: Aranzazu Jauregui Amezaga

3.8

Cholestasis and bone pathology

LOCATION
HCB building

KEYWORDS
1. **Primary biliary cholangitis**
2. **Primary sclerosing cholangitis**
3. **Autoimmune hepatitis**
4. **Osteoporosis**
5. **Bone metabolism**
6. **Pruritus**

Original publications from 2014 to 2016

YEAR	I.F.	TOTAL	Q1	Q2
2014	31.19	6	5	-
2015	74.38	9	6	2
2016	41.48	7	6	1

TEAM INVOLVED IN
CIBEREHD
AGAUR_SGR14: 167

AWARDS
Steve Boonen Rersearch Award 2016
Institution: European Calcified Tissue Society
Awardee/s: Nuria Guañabens



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COLLABORATORS
Silvia Ruiz-Gaspà (CIBERehd)

STRATEGIC OBJECTIVES

Epidemiology, natural history and treatment in cholestatic diseases
Natural history diagnosis, prognosis and treatment of autoimmune hepatitis
Phenotype and prognosis in primary sclerosing cholangitis.
Itching of cholestasis.



TEAM Albert Parés-Núria Guañabens

Osteoporosis in cholestatic diseases
Osteoporosis in premenopausal women and men
Bone remodelling in liver transplantation
Vertebroplasty for vertebral fractures in osteoporosis

MAIN LINES OF RESEARCH

- Epidemiology, natural history and therapeutic response of chronic cholestatic disorders in adults.
- Evaluation of the factors conditioning treatment response, and proposition of new treatment regimens in patients showing suboptimum response to ursodeoxycholic acid.
- Pruritus in chronic cholestasis and treatment response to albumin dialysis and bezafibrate.
- Pathogenesis of osteoporosis and fracture development in primary biliary cirrhosis and other chronic cholestatic disorders.
- Evaluation of prognosis in primary sclerosing cholangitis.
- Osteoporosis in premenopausal women and in males. Study of the clinical characteristics and mechanisms involved in the development of the disorder.
- Osteoporosis in primary biliary cholangitis. Clinical and experimental evaluation.
- Evaluation of the key factors in the development of low bone mass and fractures, and proposal of new therapeutic protocols.
- Osteoporosis in liver transplantation.
- Evaluation of vertebroplasty as treatment for osteoporotic vertebral fractures.
- Evaluation of bone remodelling regulators on the pathogenesis of osteoporosis.

RESEARCH GROUP
CHOLESTASIS



GROUP LEADER
Albert Parés (HCB)

The research group consist of clinicians (hepatologists) who follow a large number of patients with autoimmune cholestatic diseases, basically primary biliary cholangitis, autoimmune hepatitis and primary sclerosing cholangitis. The group actively participates in international research groups in these diseases and they contribute in the knowledge of the phenotype, natural history, diagnosis, prognosis and treatment of these diseases. Close collaboration with the bone pathology group.

RESEARCH GROUP
BONE METABOLIC DISEASE



GROUP LEADER
Núria Guañabens (HCB)

The research group consists of rheumatologists specialized in bone metabolic disease, a specialist in clinical analysis and a biologist who is dedicated specifically to studies in cell cultures. The group is a world leader in bone pathology of liver diseases and liver transplantation, as well as in male osteoporosis and bone turnover markers. It has a close collaboration with the group of cholestasis.

PUBLICATIONS

Originals / I.F.: 41.475

1. Trivedi PJ, Lammers WJ, Van Buuren HR, Pares A, Floreani A, Janssen HL, Invernizzi P, Battezzati PM, Ponsioen CY, Corpechot C, Poupon R, Mayo MJ, Burroughs AK, Nevens F, Mason AL, Kowdley K, Lleo A, Caballeria L, Lindor KD, Hansen BE, Hirschfield GM; Global PBC Study Group. **Stratification of hepatocellular carcinoma risk in primary biliary cirrhosis: a multicentre international study.** *Gut.* 65(2):321-329. IF: 14.921

2. Guanabens N, Mumm S, Gifre L, Ruiz-Gaspa S, Demertzis JL, Stolina M, Novack DV, Whyte MP. **Idiopathic Acquired Osteosclerosis in a Middle-Aged Woman with Systemic Lupus Erythematosus.** *J Bone Miner Res.* 31(9):1774-1782. IF: 5.622

3. Guañabens N, Ruiz-Gaspà S, Gifre L, Miquel R, Peris P, Monegal A, Dubrueil M, Arias A, Pares A. **Sclerostin Expression in Bile Ducts of Patients With Chronic Cholestasis May Influence the Bone Disease in Primary Biliary Cirrhosis.** *J Bone Miner Res.* 31(9):1725-1733. IF: 5.622

4. Bolier R, Tolenaars D, Kremer AE, Saris J, Pares A, Verheij J, Bosma PJ, Beuers U, Oude Elferink RP. **Enteroendocrine cells are a potential source of serum autotaxin in men.** *Biochim Biophys Acta-Mol Basis.* 1862(4):696-704. IF: 5.158

5. De Simone P, Romagnoli R, Tandoi F, Carrai P, Ercolani G, Peri E, Zamboni F, Mameli L, Di Benedetto F, Cillo U, De Carlis L, Lauterio A, Lupo L, Tisone G, Prieto M, Loinaz C, Mas A, Suddle A, Mutimer D, Roche B, Wartenberg-Demand A, Niemann G, Böhm H, Samuel D. **Early Introduction of Subcutaneous Hepatitis B Immunoglobulin Following Liver Transplantation for Hepatitis B Virus Infection: A Prospective, Multicenter Study.** *Transplantation.* 100(7):1507-12. IF: 3.690

6. Gifre L, Vidal J, Carrasco JL, Muxi A, Portell E, Monegal A, Guañabens N, Peris P.

Denosumab increases sublesional bone mass in osteoporotic individuals with recent spinal cord injury. *Osteoporosis Int.* 27(1):405-10. IF: 3.445

7. Guanabens N, Filella X, Monegal A, Gomez-Vaquero C, Bonet M, Buquet D, Casado E, Cerda D, Erra A, Martinez S, Montala N, Pitarch C, Kanterewicz E, Sala M, Suris X, Torres F, LabOscat Study Group. **Reference intervals for bone turnover markers in Spanish premenopausal women.** *Clin Chem Lab Med.* 54(2):293-303. IF: 3.017

Reviews / I.F.: 12.978

1. Trivedi P J, Corpechot C, Pares A, Hirschfield G M. **Risk Stratification in autoimmune cholestatic liver diseases: Opportunities for clinicians and trialists.** *Hepatology.* 63(2):644-659. IF: 11.711

2. Florez H, Peris P, Guañabens N. **Fibrous dysplasia. Clinical review and therapeutic management.** *Med Clin.* 147(12):547-553. IF: 1.267

Case reports / I.F.: 7.969

1. Florez H, Peris P, Vidal-Sicart S, Monegal A, Guañabens N. **Lack of scintigraphic response of fibrous dysplasia to bisphosphonate treatment.** *Rheumatology.* 55(10):1735. IF: 4.524

2. Monegal A, Peris P, Alsina M, Colmenero J, Guañabens N. **Development of multiorganic calciphylaxis during teriparatide, vitamin D, and calcium treatment.** *Osteoporosis Int.* 27(8):2631-4. IF: 3.445

Consortium publications / I.F.: 59.558

1. Nevens F, Andreone P, Mazzella G, Strasser SI, Bowlus C, Invernizzi P, Drenth JP, Pockros PJ, Regula J, Beuers U, Trauner M, Jones DE, Floreani A, Hohenester S, Luketic V, Shiffman M, van Erpecum KJ, Vargas V, Vincent C, Hirschfield GM, Shah H, Hansen B, Lindor KD, Marschall HU, Kowdley KV, Hooshmand-Rad R, Marmon T, Sheeron S, Pencek R, MacConell L, Pruzanski M, Shapiro D; POISE Study Group. **A Placebo-Controlled Trial of Obeticholic Acid in Primary Biliary Cholangitis.** *N Engl J Med.* 375(7):631-43. IF: 59.558

GRANTS FOR RESEARCH IN PROGRESS

Pares A. **Prurito de la colestasis. Análisis metabólico.**
Sponsored by: Instituto de Salud Carlos III (ISCIII). PI12/01448
Duration: 01/01/2013-31/12/2016

Parés A. **Development of antigen-specific T-regulatory cell-expanding nanomedicines for autoimmune diseases: Translational studies in human lymphocyte-engrafted hosts.**
Sponsored by: Instituto de Salud Carlos III (ISCIII). PIE14/00027
Duration: 01/01/2015-31/12/2017

Guañabens N. **Efectos de la bilirrubina y ácidos biliares sobre las células reguladoras del remodelado óseo. Estudio in vitro en células osteocitarias MLO-A5/MLO-Y4.**
Sponsored by: Instituto De Salud Carlos III. PI14/00478
Duration: 01/01/2015-31/12/2017

Parés A. **Efecto del bezafibrato sobre el prurito de la colestasis. Mecanismos patogénicos.**
Sponsored by: Instituto de Salud Carlos III. PI15/00797
Duration: 01/01/2016-31/12/2018

Guañabens N. **Randomized trial og genetic testing and tergeted zoledronic acid therapy to prevent SQSTM1 mediated Paget's disease (Zoledronic in the prevention of Paget's).**
Sponsored by: Medical Research Council (MRC) and Arthritis Reseaarch UK (ARUK).
Duration: 01/01/82014-31/12/2018

DOCTORAL THESES

Peris P, Macho JM. **Efecto de la vertebroplastia en la calidad de vida y el dolor en pacientes con fractura vertebral osteoporótica. Estudio aleatorizado con seguimiento a 12 meses.**
PhD student: Jordi Blasco Andaluz

3.9

Mitochondrial regulation of cell death and steatohepatitis

LOCATION
CEK building

KEYWORDS
1. **Cholesterol/sphingolipids**
2. **Mitochondrial death**
3. **Oxidative stress**
4. **Alcoholic and non-alcoholic steatohepatitis (ASH/NASH)**
5. **Lipid therapies**

Original publications from 2014 to 2016

YEAR	I.F.	TOTAL	Q1	Q2
2014	53.44	5	5	-
2015	90.78	10	10	-
2016	62.32	8	7	1

TEAM INVOLVED IN
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AGAUR_SGR14: 705



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STRATEGIC OBJECTIVES

The overall aim is to examine the cell biology of lipids and cholesterol trafficking in liver diseases and neurodegeneration. This includes the role of mitochondrial cholesterol and sphingolipids in steatohepatitis, liver cancer, liver fibrogenesis, hepatic ischemia/reperfusion injury, Alzheimer's disease and lysosomal storage disorders.

MAIN LINES OF RESEARCH

1. Sphingolipid and mitochondrial oxidative-stress regulation of cell death.
2. Mechanisms responsible for cholesterol transport to the mitochondria and role in NASH, hepatocellular carcinoma and Alzheimer's disease.
3. Functional relationship between methionine metabolites, acid sphingomyelinase and phosphatidylcholine in steatohepatitis.



TEAM. José Carlos Fernández-Checa

4. Contribution of acid sphingomyelinase in acetaminophen induced acute liver failure.
5. Development of non-invasive diagnostic methods for diagnosis and prognosis in alcohol-induced liver disease.
6. Mitochondrial cholesterol and glycosphingolipids in liver fibrosis7. Reciprocal regulation between HIF1a and StARD1 in steatohepatitis an hepatocellular carcinoma
7. Establishment of a mouse model with a humanized liver to study ALD and NASH

PUBLICATIONS

Originals / I.F.: 62.319

1. Blaya D, Coll M, Rodrigo-Torres D, Vila-Casadesús M, Altamirano J, Llopis M, Graupera I, Perea L, Aguilar-Bravo B, Diaz A, Banales JM, Claria J, Lozano JJ, Bataller R, Caballeria J, Gines P, Sancho-Bru P. **Integrative microRNA profiling in alcoholic hepatitis reveals a role for microRNA-182 in liver injury and inflammation.** *Gut.* 65(9):1535-1545. IF: 14.921

2. Morales-Ibanez O, Affo S, Rodrigo-Torres D, Blaya D, Millan C, Coll M, Perea L, Odena G, Knorpp T, Templin MF, Moreno M, Altamirano J, Miquel R, Arroyo V, Gines P, Caballeria J, Sancho-Bru P, Bataller. **Kinase analysis in alcoholic hepatitis identifies p90RSK as a potential mediator of liver fibrogenesis.** *Gut.* 65(5):840-851. IF: 14.921

3. Prieto-Domínguez N, Ordóñez R, Fernández A, Méndez-Blanco C, Baulies A, Garcia-Ruiz C, Fernández-Checa JC, Mauriz JL, González-Gallego J. **Melatonin-induced increase in sensitivity of human hepatocellular carcinoma cells to sorafenib is associated with reactive oxygen species production and mitophagy.** *J Pineal Res.* 61(3):396-407. IF: 9.314

4. De Mingo A, De Gregorio E, Moles A, Tarrats N, Tutusaus A, Colell A, Fernandez-Checa JC, Morales A, Mari M. **Cysteine cathepsins control hepatic NF-κB-dependent inflammation via sirtuin-1 regulation.** *Cell Death Dis.* 7(11):e2464. IF: 5.378

5. Odena G, Chen J, Lozano JJ, Altamirano J, Rodrigo-Torres D, Affo S, Morales-Ibanez O, Matsushita H, Zou J, Dumitru R, Caballeria J, Gines P, Arroyo V, You M, Rautou PE, Valla D, Crews F, Seki E, Sancho-Bru P, Bataller R. **LPS-TLR4 Pathway Mediates Ductular Cell Expansion in Alcoholic Hepatitis.** *Sci Rep.* 6:35610. IF: 5.228

6. Stefanovic M, Tutusaus A, Martinez-Nieto GA, Barcena C, de Gregorio E, Moutinho C, Barbero-Camps E, Villanueva A, Colell A, Mari M, Garcia-Ruiz C, Fernandez-Checa JC, Morales A. **Targeting glucosylceramide synthase upregulation reverts sorafenib resistance in experimental hepatocellular carcinoma.** *Oncotarget.* 7(7):8253-8267. IF: 5.008

7. Nuno-Lambarri N, Dominguez-Perez M, Baulies-Domenech A, Monte MJ, Marin JJG, Rosales-Cruz P, Souza V, Miranda RU, Bucio L, Montalvo-Jave EE, Gutierrez-Ruiz MC, Garcia-Ruiz C, Fernandez-Checa JC, Gomez-Quiroz LE. **Liver Cholesterol Overload Aggravates Obstructive Cholestasis by Inducing Oxidative Stress and Premature Death in Mice.** *Oxidative Med Cell Longev.* 2016:9895176. IF: 4.492

8. Embade N, Marino Z, Diercks T, Cano A, Lens S, Cabrera D, Navasa M, Falcon-Perez JM, Caballeria J, Castro A, Bosch J, Mato JM, Millet O. **Metabolic Characterization of Advanced Liver Fibrosis in HCV Patients as Studied by Serum H-1-NMR Spectroscopy.** *PLoS One.* 11(5):e0155094. IF: 3.057

Reviews / I.F.: 1.816

1. Prado V, Caballeria J, Vargas V, Bataller R, Altamirano J. **Alcoholic hepatitis: How far are we and where are we going?** *Ann Hepatol.* 15(4):463-73-473. IF: 1.816

Editorials / I.F.: 1.314

1. Caballeria J, Caballeria L. **Nonalcoholic steatohepatitis and diabetes.** *Endocrinol Nutr.* 63(8):377-379. IF: 1.314

Clinical guidelines / I.F.: 9.108

1. Klionsky DJ, et al. **Guidelines for the use and interpretation of assays for monitoring autophagy (3rd edition).** *Autophagy.* 12(1):1-222. IF: 9.108

GRANTS FOR RESEARCH IN PROGRESS

Fernández-Checa J.C. **Regulation and contribution of HIF-1 and StARD1 to steatohepatitis and hepatocellular carcinoma.**
Sponsored by: Plan Nacional I+D Biomedicina. SAF2015-069944
Duration: 01/01/2016-31/12/2019

García-Ruiz Carmen. **Colesterol mitocondrial libre y acetilación del ganglíosido GD3 en esteatohepatitis y fibrosis Hepática.**
Sponsored by: Plan Nacional I+D Biomedicina. SAF2014-57674-R
Duration: 01/01/2015-31/12/2017

Caballeria J. **Análisis de la disfunción endotelial y miRNAs en el pronóstico de la hepatitis alcohólica.**
Sponsored by: Instituto de Salud Carlos III (ISCIII). PI12/01265
Duration: 01/01/2013-31/12/2016

Fernández-Checa J.C. **US-UCLA Southern California Research Ccenter for ALPD and Cirrhosis alcoholic liver and pancreatic injury research.**
Sponsored by: National Institute of Health (NIH). 5P50AA011999
Duration: 01/03/2014-31/12/2018

Fernández-Checa J.C. **From gut-derived inflammation to obesity-related liver disease.**
Sponsored by: European Commission.

JTC_META_2011_001
Duration: 01/01/2012-30/04/2016

DOCTORAL THESES

Garcia-Ruiz C, Fernandez-Checa JC.
Role of mitochondrial cholesterol in Niemann Pick type C disease and drug-induced liver injury.
PhD student: Sandra Torres Núñez

Gómez Quiroz L.E, Fernandez-Checa JC.
La sobrecarga hepática del colesterol agrava el daño inducido por la colestasis obstructiva mediante la inducción de extrés oxidante. UAM Méjico
PhD student: Natalia Nuño Lámbarri

3.10 Liver transplantation and graft viability

LOCATION
CEK building

KEYWORDS
1. **Liver transplantation**
2. **Graft viability**
3. **Immunosuppression**
4. **Allograft tolerance**
5. **Hepatic ischemia-reperfusion injury**

Original publications from 2014 to 2016

YEAR	I.F.	TOTAL	Q1	Q2
2014	86.26	17	9	4
2015	52.10	11	6	2
2016	106.38	22	14	3

TEAM INVOLVED IN
CIBEREHD
AGAUR_SGR14: 144



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STRATEGIC OBJECTIVES

Aloimmune response and immunosuppression. Operational Tolerance. Schemic reperfussion injury. Evaluation of new ways of graft preservation. Brain death and its role in the ischemic preservation injury.



TEAM Miquel Navasa

Hepatitis C recurrence. Study of fibrosis regression after antiviral treatment. Complications of immunosuppression. Prevention and treatment of cardiovascular risk factors after liver transplantation.

MAIN LINES OF RESEARCH

Evaluation of the impact of alloreactivity in graft outcome and fibrosis regression after hepatitis C Diferent studies are ongoing aimed at investigating the role of different markers of the ummunosuppressive balance and graft outcome after LT. ,A prospective,multicentre, European trial has been started to translate the results of the studies done by the group in operational tolerance into clinical practice.

In the field of organ retrieval, we are characterizing new targets based on adipocytokines modulation and investigating the protective effect of polyethilenglycol in the preservation solutions A new device for static preservation has been developed by Dr.Peralta, based on the control of temperature and the use of ultrasounds. We are conducting several studies evaluating ex-vivo perfusion devices.

Three important studies have to be underlined: treatment and indications for retransplantation of coinfected patients (HIV-HVC),evaluationof the hepatorenal syndrome in patients in the wainting list for liver transplantation and the validation of the selection criteria for liver transplantation in patients with hepatocelular carcinoma.

RESEARCH GROUP

PROTECTIVE STRATEGIES AGAINST HEPATIC ISCHEMIA-REPERFUSION INJURY



GROUP LEADER

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The investigations led by Carmen Peralta are pioneers in the study of experimental surgical, technological and pharmacological strategies (in vivo pharmacological treatments, improvements in preservation solutions, ischemic preconditioning, etc.) that protect livers against damage induced by ischemia-reperfusion and increase the tolerance of steatotic livers and reduced-size liver grafts against the risk that show these liver types to damage and regenerative failure when they are submitted to transplantation or hepatic resections.



GROUP Carmen Peralta

PUBLICATIONS

Originals / I.F.: 106.385

1. Aguero F, Forner A, Manzardo C, Valdivieso A, Blanes M, Barcena R, Rafecas A, Castells L, Abradelo M, Torre-Cisneros J, Gonzalez-Dieguez L, Salcedo M, Serrano T, Jimenez-Perez M, Herrero J I, Gastaca M, Aguilera V, Fabregat J, Del Campo S, Bilbao I, Romero C J, Moreno A, Rimola A, Miro J M, FIPSE Investigators. **Human immunodeficiency virus infection does not worsen prognosis of liver transplantation for hepatocellular carcinoma.** *Hepatology.* 63(2):488-498. IF: 11.711

2. Ferrer-Fàbrega J, Forner A, Liccioni A, Miquel R, Molina V, Navasa M, Fondevila C, Garcia-Valdecasas JC, Bruix J, Fuster J. **Prospective validation of ab initio liver transplantation in hepatocellular carcinoma upon detection of risk factors for recurrence after resection.** *Hepatology.* 63(3):839-849. IF: 11.711

3. Ariza X, Graupera I, Coll M, Sola E, Barreto R, Garcia E, Moreira R, Elia C, Morales-Ruiz M, Llopis M, Huelin P, Sole C, Fabrellas N, Weiss E, Nevens F, Gerbes A, Trebicka J, Saliba F, Fondevila C, Hernández-Gea V Fernández J Bernardi M Arroyo V Jiménez W Deulofeu C Pavesi M Angeli P Jalan R Moreau R Sancho-Bru P Ginès P, CANONIC Investigators EASL CLIF Consortium. **Neutrophil gelatinase-associated lipocalin is a biomarker of acute-on-chronic liver failure and prognosis in cirrhosis.** *J Hepatol.* 65(1):57-65. IF: 10.590

4. Taubert R, Danger R, Londono MC, Christakoudi S, Martinez-Picola M, Rimola

A, Manns MP, Sanchez-Fueyo A, Jaeckel E. **Hepatic Infiltrates in Operational Tolerant Patients After Liver Transplantation Show Enrichment of Regulatory T Cells Before Proinflammatory Genes Are Downregulated.** *Am J Transplant.* 16(4):1285-1293. IF: 5.669

5. Sabate A, Gutierrez R, Beltran J, Mellado P, Blasi A, Acosta F, Costa M, Reyes R, Torres F. **Impact of Preemptive Fibrinogen Concentrate on Transfusion Requirements in Liver Transplantation: A Multicenter, Randomized, Double-Blind, Placebo-Controlled Trial.** *Am J Transplant.* 16(8):2421-9. IF: 5.669

6. Aguero F, Rimola A, Stock P, Grossi P, Rockstroh J K, Agarwal K, Garzoni C, Barcan L A, Maltez F, Manzardo C, Mari M, Ragni M V, Anadol E, Di Benedetto F, Nishida S, Gastaca M, Miro J M, FIPSE/NIH HIVTR/NEAT023 Investigators. **Liver Retransplantation in Patients With HIV-1 Infection: An International Multicenter Cohort Study.** *Am J Transplant.* 16(2):679-687. IF: 5.669

7. Blasi A, Hessheimer AJ, Beltran J, Pereira A, Fernandez J, Balust J, Martinez-Palli G, Fuster J, Navasa M, Garcia-Valdecasas JC, Taura P, Fondevila C. **Liver Transplant From Unexpected Donation After Circulatory Determination of Death Donors: A Challenge in Perioperative Management.** *Am J Transplant.* 16(6):1901-1908. IF: 5.669

8. Bonaccorsi-Riani E, Pennycuick A, Londono M C, Lozano J J, Benitez C, Sawitzki B, Martinez-Picola M, Bohne F, Martinez-Llordella M, Miquel R, Rimola A, Sanchez-Fueyo A. **Molecular Characterization of Acute Cellular Rejection Occurring During Intentional Immunosuppression Withdrawal in Liver Transplantation.** *Am J Transplant.* 16(2):484-496. IF: 5.669

9. Cornide-Petronio M E, Negrete-Sanchez E, Mendes-Braz M, Casillas-Ramirez A, Bujaldon E, Meroño N, Martínez-Carreres L, Gracia-Sancho J, Rodes J, Jimenez-Castro M B, Peralta C. **The Effect of High-Mobility Group Box 1 in Rat Steatotic and Nonsteatotic Liver Transplantation From Donors After Brain Death.** *Am J Transplant.* 16(4):1148-1159. IF: 5.669

10. Tafur L A, Taura P, Blasi A, Beltran J, Martinez-Palli G, Balust J, Garcia-Valdecasas JC. **Rotation thromboelastometry velocity curve predicts blood loss during liver transplantation.** *Br J Anaesth.* 117(6):741-748. IF: 5.616

11. Londono MC, Manzardo C, Rimola A, Ruiz P, Costa J, Forner A, Ambrosioni J, Aguero F, Laguno M, Lligona A, Moreno A, Miro JM. **IFN-free therapy for HIV/HCV-coinfected patients within the liver transplant setting.** *J Antimicrob Chemother.* 71(11):3195-3201. IF: 4.919

12. Crespo G, Castro-Narro G, Garcia-Juarez I, Benitez C, Ruiz P, Sastre L, Colmenero J, Miquel R, Sanchez-Fueyo A, Forns X, Navasa M. **Usefulness of liver stiffness measurement during acute cellular rejection in liver transplantation.** *Liver Transpl.* 22(3):298-304. IF: 3.951

13. Marfà S, Marti J, Reyes A, Casals G, Fernández-Varo G, Carvajal S, García-Valdecasas JC, Fuster J, Jiménez W. **Metastatic Tissue Proteomic Profiling Predicts 5-Year Outcomes in Patients with Colorectal Liver Metastases.** *Transl Oncol.* 9(5):445-452. IF: 3.077

14. Embade N, Marino Z, Diercks T, Cano A, Lens S, Cabrera D, Navasa M, Falcon-Perez JM, Caballeria J, Castro A, Bosch J, Mato JM, Millet O. **Metabolic Characterization of Advanced Liver Fibrosis in HCV Patients as Studied by Serum H-1-NMR Spectroscopy.** *PLoS One.* 11(5):e0155094. IF: 3.057

15. Boix-Giner F, Millan O, San Segundo D, Munoz-Cacho P, Mancebo E, Llorente S, Rafael-Valdivia L, Rimola A, Fabrega E, Mrowiec A, Allende L, Minguela A, Bolarin J M, Paz-Artal E, Lopez-Hoyos M, Brunet M, Muro M. **High frequency of central memory regulatory T cells allows detection of liver recipients at risk of early acute rejection within the first month after transplantation.** *Int Immunol.* 28(2):55-64. IF: 3.031

16. Gambato M, Crespo G, Torres F, LLovet L, Carrion J, Londono M, Lens S, Marino Z, Bartres C, Miquel R, Navasa M, Forns X. **Simple prediction of long-term clinical outcomes in patients with mild hepatitis C recurrence after liver transplantation.** *Transpl Int.* 29(6):698-706. IF: 2.835

17. Boix F, Millan O, Segundo DS, Mancebo E, Rimola A, Fabrega E, Fortuna V, Mrowiec A, Castro-Panete MJ, Pena J, Llorente S, Minguela A, Bolarin JM, Paz-Artal E, Lopez-Hoyos M, Brunet M, Muro M. **High expression of CD38, CD69, CD95 and CD154 biomarkers in cultured peripheral T lymphocytes correlates with an increased risk of acute rejection in liver allograft recipients.** *Immunobiology.* 221(5):595-603. IF: 2.781

18. Blasi A, Cid J, Beltran J, Taura P, Balust J, Lozano M. **Coagulation profile after plasma exchange using albumin as a replacement solution measured by thromboelastometry.** *Vox Sang.* 110(2):159-165. IF: 2.656

19. Citores MJ, Perez-Pulgar S, Duca A, Crespo G, de la Fuente S, Vilches C, Navasa M, Cuervas-Mons V. **Rapidity of fibrosis progression in liver transplant recipients with recurrent hepatitis C is influenced by toll-like receptor 3 polymorphism.** *Clin Transplant.* 30(7):810-818. IF: 1.844

20. Xavier F, Didier S, Mutimer D, Fagiuoli S, Navasa M, Agarwal K, Berenguer M, Colombo M, Herzer K, Nevens F, Daems B, Janssen K, Ouwerkerk-Mahadevan S, Kimko H, Lathouwers E, Witek J, Solingen-Ristea, RV. **Efficacy of telaprevir-based therapy in stable liver transplant patients with chronic genotype 1 hepatitis C.** *Ann Hepatol.* 15(4):512-23. IF: 1.816

21. Crespo G, Gambato M, Millan O, Casals G, Ruiz P, Londono MC, Mira A, Forns X,

Brunet M, Jimenez W, Navasa M. **Early non-invasive selection of patients at high risk of severe hepatitis C recurrence after liver transplantation.** *Transpl Infect Dis.* 18(3):471-479. IF: 1.459

22. Mancebo E, Castro MJ, Allende LM, Talayero P, Brunet M, Millan O, Guirado L, Lopez-Hoyos M, San Segundo D, Rodrigo E, Munoz P, Boix Giner F, Llorente Vinas S, Muro-Amador M, Paz-Artal E. **High proportion of CD95(+) and CD38(+) in cultured CD8(+) T cells predicts acute rejection and infection, respectively, in kidney recipients.** *Transpl Immunol.* 34:33-41. IF: 1.317

Reviews / I.F.: 23.197

1. Hessheimer AJ, Cardenas A, Garcia-Valdecasas JC, Fondevila C. **Can we prevent ischemic type biliary lesion in DCD liver transplantation?** *Liver Transpl.* 22(7):1025-33. IF: 3.951

2. de la Red G, Fondevila C, Navasa M. **Liver transplantation in Spain.** *Liver Transpl.* 22(9):1259-64. IF: 3.951

3. Chen H, Turon F, Hernandez-Gea V, Fuster J, Garcia-Criado A, Barrufet M, Darnell A, Fondevila C, Garcia-Valdecasas J C, Garcia-Pagan J C. **Non-Tumoral portal vein thrombosis in patients awaiting liver transplantation.** *Liver Transpl.* 22(3):352-65. IF: 3.951

4. Hessheimer AJ, Garcia-Valdecasas JC, Fondevila C. **Abdominal regional in-situ perfusion in donation after circulatory determination of death donors.** *Curr Opin Organ Transpl.* 21(3):322-8. IF: 2.680

5. Millan O, Brunet M. **Cytokine-based immune monitoring.** *Clin Biochem.* 49(4-5):338-346. IF: 2.382

6. Lopez-Hoyos M, San Segundo D, Brunet M. **Regulatory T Cells as Biomarkers for Rejection and Immunosuppression Tailoring in Solid Organ Transplantation.** *Ther Drug Monit.* 38 Suppl 1:S36-42. IF: 2.094

7. Brunet M, Millán López O, López-Hoyos M. **T-Cell Cytokines as Predictive Markers of the Risk of Allograft Rejection.** *Ther Drug Monit.* 38 Suppl 1:S21-8. IF: 2.094

8. Shipkova M, Hesselink DA, Holt DW, Billaud EM, Van Gelder T, Kunicki PK, Brunet M, Budde K, Barten MJ, de Simone P, Wieland E, Lopez OM, Masuda S, Seger C, Picard N, Oellerich M, Langman LJ; Wallemacq P, Morris RG, Thompson C, Marquet P. **Therapeutic Drug Monitoring of Everolimus: A Consensus Report.** *Ther Drug Monit.* 38(2):143-169. IF: 2.094

Letters / I.F.: 18.380

1. Blasi A; Hernández-Gea V; Reverter JC; García-Pagán JC. **Reply.** *Hepatology.* 64(1):321-2. IF: 11.711

2. Hessheimer AJ, Dominguez-Gil B, Fondevila C, Matesanz R. **Controlled donation after circulatory determination of death in Spain.** *Am J Transplant.* 16(7):2239-2240. IF: 5.669

3. Vidal Ó, Ginestà C, Espert JJ, Valentini M, García-Valdecasas JC. **Fresh cadaver, an old surgical model in current general surgery.** *Cir Espan.* 94(3):201-2. IF: 1.000

Editorials / I.F.: 4.470

1. Colmenero J, Navasa M. **Delta-MELD and survival after liver transplantation: the slope matters.** *Liver Int.* 36(7):949-51. IF: 4.470

Case reports / I.F.: 6.709

1. Ambrosioni J, Coll S, Manzardo C, Nicolas D, Aguero F, Blanco JL, Tuset M, Brunet M, Gatell JM, Miro, JM. **Voriconazole and cobicistat-boosted antiretroviral salvage regimen co-administration to treat invasive aspergillosis in an HIV-infected patient.** *J Antimicrob Chemother.* 71(4):1125-1127. IF: 4.919

2. Falgàs N, Alfaro I, Crespo G, Berenguer J, García-Pagán JC, Muñoz E. **Aphasia in a patient with acute hepatic encephalopathy associated with multifocal cortical brain lesions.** *Neurologia.* S0213-4853(16)30026-3. IF: 1.790

GRANTS FOR RESEARCH IN PROGRESS

Navasa M. **Evaluación del impacto de la aloreactividad en la evolución del injerto y de la reversibilidad de la fibrosis tras el tratamiento de la hepatitis C post-trasplante hepático.**
Sponsored by: Instituto de Salud Carlos III (ISCIII).FIS 2014 PI41/01055
Duration: 01/01/2015-31/12/2017

Garcia-Valdecasas J.C. **Consortium on organ preservation in Europe.**
Sponsored by: COPE 305934
Duration: 01/09/2013-30/06/2017

Manyalich M. **International conference on living donation - High quality practices.**
Sponsored by: European Commission. SANCO_Conf_13-20134308
Duration: 01/01/2014-31/01/2016

Peralta C. **El efecto de la muerte cerebral en los injertos hepáticos esteatósicos y no esteatósicos sometidos a trasplante.**
Sponsored by: Ministerio de Economía y Competitividad. SAF2012-31238
Duration: 01/01/2013-31/12/2016

Peralta C. **Nuevas tecnologías de preservación y transporte de órganos abdominales – Proyecto ALBA (Retos-Colaboración 2015)**
Sponsored by: Ministerio de Economía y Competitividad. RTC-2015-3859-1
Duration: 01/10/2015-31/12/2018

Peralta C. **New formulations to prevent cell death associated with hepatic ischemia-reperfusion.**
Sponsored by : S. Pharma, Inc
Duración: 01/06/2015-31/06/2016

Peralta C. **Preservación del injerto hepático (SGR2014-144)**
Sponsored by : Generalitat de Catalunya
Duración: 01/09/2014-30/09/2016

Manyalich M. **Evolución psicosocial del donante vivo renal. Estudio de cohortes.**
Sponsored by: Instituto De Salud Carlos III.
PI14/00693
Duration: 01/01/2015-31/12/2017

Manyalich M. **Impacto psicosocial del proceso de donación en el donante vivo de órganos para trasplante.**
Sponsored by : FIS - Fondo Investigacions Sanitàries Institut Carlos III.
Finançat per FIS - Fondo Investigacions Sanitàries Institut Carlos III.
Duration: 01/01/2012-30/06/2016

García-Valdecasas JC. **Evaluation of the feasibilty of normothermic regional perfusion followed by ex-vivo normothermic machine perfusion in Type II DCD (Donation after Cardiac Death) Liver Transplants.**
Sponsored by: Fundacio "la Caixa".
CONVENI_GARCIAVALDE
Duration: 01/05/2016-30/04/2017

Fondevila C. **Evaluación de la regeneración hepatocelular tras hepatectomía mayor en un modelo clínico y otro experimental. Utilidad del tratamiento con somatostanina y debutamina en un modelo porcino de cirugía hepática extrema.**
Sponsored by: Instituto de Salud Carlos III.
PI15/01092
Duration: 01/01/2016-31/12/2018

Peralta C. **La hormona de crecimiento en el trasplante de injertos hepáticos esteatósicos y no esteatósicos procedentes de donantes con muerte cerebral.**
Sponsored by: Ministerio de Economia y Competitividad. SAF2015-64857-R
Duration: 01/01/2016-31/12/2018

Millán O, Brunet M. **Proyecto Fundación Mutua Madrileña. miRNAs circulantes: Potenciales biomarcadores no invasivos de predicción de rechazo agudo en pacientes trasplantados hepáticos y renales.**
Sponsored by : Fundación de Investigación Médica Mutua Madrileña.
Duration: 28/07/2014-28/07/2017

Bruix J, Brunet M. **STUDY: LIFEPEARL-DOXO STUDY: "Pharmacokinetic Study In Patients With Unresectable HCC Receiving Treatment With LifePearl Microspheres Loaded With Doxorubicin".**
Sponsored by: Laboratory of Pharmacology BPLs
Duraction: 30/11/2016-30/12/2017

DOCTORAL THESES

Peralta C. **El papel del AMPc, del retículo endoplasmático y de las adipocitoquinas en el trasplante hepático.**
PhD student: Mónica B. Jiménez Castro

3.11 Gastrointestinal and pancreatic oncology

LOCATION
CEK building

KEYWORDS
1. **Colorectal cancer**
2. **Pancreatic cancer**
3. **Genetics**
4. **Inherited disorders**
5. **Susceptibility to cancer**

Original publications from 2014 to 2016

YEAR	I.F.	TOTAL	Q1	Q2
2014	196.336	43	32	5
2015	331.26	49	38	2
2016	295.29	44	39	3

TEAM INVOLVED IN
CIBEREHD
CIBERER
AGAUR_SGR14: 135, 248, 255

AWARDS
Premis a la transferència de coneixement, convocatòria 2016
Institution:Universitat Pompeu Fabra de Barcelona. Consell Social.
Awardee/s: Càmara Rey, Òscar, Ceresa, Mario, Fernández-Esparrach, Glòria, González Ballester, Miquel Àngel, Guardiola Garcia, Marta i Romeu Robert, Jordi.



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Saray Durán Sanchón (CIBEREHD)
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Sebastian Franch Expósito (FCRB/CIBEREHD)
Claudia Galofre Loscos (CIBEREHD)
Maria Liz Leoz Allegreth (HCB)
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Jennifer Múñoz Sancho (CIBEREHD)
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COLLABORATORS
Imma Garrell Lluis (CAPSE)
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STRATEGIC OBJECTIVES

The gaining of in-depth knowledge of the mechanisms underlying the development and progression of gastrointestinal and pancreatic premalignant and malignant lesions, with a view to defining new diagnostic, therapeutic and/or preventive strategies.

MAIN LINES OF RESEARCH

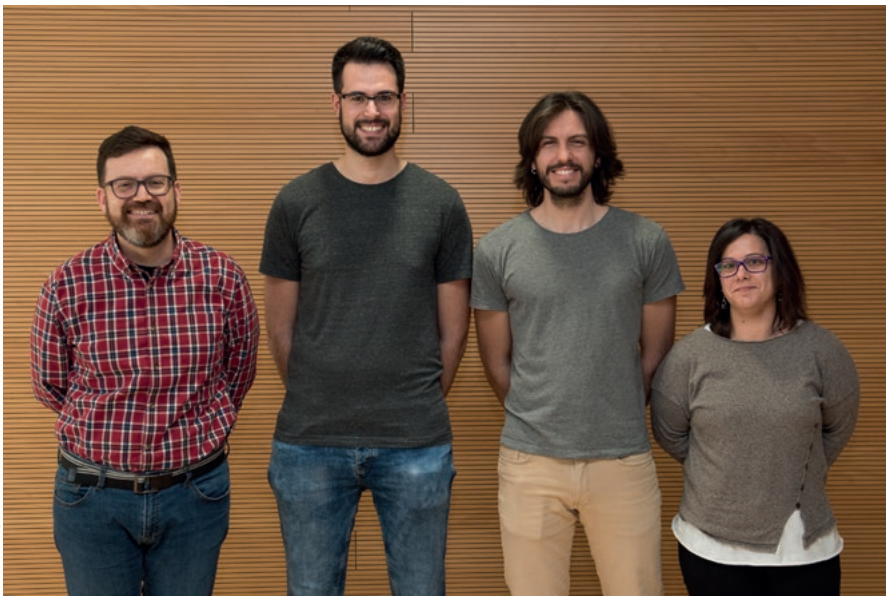
The activity of the research group in Gastrointestinal and Pancreatic Oncology is divided into four areas, and these in turn correspond to different lines of investigation:

1. **Physiopathology of colorectal cancer:**
- Hereditary forms of colorectal cancer, screening and surveillance.
- Genetic susceptibility in colorectal cancer.
- Epigenetics of colorectal cancer.

2. **Physiopathology of pancreatic cancer:**
- Implication of microRNAs in pancreatic cancer.
- Epithelial-mesenchymal transition in the local and metastatic spread of pancreatic cancer.

3. **Research and innovation in endoscopy:**
- Endoscopic ultrasound.
- Advanced diagnostic techniques.
- Endoscopic therapies.

4. **Research and innovation in surgery:**
- Surgery for colorectal cancer.
- Surgery for pancreatic cancer.



GROUP Sergi Castellvi-Bel

RESEARCH GROUP
GENETIC PREDISPOSITION TO COLORECTAL CANCER



GROUP LEADER
Sergi Castellví-Bel (IDIBAPS)

Genetic predisposition to colorectal cancer" is a research group led by Sergi Castellví-Bel has the main objective of identifying genetic variants involved in germline susceptibility to colorectal cancer (CRC), and to explore its application in the clinical management of patients.

The main research lines are:

1. Next generation sequencing: new predisposition genes for CRC
2. Genetic association studies: new genetic variants for CRC and advanced adenoma risk
3. Fine mapping and functionality studies for genetic variants
4. Genotype-phenotype correlation of the genetic variants with clinical characteristics of patients, including their value in establishing prognosis

RESEARCH GROUP
GENE THERAPY AND CANCER GROUP



GROUP LEADER
Cristina Fillat (IDIBAPS)

Our group main research interests focus on pancreatic cancer and in the development of gene therapy strategies for rare diseases. In pancreatic cancer we work on two major research lines: 1) to understand the contribution of specific molecules to pancreatic carcinogenesis; 2) to rationally design and preclinically evaluate therapeutic strategies based on engineered oncolytic adenovirus. We aim at understanding the host contribution to the oncolytic virus effect. Our goal is to identify biological interfaces between viruses and tumor cells to maximize effective therapeutic viruses and/or chemical-biological combination therapies.



GROUP Cristina Fillat

PUBLICATIONS

Originals / I.F.: 295.292

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6. Carballal S, Maisterra S, Lopez-Serrano A, Gimeno-Garcia AZ, Vera MI, Marin-Garbriel JC, Diaz-Tasende J, Marquez L, Alvarez MA, Hernandez L, De Castro L, Gordillo J, Puig I, Vega P, Bustamante-Balen M, Acevedo J, Penas B, Lopez-Ceron M, Ricart E, Cuatrecasas M, Jimeno M, Pellise M. **Real-life chromoendoscopy for neoplasia detection and characterisation in long-standing IBD.** *Gut.* gutjnl-2016-312332. IF: 14.921

7. Jais B, Rebours V, Malleo G, Salvia R, Fontana M, Maggino L, Bassi C, Manfredi R, Moran R, Lennon AM, Zaheer A, Wolfgang C, Hruban R, Marchegiani G, Fernández Del Castillo C, Brugge W, Ha Y, Kim MH, Oh D, Hirai I, Kimura W, Jang JY, Kim SW, Jung W, Kang H, Song SY, Kang CM, Lee WJ, Crippa S, Falconi M, Gomatos I, Neoptolemos J,

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Case reports / I.F.: 11.494

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GRANTS FOR RESEARCH IN PROGRESS

Balaguer F. **Methylation biomarker development for noninvasive detection of colorectal cancer.**
Sponsored by: Baylor Research Institute. 1R01CA181572
Duration: 01/05/2014-30/04/2016

Balaguer F. **Desarrollo de biomarcadores de metilación en suero para la detección precoz de neoplasia colorrectal.**
Sponsored by: Instituto De Salud Carlos III. PI13/00719
Duration: 01/01/2014-31/12/2016

Camps J. **Implications of copy number variants of the genome in the etiology and progression of colorectal cancer.**
Sponsored by: European Commission. CE-FP7-PPLE-2012-CIG
Duration: 01/12/2013-30/11/2017

Camps J. **Implications of genomic copy number variants in the etiology, progression, and response to treatment of colorectal cancer.**
Sponsored by: Instituto de Salud Carlos III (ISCIII). CP13/00160
Duration: 01/02/2014-31/01/2017

Camps J. **Implicaciones de la heterogeneidad intratumoral en la respuesta al tratamiento de quimio-radioterapia neoadyuvante en pacientes con cáncer de recto.**
Sponsored by: Instituto de Salud Carlos III (ISCIII). PI14/00783
Duration: 01/01/2014-31/12/2016

Castells A. **Identificación de nuevos biomarcadores para la prevención del cáncer colorrectal.**
Sponsored by: Asociación Española Contra el Cáncer (AECC). GCB13131592CAST
Duration: 01/10/2013-30/09/2016

Castells, A. **Diseño y puesta a punto de kits para el diagnóstico del cáncer de colon en sangre basados en plataformas multiplex.**
Sponsored by: MINECO_INNPACTO13. RTC-2014-1518-1
Duration: 28/01/2014-31/12/2016

Castells A. **Detección de miRNA en heces con nueva estrategia de cribado del cancer colorrectal: identificación y validación en población de riesgo medio.**
Sponsored by: Ministerio de Economía y Competitividad. SAF2014-54453-R
Duration: 01/01/2015-31/12/2018

Castells A. **Development of a novel blood-based diagnostic test for colorectal cancer.**
Sponsored by: Ministerio de Economía y Competitividad (PROTEIN ALTERNATIVES S.L) PHC-12-2014_Castells_Pivotal
Duration: 19/11/2015-19/11/2018

Castells A. **Desarollo de un kit de diagnóstico precoz de cáncer colorrectal mediante método no invsivo en plasma basado en la expresión de miRNAs.**
Sponsored by: Ministerio De Economia Y Competitividad (MINECO). RTC-2015-3850-1
Duration: 25/05/2015-31/12/2018

Castellví-Bel S. **Cooperation studies on inherited susceptibility to colorectal cancer.**
Sponsored by: COST programme (European Union). Action BM1206
Duration: 01/05/2016-29/04/2017

Castellví-Bel S. **Identificación de genes de predisposición germinal en un subgrupo de cáncer colorrectal: el síndrome de poliposis serrada en el punto de mira.**
Sponsored by: Instituto de Salud Carlos III (ISCIII). PI14/00173
Duration: 01/01/2015-31/12/2017

Fernandez-Esparrach G. **Intelligent in-Vivo Endoscopic Diagnosis and Intervention Support Systems (iVENDIS).**
Sponsored by: Ministerio de Economía y Competitividad. DPI2015-65286-R. RETOS 2015.
Duration: 01/01/2016-31/12/2017

Fillat C. **Identification of functional pathways involving MIR-155 and MIR-802 chromosome 21 miRNAs participating in down syndrome brain ageing.**
Sponsored by: Fondation Jerome Lejeune. Flejeune_2014_01
Duration: 21/07/2014-20/07/2016

Fillat C. **Increasing the efficacy of oncolytic adenovirus through replication enhancement strategies in pancreatic tumors.**
Sponsored by: Ministerio de Economía y Competitividad. BIO2014-57716-C2-2-R
Duration: 01/01/2015-31/12/2017

Fillat C. **Recubrimiento polimérico multi-capa de adenovirus oncolíticos para la re-**

gulación de su tropismo en el tratamiento del adenocarcinoma de páncreas.
Sponsored by: Ministerio de Economía y Competitividad. RTC-2015-4189-1
Duration: 01/09/2015-30/04/2018

Vaquero E.C. **Regulación mediada por ZEB1 del estroma tumoral: Implicaciones en el desarrollo y la quioresistencia en el cáncer de páncreas.**
Sponsored by: Instituto de Salud Carlos III (ISCIII). PI12/01430
Duration: 01/01/2013-31/12/2016

Vidal O. **Papel terapeutico de las anhidrasas carbonicas ix y ii en la prevencion de la lesion por isquemia reperfusion asociada al trasplante hepatico.**
Sponsored by: Instituto de Salud Carlos III (ISCIII). PI12/01407
Duration: 01/01/2013-31/12/2016

DOCTORAL THESES

Castellví-Bel S, Lozano JJ. **Identificación y caracterización de nuevos genes de predisposición al cáncer colorrectal familiar.**
Phd student: Clara Esteban Jurado

Cuatrecasas M, Castells A. **Caracterización de la estadificación molecular en carcinoma de colon. Correlación clínico-histológica.**
PhD student: Iban Aldecoa Ansorregui

Fernández-Esparrach G, Gines MA. **Impacto clínico y seguridad de la ultrasonografía endoscópica (USE) y de la punción aspirativa guiada por USE (USE-PAAF) en las lesiones quísticas del páncreas.**
PhD student: Antonio José Rodríguez de Jesús

Fillat C. **Estrategias terapéuticas frente al cáncer de páncreas basadas en adenovirus oncolíticos eficaces sobre la población de células madre tomorales y su combinación con quimioterapia.**
PhD student: Ana Mato Berciano

Fillat C. **Nuevas estrategias de control post-transcripcional en el desarrollo de adenovirus oncolíticos.**
PhD student: Eneko Villanueva Verdejo

3.12 Inherited metabolic diseases

LOCATION
HCB building

KEYWORDS
1. **Mitochondrial diseases**
2. **Mitochondrial cofactors**
3. **Lysosomal diseases**
4. **Inherited metabolic diseases**
5. **Inborn errors of metabolism**
6. **Organic acidurias**

Original publications from 2014 to 2016

YEAR	I.F.	TOTAL	Q1	Q2
2014	39.52	10	6	3
2015	25.92	7	2	5
2016	51.81	11	7	4

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CIBERER
AGAUR_SGR14: 393



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STRATEGIC OBJECTIVES

The strategic objective of our group is to investigate the genetic and biochemical bases, as well as the physiopathological mechanisms, of a group of rare diseases called "inherited metabolic diseases or inborn errors of metabolism". The ultimate aim is to develop new diagnostic and therapeutic strategies. On the other hand, we conduct translational research, stimulating the transfer of knowledge from basic research to the clinical practice, and vice versa.

MAIN LINES OF RESEARCH

Within the general line of inherited metabolic diseases, our specific research lines are:

1. Identification of genes responsible for Mendelian disorders, particularly in patients with defects of the



TEAM Antonia Ribes

mitochondrial energy metabolism. These patients are preselected on the basis of their clinical and biochemical characteristics. Within this line we aim to identify new defects to generate knowledge that could be implemented to the diagnosis and to the design of therapeutic options.

2. Physiopathology of the identified diseases. In addition to the classical methodologies we aim to introduce the study of lipidomics, organelle-organelle interaction, mitochondrial dynamics, mitochondrial supercomplexes and high resolution respirometry.

3. Therapeutic approaches. This line involves the testing of chemical and peptide libraries. Selection has been made of disease-causing missense mutations previously identified by our group in a wide range of diseases. We are particularly interested in compounds with chaperone action and compounds capable of inducing lysosomal exocytosis and autophagy promotion.

PUBLICATIONS

Originals / I.F.: 25.923

1. Ortigoza-Escobar JD, Molero-Luis M, Arias A, Oyarzabal A, Darín N, Serrano M, Garcia-Cazorla A, Tondo M, Hernández M, Garcia-Villoria J, Casado M, Gort L, Mayr JA, Rodríguez-Pombo P, Ribes A, Artuch R, Pérez-Dueñas B. **Free-thiamine is a potential biomarker of thiamine transporter-2 deficiency: a treatable cause of Leigh syndrome.** *Brain.* 139(Pt 1):31-8. IF: 10.103

2. Yubero D, Adin A, Montero R, Jou C, Jiménez-Mallebrera C, García-Cazorla A, Nascimento A, O'Callaghan MM, Montoya J, Gort L, Navas P, Ribes A, Ugarte MD, Artuch R. **A statistical algorithm showing coenzyme Q10 and citrate synthase as biomarkers for mitochondrial respiratory chain enzyme activities.** *Sci Rep.* 6(1):15. IF: 5.228

3. Tort F, Ugarteburu O, Torres MA, Garcia-Villoria J, Giros M, Ruiz A, Ribes A. **Lysine Restriction and Pyridoxal Phosphate Administration in a NADK2 Patient.** *Pediatrics.* 138(5). IF: 5.196

4. Zampieri S, Filocamo M, Pianta A, Lualdi S, Gort L, Coll M J, Sinnott R, Geberhiwot T, Bembi B, Dardis A. **SMPD1 Mutation Update: Database and Comprehensive Analysis of Published and Novel Variants.** *Hum Mutat.* 37(2):139-147. IF: 5.089

5. Asencio C, Rodríguez-Hernandez MA, Briones P, Montoya J, Cortés A, Emperador S, Gavilán A, Ruiz-Pesini E, Yubero D, Montero R, Pineda M, O'Callaghan MM, Alcázar-Fabra M, Salviati L, Artuch R, Navas P. **Severe encephalopathy associated to pyruvate dehydrogenase mutations and unbalanced coenzyme Q10 content.** *Eur J Hum Genet.* 24(3):367-72. IF: 4.580

6. Macias-Vidal J, Guerrero M, Estanyol J M, Aguado C, Knecht E, Coll M J, Bachs O. **Identification of lysosomal Npc1-Binding Proteins: Cathepsin D activity is regulated by NPC1.** *Proteomics.* 16(1):150-158. IF: 4.079

7. Ferrer-Cortès X, Narbona J, Bujan N, Matalonga L, del Toro M, Arranz JA, Riudor E, Garcia-Cazorla A, Jou C, O'Callaghan M, Pineda M, Montero R, Arias A, García-Villoria J, Alston CL, Taylor RW, Briones P, Ribes A, Tort F. **A leaky splicing mutation in NFU1 is associated with a particular biochemical phenotype. Consequences for the diagnosis.** *Mitochondrion.* 26:72-80. IF: 3.647

8. Ortigoza-Escobar JD, Oyarzabal A, Montero R, Artuch R, Jou C, Jiménez C, Gort L, Briones P, Muchart J, López-Gallardo E, Emperador S, Pesini ER, Montoya J, Pérez B, Rodríguez-Pombo P, Pérez-Dueñas B. **Ndufs4 related Leigh syndrome: A case report and review of the literature.** *Mitochondrion.* 28:73-8. IF: 3.647

9. Yubero D, Montero R, Martin MA, Montoya J, Ribes A, Grazina M, Trevisson E, Rodriguez-Aguilera JC, Hargreaves IP, Salviati L, Navas P, Artuch R, Jou C, Jimenez-Mallebrera C, Nascimento A, Pérez-Dueñas B, Ortez C, Ramos F, Colomer J, O'Callaghan M, Pineda M, Garcia-Cazorla A, Espinos C, Ruiz A, MacAya A, Marcé-Grau A, García-Villoria J, Arias A, Emperador S, Ruiz-Pesini E, López-Gallardo E, Neergheen V, Simões M, Diogo L, Blázquez A, Gonzalez-Quintana A, Delmiro A, Domínguez-González C, Arenas J, Garcia-Silva MT. **Secondary coenzyme Q10 deficiencies in oxidative phosphorylation (OXPHOS) and non-OXPHOS disorders.** *Mitochondrion.* 30:51-58. IF: 3.647

10. Tort F, Ferrer-Cortes X, Ribes A. **Differential diagnosis of lipoic acid synthesis defects.** *J Inherit Metab Dis.* 39(6):781-793. IF: 3.541

11. Yubero D, Brandi N, Ormazabal A, Garcia-Cazorla À, Pérez-Dueñas B, Campistol J, Ribes A, Palau F, Artuch R, Armstrong J; Working Group. **Targeted Next Generation Sequencing in Patients with Inborn Errors of Metabolism.** *PLoS One.* 11(5):e0156359. IF: 3.057

Reviews / I.F.: 4.396

1. Vanier MT, Gissen P, Bauer P, Coll MJ, Burlina A, Hendriksz CJ, Latour P, Goizet C, Welford RW, Marquardt T, Kolb SA. **Diagnostic tests for Niemann-Pick disease type C (NP-C): A critical review.** *Mol Genet Metab.* 118(4):244-54. IF: 3.093

2. Villoria JG, Pajares S, López RM, Marin JL, Ribes A. **Neonatal Screening for Inherited Metabolic Diseases in 2016.** *Semin Pediatr Neurol.* 23(4):257-272. IF: 1.303

Case reports / I.F.: 1.267

1. Lario A, de Miguel C, Ojeda E, Gil S, Coll MJ, Alfonso P. **New mutation in a young woman diagnosed with Niemann-Pick disease type C.** *Med Clin.* 146(11):494-6. IF: 1.267

GRANTS FOR RESEARCH IN PROGRESS

Coll MJ. **An EU rare disease registry for Niemann-Pick disease type A, B and C.**
Sponsored by: European Commission DG-SANCO. 308901
Duration: 01/04/2013-31/12/2016

Ribes A. **Identificación de pacientes con mutaciones en genes implicados en la biosíntesis y transporte de cofactores del metabolismo energético mitocondrial.**
Sponsored by: Instituto de Salud Carlos III (ISCIII). PI12/01138
Duration: 01/01/2013-30/06/2016

Ribes A. **European Network and registry for Homocystinurias and Methylation Defects.**
Sponsored by: European Comission DG-SANCO. E-HOD
Duration: 01/01/2013-31/12/2016

Ribes A. **Molecular links between diabetes and neurodegenerative disorders.**
Sponsored by: Instituto de Salud Carlos III (ISCIII). PIE14/00061
Duration: 01/01/2014-31/12/2017

Ribes A. **Implementació de la medicina personalitzada basada en la genómica en malalties minoritaries neurologiques no diagnosticades.**
Sponsored by: Generalitat de Catalunya. SLT002/16/00174 94981
Duration: 01/01/ 2017-31/12/2019

Tort F. **Identification of genes involved in 3-methylglutaconic aciduria and congentital disorders of glycosylation.**
Sponsored by: BBMRI-LPC, WTSI, EuroBioBank CNAG-CRG.
Duration: 01/01/2016 – 31/12/2016

Ribes A. **Molecular links between diabetes and neurodegenerative disorders.**
Sponsored by: CIBER, una iniciativa del instituto de salud Carlos III (ISCIII)
Convocatòria: Integrated Projects of Excellence Call
Duration: 01/01/2015-31/12/2018

Ribes A. **Grup d'estudi de malalties metabòliques hereditàries.**
Sponsored by: Agència de Gestió d'Ajuts Universitaris i de Recerca (AGAUR)
Duration: 01/01/2014-31/12/2017

Ribes A. **Identificación de pacientes con mutaciones en genes implicados en la biosíntesis y transporte de cofactores del metabolismo energético mitocondrial.**
Sponsored by: CIBER, una iniciativa del instituto de salud Carlos III (ISCIII)- Acciones Cooperativas y Complementarias Intramurales (ACCI)
Duration: 01/01/2015-31/12/2016

DOCTORAL THESES

Briones P, Artuch R. **Estudis bioquímics i moleculars en pacients amb deficiències mitocondrials i de coenzim Q10.**
PhD student: Nuria Bujan Murlà

Ribes A, Gort L. **Búsqueda de nuevas estrategias y agentes terapéuticos en enfermedades metabólicas hereditarias.**
PhD student: Leslie Matalonga Borrel

Ribes A. **Estudios de biomarcadores y de posibles terapias en la deficiencia del transportador de creatina y en la enfermedad de Niemann-Pick tipo C.**
PhD student: Sonia Pajares

Ribes A. **Deficiencia de 2-metil-3-hidroxibutiril-coa deshidrogenasa (MHBD o HSD10) e implicaciones en la enfermedad de Alzheimer.**
PhD student: Judit Garcia Villoria

3.13 Genomic programming of beta cells and diabetes

LOCATION
CEK building

FOR FURTHER INFORMATION
http://www.imperial.ac.uk/medicine/beta-cell-genome-regulation-laboratory

KEYWORDS
1. **Epigenetics**
2. **Mouse Genetic Analysis of Beta Cells Regulation**
3. **Genomic Regulation of Pancreatic Beta Cells**
4. **Pancreas Regeneration**
5. **Type 2 Diabetes Molecular Pathophysiology**

Original publications from 2014 to 2016

YEAR	I.F.	TOTAL	Q1	Q2
2014	149.14	7	7	-
2015	161.05	9	9	-
2016	16.03	2	2	-

TEAM INVOLVED IN
CIBERDEM
AGAUR_SGR14: 808



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STRATEGIC OBJECTIVES

A study has been published that defines the function of long non-coding RNAs (lncRNAs) in genetic networks involved in type 2 diabetes.

MAIN LINES OF RESEARCH

1. Dissection of the genetic mechanisms underlying the pathogenesis of human diabetes.
2. Understanding the epigenome of pancreatic beta cells and its implications for the development, plasticity and growth of beta cells
3. Mouse genetic analysis of beta-cell gene regulation.
4. The regeneration of pancreatic beta cells.



TEAM Jorge Ferrer

PUBLICATIONS

Originals / I.F.: 16.027

1. Arnes L, Akerman I, Balderes DA, Ferrer J, Sussel L. **βlinc1 encodes a long noncoding RNA that regulates islet β-cell formation and function.** *Genes Dev.* 30(5):502-507. IF: 10.042

2. Horikoshi M, Pasquali L, Wiltshire S, Huyghe JR, Mahajan A, Asimit JL, Ferreira T, Locke AE, Robertson NR, Wang X, Sim X, Fujita H, Hara K, Young R, Zhang W, Choi S, Chen H, Kaur I, Takeuchi F, Fontanillas P, Thuillier D, Yengo L, Below JE, Tam CH, Wu Y, Abecasis G, Altshuler D, Bell GI, Blangero J, Burtt NP, Duggirala R, Florez JC, Hanis CL, Seielstad M, Atzmon G, Chan JC, Ma RC, Froguel P, Wilson JG, Bharadwaj D, Dupuis J, Meigs JB, Cho YS, Park T, Kooner JS, Chambers JC, Saleheen D, Kadowaki T, Tai ES, Mohlke KL, Cox NJ, Ferrer J, Zeggini E, Kato N, Teo YY, Boehnke M, McCarthy MI, Morris AP; T2D-GENES Consortium. **Transancestral fine-mapping of four type 2 diabetes susceptibility loci highlights potential causal regulatory mechanisms.** *Hum Mol Genet.* 25(10):2070-2081. IF: 5.985

Letters / I.F.: 26.946

1. de Vas M, Ferrer J. **Can Insulin Production Suppress β Cell Growth?** *Cell Metab.* 23(1):4-5. IF: 17.303

2. Ferrer J, Real FX. **The cis-regulatory switchboard of pancreatic ductal cancer.** *Embo J.* 35(6):558-560. IF: 9.643

GRANTS FOR RESEARCH IN PROGRESS

Ferrer J. **Diabetes Research on patients Tratification.**
Sponsored by: Innovative Medicines Initiative (IMI). IMI/115317
Duration: 01/02/2012-31/01/2017

Ferrer J. **3D ADAPT Analysis of tridimensional changes caused by type 2 diabetes associated variants.**
Sponsored by: European Commission. CE_H2020-MSCA-IF-2014
Duration: 01/06/2015-31/05/2017

Ferrer J. **Genome regulators as targets for enhancing beta cell regeneration and function / Evaluación de reguladores genómicos como dianas para estimular la regeneración y función de las células beta (Betareg).**
Sponsored by: Ministerio de Economía y competitividad. BFU2014-54284-R
Duration: 01/01/2015-31/12/2017

Ferrer J. **Computational and functional annotation of genomic elements during development of the model vertebrate zebrafish (Zencode).**
Sponsored by: European Commission H2020-MSCA-ITN-2014-ETN
Duration: 01/01/2015-31/12/2018

Ferrer J. **Development of a systems biomedicine approach for risk identification, prevention and treatment of type 2 diabetes.**
Sponsored by: Université Libre de Bruxelles. H2020-PHC-2015-2STD2
Duration: 01/01/2016-31/12/2019

Ferrer J. **Identification and functional characterization of novel genes and reguatory genomic regions associated with Maturity-Onset Diabetes of the Young (MODY)**
Sponsored by: University of Copenhagen. Research Alliance
Duration: 01/06/2015-31/12/2018

DOCTORAL THESES

Ferrer J. **Discovery of novel genes and genetic regulatory mechanisms through integrative genomic, epigenetic and transcriptional analysis in human pancreatic islet cells.**
PhD student: Ignasi Moran Castany

Ferrer J. **Genetic and epigenetic regulation of gene expression in pancreatic islets.**
PhD student: Nikolina Nakic

3.14 Diabetes: metabolic and molecular networks

LOCATION
CEK building

KEYWORDS
1. **Type 1 diabetes**
2. **Type 2 diabetes**
3. **Obesity**
4. **Autoimmunity**
5. **Pancreatic islets**

Original publications from 2014 to 2016

YEAR	I.F.	TOTAL	Q1	Q2
2014	156.04	32	20	4
2015	120.82	27	16	9
2016	168.97	32	24	3

TEAM INVOLVED IN
CIBERDEM
AGAUR_SGR: 76, 659

AWARDS

Doctor Honoris Causa
Institution: Universitat Rovira i Virgili
Awardee/s: Ramon Gomis (conferiment sessió URV 28/04/2016; acte acadèmic abril 2017)

Premio Mejores Artículos Originales publicados en la Revista Científica de la SED 2016 al artículo: Rios P, Casado N, Matas O, Martín M, Iglesias S, Giménez M, Vinagre I, Conget I. Transition of continuous subcutaneous insulin infusion systems in a very short time frame as a consequence of a public tender process. Av Diabetol. 2015;31:8-12
Institution: SED
Awardee/s: Giménez M, Vinagre I, Conget I

Ambassador Prize
Institution: Regió7
Awardee/s: Pere Santamaria

Ayuda a la movilidad internacional
Institution: F-SED 2016
Awardee/s: Margarida Gimenez



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Ana de Hollanda (HCB)
Amanda Jiménez (HCB)
Pere Leyes (HCB)
Violeta Moizé (HCB)
Mireia Mora (HCB)
Belén Nadal (UB)
Aleix Sala (CIBEROBN)
Mattia Squarcia (HCB)
Irene Vinagre (HCB)

STRATEGIC OBJECTIVES

1. To evaluate the molecular, genetic, and environmental contribution to the determinants of different endocrinological diseases.
2. To understand the contribution and interaction of central and peripheral factors in the regulation of glucose homeostasis and energy balance.
3. To translate new concepts in immunobiology into clinical studies.

MAIN LINES OF RESEARCH

1. Investigation of the mechanisms involved in the destruction, survival and proliferation of pancreatic beta-cells
2. Manipulation of defined populations of neurons in the central nervous system in order to correlate the function of a particular protein with specific physiological and behavioural outputs.
3. Bariatric surgery and the resolution of comorbidites associated with obesity.
4. Mediterranean dietary pattern and other nutrional strategies for the prevention of type 2 diabetes and cardiovascular disease.
5. Study of the molecular and epigenetic mechanisms of cardiometabolic memory in humans and animal models of hypercortisolism
6. Depicting nanomedicine based strategies to efficiently suppress the progression of several different autoimmune disorders without compromising systemic immunity
7. Transalation of knowledge gained on immunobiology into clinical studies for chronic inflammatory disorders such as type 1 diabetes
9. To improve algorithms of insulin delivery that may help reduce the burden of hyperglycemia in subjects with type 1 diabetes.

RESEARCH GROUP

NEURONAL CONTROL OF METABOLISM (NEUCOME)



GROUP LEADER

Marc Claret (IDIBAPS)

Marc Claret's general research interests are focused on the study of the molecular mechanisms by which particular neurocircuits control food intake, body weight and glucose metabolism. To achieve this aim, his group uses a combination of neuroanatomy, molecular and genetic tools to manipulate defined populations of neurons in order to correlate the function of a particular protein with specific physiological and behavioural outputs. Understanding the physiological mechanisms controlling energy balance and the pathophysiological alterations leading to obesity and diabetes, are the first steps towards developing new and more effective therapeutic approaches for the treatment of these metabolic conditions.

RESEARCH GROUP

PANCREATIC ISLETS: BIOMARKERS AND FUNCTION



GROUP LEADER

Ramon Gomis (HCB-IDIBAPS)

Our team conducts two main research programs: the first one is aimed at investigating the mechanisms involved in the destruction, survival and proliferation of the pancreatic beta-cell, the molecules that participate in these processes, and



GROUP Ramon Gomis



GROUP Marc Claret

how the activation or inhibition of these molecules may help recover beta-cell mass as therapeutic targets for treating diabetes; the second one seeks to obtain insulin-producing cells from human skin fibroblasts and to analyze their function, revascularization process and capacity for reversing diabetes when transplanted into experimental models of diabetes.
In addition, the group participates in research projects in collaboration with Alícia Foundation that focus on investigating different nutritional strategies for preventing diabetes.

50/50 PROGRAM

ENDOCRINE DISORDERS: CROSSTALK BETWEEN MOLECULAR AND METABOLIC DETERMINANTS



GROUP LEADER

Felicia Hanzu (HCB-IDIBAPS)

Our group studies the determinants underlying physiopathological mechanisms of endocrine tumors and gender dysphoria. The aim is to translate knowledge from the basic research into the clinical practice by focusing on the development of new diagnostic and treatment strategies.

Translational research:

- Study of molecular and epigenetic mechanisms of the cardiometabolic memory in hypercortisolism. Focus on cellular plasticity and function of the adipose tissue.
- Study of cardiovascular effects of gonadal steroid treatment in gender identity disorders.

Technological Innovation:

- Development of new diagnostic and treatment techniques of thyroid nodular disease.

RESEARCH GROUP

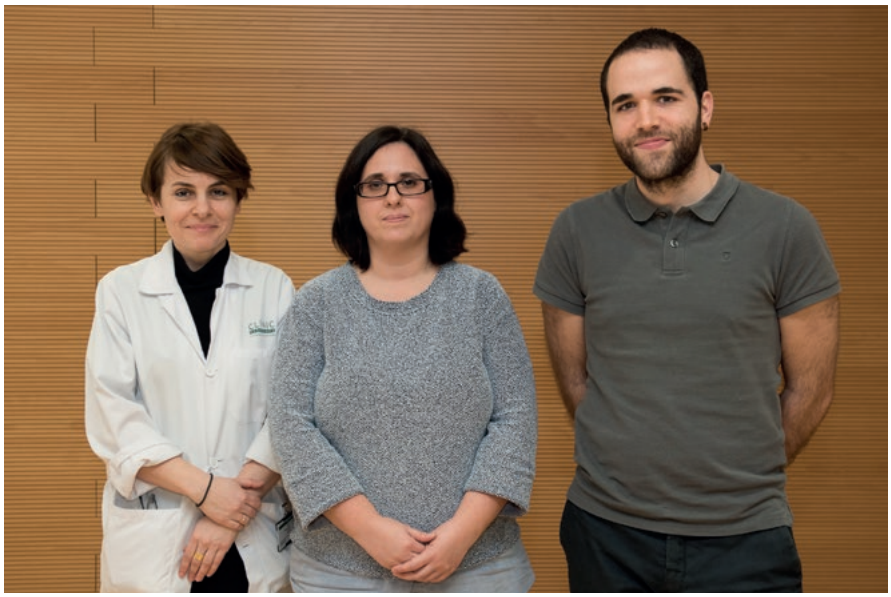
PATHOGENESIS AND TREATMENT OF AUTOIMMUNITY



GROUP LEADER

Pere Santamaria (IDIBAPS)

The group pursues translational studies on the immunobiology of a novel therapeutic approach for chronic inflammatory disorders based on nanomedicine. This therapeutic approach triggers the formation of extensive antigen- and disease-specific networks of regulatory T and B-cells that efficiently suppress the progression of several different autoimmune disorders without compromising systemic immunity.



GROUP Felicia Hanzu

RESEARCH GROUP

OBESITY: FROM EXCESS BODY FAT TO METABOLIC COMPLICATIONS



GROUP LEADER

Josep Vidal (HCB)

The main aim of our research group is to gain a greater understanding of the mechanisms that associate excess weight and dietary patterns with the development of metabolic disorders. For this purpose, we develop clinical and basic lines of research that seek to analyze metabolic adaptation response to situations including weight gain, exposure to certain dietary patterns, and weight loss in human subjects and animal models. At present, our studies involving human subjects focus on the Mediterranean diet model, and also weight loss associated with bariatric surgery.



GROUP Josep Vidal

PUBLICATIONS

Originals / I.F.: 168.969

1. Clemente-Casares X, Blanco J, Ambalavanan P, Yamanouchi J, Singha S, Fandos C, Tsai S, Wang J, Garabatos N, Izquierdo C, Agrawal S, Keough MB, Yong VW, James E, Moore A, Yang Y, Stratmann T, Serra P, Santamaria P. **Expanding antigen-specific regulatory networks to treat autoimmunity.** *Nature.* 530(7591):434-440. IF: 38.138

2. Perol L, Lindner JM, Caudana P, Nunez NG, Baeyens A, Valle A, Sedlik C, Loirat D, Boyer O, Creange A, Cohen JL, Rogner UC, Yamanouchi J, Marchant M, Leber XC, Scharenberg M, Gagnerault MC, Mallone R, Battaglia M, Santamaria P, Hartemann A, Traggiai E, Piaggio E. **Loss of immune tolerance to IL-2 in type 1 diabetes.** *Nat Commun.* 7:13027-. IF: 11.329

3. Aroda VR, Rosenstock J, Wysham C, Unger J, Bellido D, González-Gálvez G, Takami A, Guo H, Niemoeller E, Souhami E, Bergenstal RM; LixiLan-L Trial Investigators. **Efficacy and Safety of LixiLan, a Titratable Fixed-Ratio Combination of Insulin Glargine Plus Lixisenatide in Type 2 Diabetes Inadequately Controlled on Basal Insulin and Metformin: The LixiLan-L Randomized Trial.** *Diabetes Care.* 39(11):1972-1980. IF: 8.934

4. Sanahuja J, Alonso N, Diez J, Ortega E, Rubinat E, Traveset A, Alcubierre N, Betriu A, Castelblanco E, Hernandez M, Purroy F, Arcidiacono MV, Jurjo C, Fernandez E, Puig-Domingo M, Groop PH, Mauricio D. **Increased Burden of Cerebral Small Vessel Disease in Patients With Type 2 Diabetes and Retinopathy.** *Diabetes Care.* 39(9):1614-1620. IF: 8.934

5. Mir-Coll J, Duran J, Slebe F, García-Rocha M, Gomis R, Gasa R, Guinovart JJ. **Genetic models rule out a major role of beta cell glycogen in the control of glucose homeostasis.** *Diabetologia.* 59(5):1012-1020. IF: 6.206

6. Aronson R, Reznik Y, Conget I, Castañeda JA, de Portu S, Runzis S, Lee SW, Cohen O; OpT2mise Study Group. **Sustained efficacy of insulin pump therapy compared with multiple daily injections in type 2 diabetes: 12-month data from the OpT2mise randomized trial.** *Diabetes Obes Metab.* 18(5):500-7. IF: 6.198

7. Ruiz-Lozano T, Vidal J, de Hollanda A, Canteras M, Garaulet M, Izquierdo-Pulido M. **Evening-chronotype associates with obesity in severe obese subjects: interaction with CLOCK 3111T/C.** *Int J Obes.* 40(10):1550-1557. IF: 5.337

8. Figueroa ALC, Figueiredo H, Rebuffat SA, Vieira E, Gomis R. **Taurine Treatment Modulates Circadian Rhythms in Mice Fed A High Fat Diet.** *Sci Rep.* 6:36801. IF: 5.228

9. Pujadas G, Cervantes S, Tutusaus A, Ejarque M, Sánchez L, Garcia A, Esteban Y, Fargas L, Alsina B, Hartmann C, Gomis R, Gasa R. **Wnt9a deficiency discloses a repressive role of Tcf7l2 on endocrine differentiation in the embryonic pancreas.** *Sci Rep.* 6:19223. IF: 5.228

10. Sarroca S, Molina-Martínez P, Areste C, Etzrodt M, Garcia de Frutos P, Gasa R, Antonell A, Molinuevo JL, Sanchez-Valle R, Saura CA, Llado A, Sanfeliu C. **Preservation of cell-survival mechanisms by the presenilin-1 K239N mutation may cause its milder clinical phenotype.** *Neurobiol Aging.* 46:169-179. IF: 5.153

11. Herreras Z, Cofán M, Catalan M, Calvo C, Pinyol M, Amor AJ, Gilabert R, Ros E, Sala-Vila A, Ortega E. **The proportion of total C18:1 trans-fatty acids in red blood cell membranes relates to carotid plaque prevalence.** *J Nutr Biochem.* 38:81-85. IF: 4.668

12. Menendez E, Delgado E, Fernandez-Vega F, Prieto MA, Bordiu E, Calle A, Carmena R, Castano L, Catala, M; Franch, J, Gaztambide, S, Girbes, J, Goday, A, Gomis, R, Lopez-Alba, A, Martinez-Larrad, MT, Mora-Peces, I, Ortega, E, Rojo-Martinez, G, Serrano-Rios, M, Urrutia, I, Valdes, S, Vazquez, JA, Vendrell, J, Soriguer, F. Prevalence, Diagnosis, Treatment, and Control of Hypertension in Spain. **Results of the Di@bet.es Study.** *Rev Esp Cardiol.* 69(6):572-8. IF: 4.596

13. Masmiquel L, Leiter LA, Vidal J, Bain S, Petrie J, Franek E, Raz I, Comlekci A, Jacob S, van Gaal L, Baeres, FMM; Marso, SP; Eriksson, M; LEADER investigators. **LEADER 5: prevalence and cardiometabolic impact of obesity in cardiovascular high-risk patients with type 2 diabetes mellitus: baseline global data from the LEADER trial.** *Cardiovasc Diabetol.* 15:29. IF: 4.534

14. Ruiz-Lozano T, Vidal J, de Hollanda A, Scheer FAJL, Garaulet M, Izquierdo-Pulido M. **Timing of food intake is associated with weight loss evolution in severe obese patients after bariatric surgery.** *Clin Nutr.* 35(6):1308-1314. IF: 4.487

15. Hyslop CM, Tsai S, Shrivastava V, Santamaria P, Huang C. **Prolactin as an adjunct for type 1 diabetes immunotherapy.** *Endocrinology.* 157(1):150-165. IF: 4.159

16. Amor AJ, Catalan M, Perez A, Herreras Z, Pinyol M, Sala-Vila A, Cofan M, Gilabert R, Ros E, Ortega E. **Nuclear magnetic resonance lipoprotein abnormalities in newly-diagnosed type 2 diabetes and their association with preclinical carotid atherosclerosis.** *Atherosclerosis.* 247:161-169. IF: 3.942

17. Careaga M, Esmatjes E, Nunez I, Molero J, Vidal J, Flores L. **Effect of weight loss on abnormal 24-hour blood pressure patterns in severely obese patients.** *Surg Obes Relat Dis.* 12(9):1719-1724. IF: 3.540

18. Ghio B, Jiménez A, Corcelles R, Flores L, Lacy A, Vidal J. **Midterm effects of bariatric surgery in patients with insulin-treated type 2 diabetes.** *Surg Obes Relat Dis.* S1550-7289(16)30894-2. IF: 3.540

19. Aranda G, Careaga M, Hanzu FA, Patrascioiu I, Ríos P, Mora M, Morales-Romero B, Jiménez W, Halperin I, Casals G. **Accuracy of immunoassay and mass spectrometry urinary free cortisol in the diagnosis of Cushing's syndrome.** *Pituitary.* 19(5):496-502. IF: 3.407

20. Lecube A, De Hollanda A, Calañas A, Vilarrasa N, Rubio MA, Breton I, Goday A, Vidal J, Iglesias P, Fernández-Soto ML; Pellitero S; De Cos AI; Morales MJ; Campos C; Masmiquel L; Tinahones F; Pujante P; García-Luna PP; Bueno M; Cámara R; Bandrés O; Caixàs A. **Trends in Bariatric Surgery in Spain in the Twenty-First Century: Baseline Results and 1-Month Follow Up of the RICIBA, a National Registry.** *Obes Surg.* 26(8):1836-1842. IF: 3.346

21. Lindner C, Mora M, Farzam P, Squarcia M, Johansson J, Weigel UM, Halperin I, Hanzu FA, Durduran T. **Diffuse Optical Characterization of the Healthy Human Thyroid Tissue and Two Pathological Case Studies.** *PLoS One.* 11(1):e0147851. IF: 3.057

22. Ejarque M, Mir-Coll J, Gomis R, German MS, Lynn FC, Gasa R. **Generation of a conditional allele of the transcription factor Atonal Homolog 8 (Atoh8).** *PLoS One.* 11(1):e0146273. IF: 3.057

23. Brugnara L, Murillo S, Novials A, Rojo-Martinez G, Soriguer F, Goday A, Calle-Pascual A, Castano L, Gaztambide S, Valdes S, Franch J, Castell C, Vendrell J, Casamitjana R, Bosch-Comas A, Bordiu E, Carmena R, Catala M, Delgado E, Girbes J, Lopez-Alba A, Martinez-Larrad MT, Menendez E, Mora-Peces I, Pascual-Manich G, Serrano-Rios M, Gomis R, Ortega E. **Low Physical Activity and Its Association with Diabetes and Other Cardiovascular Risk Factors: A Nationwide, Population-Based Study.** *PLoS One.* 11(8):e0160959. IF: 3.057

24. Romera I, Gomis R, Crowe S, de Pablos-Velasco P, Aranda U, García A, Kis SG, Naderali E. **Empagliflozin in combination with oral agents in young and overweight/obese Type 2 diabetes mellitus patients: A pooled analysis of three randomized trials.** *J Diabetes Complications.* 30(8):1571-1576. IF: 2.955

25. Conget I, Mauricio D, Ortega R, Detournay B, CHADIG Study investigators. **Characteristics of patients with type 2 diabetes mellitus newly treated with GLP-1 receptor agonists (CHADIG Study): a cross-sectional multicentre study in Spain.** *BMJ Open.* 6(7):e010197. IF: 2.562

26. Traveset A, Rubinat E, Ortega E, Alcubierre N, Vazquez B, Hernández M, Jurjo C, Espinet R, Ezpeleta JA, Mauricio D. **Lower Hemoglobin Concentration Is Associated with Retinal Ischemia and the Severity of Diabetic Retinopathy in Type 2 Diabetes.** *J Diabetes Res.* 2016:3674946. IF: 2.431

27. Choudhary P, Olsen BS, Conget I, Welsh JB, Vorrink L, Shin JJ. **Hypoglycemia Prevention and User Acceptance of an Insulin Pump System with Predictive Low Glucose Management.** *Diabetes Technol Ther.* 18(5):288-91. IF: 2.198

28. Balfego M, Canivell S, Hanzu FA, Sala-Vila A, Martinez-Medina M, Murillo S, Mur T, Ruano EG, Linares F, Porras N, Valladares S, Fontalba M, Roura E, Novials A, Hernandez C, Aranda G, Siso-Almirall A, Rojo-Martínez G, Simó R, Gomis R. **Effects of sardine-enriched diet on metabolic control, inflammation and gut microbiota in drug-naive patients with type 2 diabetes: a pilot randomized trial.** *Lipids Health Dis.* 0,6791667. IF: 2.137

29. Costa Justus J F, Ligocki Campos A C, Figueroa A L, Gomis R, Santo M A, Favero G M, Milleo F Q, Vieira E. **Early Effect of Bariatric Surgery on the Circadian Rhythms of Adipokines in Morbidly Obese Women.** *Metab Syndr Relat Disord.* 14(1):16-22. IF: 2.121

30. Contreras I, Quirós C, Giménez M, Conget I, Vehí J. **Profiling intra-patient type I diabetes behaviors.** *Comput Meth Programs Biomed.* 136:131-41. IF: 1.862

31. Amor AJ, Cabrer M, Giménez M, Vinagre I, Ortega E, Conget I. **Clinical status of a cohort of patients with type 1 diabetes diagnosed more than 2 decades before. Results of a specific clinical follow-up program.** *Endocrinol Nutr.* 63(7):339-344. IF: 1.314

32. Conget I, Avila D, Gimenez M, Quiros C, Salaverria V, Duenas B. **Impaired awareness of hypoglycaemia in subjects with type 1 diabetes. Results of an online survey in a diabetes web site.** *Endocrinol Nutr.* 63(3):121-125. IF: 1.314

Reviews / I.F.: 4.854

1. Vidal J, de Hollanda A, Jimenez A. **GLP-1 is not the key mediator of the health benefits of metabolic surgery.** *Surg Obes Relat Dis.* 12(6):1225-1229. IF: 3.540

2. Jericó C, Breton I, García Ruiz de Gordejuela A, de Oliveira AC, Rubio MT, Tinahones FJ, Vidal J, Vilarrasa N. **Diagnosis and treatment of iron deficiency, with or without anemia, before and after bariatric surgery [Diagnóstico y tratamiento del déficit de hierro, con o sin anemia, pre y poscirugía bariátrica.** *Endocrinol Nutr.* 63(1):32-42. IF: 1.314

Letters / I.F.: 2.198

1. Conget I, Aronson R, Cohen O, Reznik Y. **Response to Letter to the Editor Regarding OpT2mise Study.** *Diabetes Technol Ther.* 18(7). IF: 2.198

Case reports / I.F.: 2.935

1. Pané A, Orois A, Careaga M, Saco A, Ortega E, Vidal J, Leyes P, Amor AJ. **Clinical onset of celiac disease after duodenal switch: a case report.** *Eur J Clin Nutr.* 70(9):1078-9. IF: 2.935

Clinical guidelines / I.F.: 1.098

1. Arrieta F, Iglesias P, Pedro-Botet J, Tebar FJ, Ortega E, Nubiola A, Pardo JL, Maldonado GF, Obaya JC, Matute P, Petrecca R, Alonso N, Sarabia E, Sanchez-Margalet V, Aleman JJ, Navarro J, Becerra A, Duran S, Aguilar M, Escobar-Jimenez F. **Diabetes mellitus and cardiovascular risk: Working group recommendations of Diabetes and Cardiovascular Disease of the Spanish Society of Diabetes (SED, 2015).** *Aten Primaria.* 48(5):325-336. IF: 1.098

Consortium publications / I.F.: 128.050

1. Wanner C, Inzucchi SE, Lachin JM, Fitchett D, von Eynatten M, Mattheus M, Johansen OE, Woerle HJ, Broedl UC, Zinman B; EMPA-REG OUTCOME Investigators. **Empagliflozin and Progression of Kidney Disease in Type 2 Diabetes.** *N Engl J Med.* 375(4):323-34. IF: 59.558

2. Marso SP, Daniels GH, Brown-Frandsen K, Kristensen P, Mann JF, Nauck MA, Nissen SE, Pocock S, Poulter NR, Ravn LS, Steinberg WM, Stockner M, Zinman B, Bergenstal RM, Buse JB; LEADER Steering Committee.; LEADER Trial Investigators. **Liraglutide and Cardiovascular Outcomes in Type 2 Diabetes.** *N Engl J Med.* 375(4):311-22. IF: 59.558

3. Punthakee Z, Gerstein HC, Bosch J, Tyrwhitt J, Jung H, Lee SF, Lonn E, Marsden T, McKelvie R, McQueen MJ, Morillo CA, Yusuf S, Dagenais GR, Díaz R, Maggioni AP, Probstfield J, Ramachandran A, Riddle MC, Rydén LE, Badings EA, Birkeland KI, Cardona E, Commerford P, Davies M, Fodor JG, Gomis R, Hanefeld M, Hildebrandt P, Kacerovsky-Bielesz G, Keltai M, Lanas F, Lewis BS, Lopez-Jaramillo P, Marin-Neto J, Marre M, Mendoza I, Pan CY, Pirags V, Rosenstock J, Spinas GA. **Cardiovascular and other outcomes postintervention with insulin glargine and omega-3 fatty acids (ORIGINALE).** *Diabetes Care.* 39(5):709-716. IF: 8.934

GRANTS FOR RESEARCH IN PROGRESS

Claret M. **Papel del neuropéptido alfa-MSH en el control de la homeostasis de la glucosa: interrogando circuitos hipotalámicos como un posible enfoque terapéutico para la diabetes tipo 2.**
Sponsored by: Instituto de Salud Carlos III.
PI13/01604
Duration: 01/01/2014-31/12/2016

Claret M. **Rutas de control de calidad mitocondriales en neurocircuitos hipotalámicos: descifrando unevos mecanismos de regulación para el control sistémico del metabolismo.**
Sponsored: MINECO SAF2015-71661-ERC
Duration: 01/11/2015-31/10/2016

Claret M. **Estudio del papel de la fusión mitocondrial en neuronas hipotalámicas sobre el control del apetito y la regulación del peso corporal: Orpa1 como potencial diana terapéutica para el tratamiento de la obesidad.**
Sponsored: Fundación BBVA
Duration: 11/11/2015-10/11/2016

Gasa R. **Development of novel strategies to generate insulin-producing cells from somatic and induced pluripotent stem cells.**
Sponsored by: Fundació La Marató de TV3. 120830
Duration: 21/01/2013-20/10/2016

Gomis R. **Menjar bé, envellir millor: avui, sardina.**
Sponsored by: Assoc Cat Universitats Publiques. RECERCAIXA_2013
Duration: 28/02/2014-30/04/2016

Gasa R. **Mecanismos reguladores de la proliferación de la célula beta pancreática en el diseño de nuevas estrategias terapéuticas en diabetes.**
Sponsored by: Instituto De Salud Carlos III. PI13/01500
Duration: 01/01/2014-31/12/2016

Gomis R. **Trasplantament cel·lular i diabetes mellitus: com millorar la revascularització i la supervivència de l'empelt.**
Sponsored by: Recerca Básica 2014, Academia de Ciències Mediques i de la Salut de Catalunya i de Balears
Duration: 20/05/2014-19/05/2016

Gomis R. **Impacte de la dieta rica en sardina en el control metabòlic de la diabetis tipus 2.**
Sponsored by: Ajut a la recerca en diabetis Gonçal Lloveras i Vallès
Duration: 14/03/2014-13/03/2016

Hanzu F. **Brain networks in transsexual people: a functional neuroimaging, metabolic and genetic study on the etiology of transsexuality and gender identity.**
Sponsored by: Ministerio de Economía y Competitividad
Duration: 01/01/2016-31/12/2018

Serra P. **New nanomedicines for the treatment of type 1 diabetes: modulating antiantidiabetogeniC T- and B-regulatory networks.**
Sponsored by: European Foundation For The Study Of Diabetes. EFSD/JDRF/NN_01
Duration: 01/01/2013-31/08/2016

Serra P. **Nanomedicines to expand type 1 diabetes specific T-regulatory-1 type cells: mechanistic and translational studies.**
Sponsored by: Juvenile Diabetes Res. Foundation. 5-CDA-2014-214-A-N
Duration: 01/06/2014-31/05/2019

Serra P. **Desarollo de una nanomedicina antígeno específica para el tratamiento de la autoinmunidad del sistema nervioso central.**
Sponsored by: Ministerio de Economia y Competitividad. MINECO_PCIN14
Duration: 01/01/2014-01/01/2017

Santamaria P. **Advancing human antigen-specific T-regulatory cell expanding nanomedicines for autoimmune disease: Translational studies in humanized mice.**
Sponsored by: MINECO. Integrated Projects of Excellence (coordinated Project 5 groups)
Duration: 01/01/2015-31/12/2017

Santamaría P, Serra P. **Advancing an antigen-specific nanomedicine for the treatment of central nervous system autoimmunity.**
Sponsored by: MINECO.ERA-NET NEURON II
Duration: 01/01/2015-31/12/2017

Santamaria P. **A new therapeutic platform based on nanotechnology to promote T- and B-regulatory networks.**
Sponsored by: European Comission. 704522
Duration: 01/05/2016-30/04/2018

Santamaria P. **Formació de cèl·lules B reguladores mediada per cèl·lules T-regulatory-type 1 (TR1) en resposta a la teràpia amb nanopartícules recobertes de complexos pèptid-MHC: estudis mecanístics i translacionals.**
Sponsored by: Generalitat de Catalunya - Projectes. 9015-471001/2015
Duration: 01/03/2016-28/02/2019

Santamaria P, Serra P. **El papel de la autofagia celular en la tolerancia central y activación periférica de células TCD4+ diabetogénicas.**
Sponsored by: Ministerio de Economia y Competitividad. SAF2015-68187-R
Duration: 01/01/2016-31/12/2018

Vidal J. **PREDIMED+DM Efecto de una dieta mediterránea hipocalórica y promoción de la actividad física en prevenciones de diabetes tipo 2 en personas con síndrome metabólico.**
Sponsored by. Ministerio de Economía y Competitividad. PI14/00728
Duration: 01/01/2015-31/12/2017

Hanzu F. **Cambios epigenéticos inducidos por el síndrome cushing en la plasticidad y el kinoma del tejido adipso. Modelo animal y estudio en humanos.**
Sponsored by: Instituto de Salud Carlos III. PI15/00859
Duration: 01/01/2016-31/12/2018

Gomis R. **Hanzu F Laser and Ultrasound Co-Analyzer for thyroid nodules.**
Sponsored by: EU Horizon 2020 688303
Duration: 01/02/2016-31/01/2020

DOCTORAL THESES

Vidal J. **Adaptación metabólica y variabilidad en la pérdida de peso tras la cirugía bariátrica.**
PhD student: Ana María de Hollanda Ramírez

3.15 Pathogenesis and prevention of diabetes

LOCATION
CEK building

KEYWORDS
1. **Islet amyloid polypeptide (IAPP)/ amylin**
2. **Beta-cell dysfunction**
3. **ER stress**
4. **Endothelial dysfunction**
5. **Exercise and nutrition**

Original publications from 2014 to 2016

YEAR	I.F.	TOTAL	Q1	Q2
2014	64.15	13	9	3
2015	77.46	20	11	6
2016	76.92	19	9	9

TEAM INVOLVED IN
CIBERDEM
AGAUR_SGR14: 520

AWARDS
José Antonio Hedo Prize
Institution: Foundation of the Spanish Diabetes Society
Awardee/s: Joel Montané



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Francesco Prattichizzio (IDIBAPS)

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Serafín Murillo (CIBERDEM)
Júlia Rodríguez (IDIBAPS)

TECHNICIANS
Carlos Castaño (CIBERDEM)
Joana Viegas (IDIBAPS)

COLLABORATORS
Ana Isabel García (HCB)
Susana Kalko (IDIBAPS)

STRATEGIC OBJECTIVES

1. To study metabolic and molecular responses to exercise and nutrition in diabetes.
2. To investigate microRNAs as potential biomarkers of certain pathophysiological mechanisms in diabetes.
3. To investigate the mechanisms of endothelial dysfunction in diabetes.
4. To investigate the mechanisms of beta-cell dysfunction in the search for new therapeutic targets.

MAIN LINES OF RESEARCH

- Mechanisms of pancreatic islet dysfunction in type 2 diabetes mellitus, in particular, the process of cytotoxicity as induced by amyloidogenesis.



GROUP Anna Nobials

- Signalling and transcriptional networks in the pancreatic beta cell, mainly related to the modulation of the transcriptional programme under stress conditions.
- Impact of lifestyle on diabetes: metabolic and molecular responses to exercise and nutrition in diabetic patients and animal models.
- Impact of glucose oscillations on cardiovascular complications of diabetes: mechanisms of endothelial dysfunction.

PUBLICATIONS

Originals / I.F.: 76.920

1. Russo GT, De Cosmo S, Viazzi F, Pacilli A, Ceriello A, Genovese S, Guida P, Giorda C, Cucinotta D, Pontremoli R, Fioretto P; AMD-Annals Study Group. **Plasma Triglycerides and HDL-C Levels Predict the Development of Diabetic Kidney Disease in Subjects With Type 2 Diabetes: The AMD Annals Initiative**. *Diabetes Care.* 39(12):2278-2287. IF: 8.934

2. Ejaz A, Martinez-Guino L, Goldfine AB, Ribas-Aulinas F, de Nigris V, Ribó S, González-Franquesa A, García-Rovés PM, Li E, Dreyfuss JM, Gall W, Kim JK, Bottiglieri T, Villarroya F, Gerszten RE, Patti M-E, Lerin C. **Dietary betaine supplementation increases Fgf21 levels to improve glucose homeostasis and reduce hepatic lipid accumulation in mice.** *Diabetes.* 65(4):902-912. IF: 8.784

3. de Cosmo S, Viazzi F, Piscitelli P, Giorda C, Ceriello A, Genovese S, Russo G, Guida P, Fioretto P, Pontremoli, R. **Blood pressure status and the incidence of diabetic kidney disease in patients with hypertension and type 2 diabetes.** *J Hypertens.* 34(10):2090-2098. IF: 5.062

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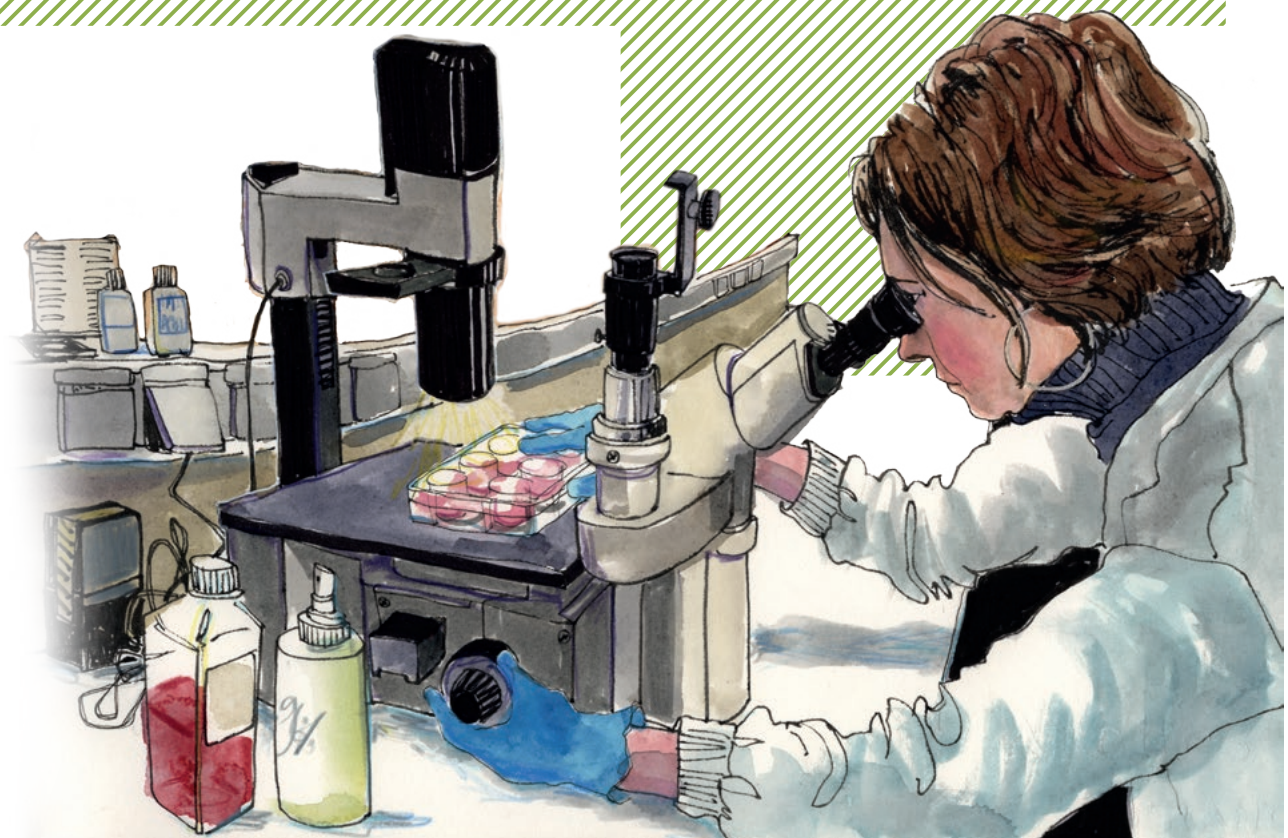
GRANTS FOR RESEARCH IN PROGRESS

Novials A. **Circulating exosomal miRNAs as potential biomarkers and mediators of tissue cross-talk in diabetes.**

Sponsored by: European Foundation for the Study of Diabetes. INT_EFSD/Lilly_13_02
Duration: 16/01/2014- 31/03/2016

Novials, A, Servitja JM. **New strategies for the treatment of diabetes: targeting endoplasmic reticulum stress and inflammation induced by amyloid deposits in pancreatic islets.**
Sponsored by: Health Research Fund (FIS). Carlos III Health Institute, Spanish Ministry of Economy and Competitiveness. PI14/00447
Duration: 01/01/2015-31/12/2017

Servitja, JM, Novials A. **Potential protective effects of an anti-inflammatory molecule on pancreatic beta-cells.**
Sponsored by: Instituto Grífols.
Duration: 01/10/2012-31/12/2017



AREA 4

Clinical and experimental neuroscience

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4.1 Neuropharmacology and experimental

LOCATION
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KEYWORDS
1. **Neuropsychopharmacology**
2. **Brain aging and Neurotoxicity**
3. **Neurodegeneration**
4. **Neuroinflammation**

Original publications from 2014 to 2016

YEAR	I.F.	TOTAL	Q1	Q2
2014	112.00	21	15	6
2015	63.54	13	11	1
2016	115.44	21	18	2

TEAM INVOLVED IN
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STRATEGIC OBJECTIVES

Furthering of knowledge of the physiopathological mechanisms of neurological and psychiatric diseases and neurotoxic and aging processesof the central nervous system, with a view to identifying new cellular and functional targets and proposing new treatments.

MAIN LINES OF RESEARCH

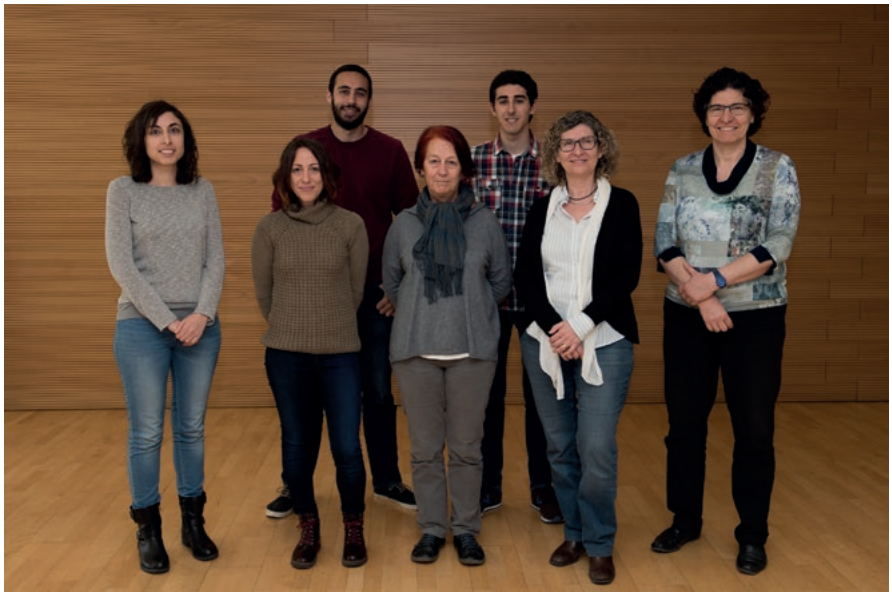
The Systems Neuropharmacology Group studies the brain circuits and neural elements involved in the physiopathology and treatment of depression, schizophrenia

and Parkinson's disease.
The Molecular Neuropharmacology group studies the involvement of the cAMP cascade in the polarization of microglia and macrophage toward anti- or pro-inflammatory phenotypes both in cell culture with cell lines and primary cultures and in the CNS of EAE (experimental autoimmune encephalomyelitis) mice, a multiple sclerosis animal model.

The aim of the Cellular Neurobiology group is the study of novel targets to modulate neuroinflammation. The group is focused on the role of transcription factors and neuronal-microglial communication molecules in microglial activation and in microglial-induced neurotoxicity.
The Neurotoxicity and Neurodegeneration Mechanisms group carries out studies on nerve cell death and stress response, synaptic and cognitive functions, genomics and proteomics, for the determination of targets in toxicity and pathological aging. The goal is finding neuroprotective treatments.



GROUP Francesc Artigas



GROUP Guadalupe Mengod

RESEARCH GROUP
SYSTEMS NEUROPHARMACOLOGY



GROUP LEADER
Francesc Artigas (IIBB-CSIC)

The group studies the brain circuits and neural elements involved in the physiopathology and treatment of depression, schizophrenia and Parkinson's disease. It also explores chemical neurotransmission processes and physiology in genetic and pharmacological models of psychiatric diseases, with the aim of identifying new therapeutic targets. Recent key findings are the development of an electrophysiological model to identify antipsychotic activity and the identification of the rodent infralimbic cortex as a key area in the pathophysiology and treatment of major depression. Moreover, we design new therapeutic strategies based on oligonucleotides for treatment of Parkinson disease.

RESEARCH GROUP
MOLECULAR NEUROPHARMACOLOGY



GROUP LEADER
Guadalupe Mengod (IIBB-CSIC)

Our research is focused in neurotransmission and in the anatomical, cellular and molecular aspects of neurodegenerative disorders with an inflammatory component:

1) Modulation by cAMP regulation of cells involved in neuroinflammation in the CNS of the multiple sclerosis mouse model EAE. 2) Using macrophage cell lines and primary cultures we are studying the effects of the manipulation of some components of the cAMP signaling cascade on their polarization toward pro-inflammatory (M1) or anti-inflammatory (M2) cellular phenotypes. 3) Study of the use of agonists for serotonin 5-HT4 receptors as a treatment for Alzheimer's disease in a triple transgenic mouse model for this disease.



GROUP Josep Saura



GROUP Cristina Suñol

RESEARCH GROUP
CELLULAR NEUROBIOLOGY



GROUP LEADER
Josep Saura (UB)

The aim of the Cellular Neurobiology group is the study of novel targets to modulate neuroinflammation. We are focused on the role of transcription factors of the C/EBP family and of neuronal-microglial communication molecules (CD200, CD200R, TREM2) in microglial activation and in microglial-induced neurotoxicity. We use primary cell cultures (murine mixed glial, astroglial and microglial-enriched, neuronal, mixed neuron-glial; human monocyte-derived microglia-like cultures), cell lines, in vivo models of neuroinflammation and neurodegeneration, and human samples.

RESEARCH GROUP
NEUROTOXICITY AND NEURODEGENERATION MECHANISMS



GROUP LEADER
Cristina Suñol (IIBB-CSIC)

The group studies molecular targets in neurotoxicity and pathological brain aging by using in vivo and in vitro experimental models and human tissues. Mechanisms of neurotoxicity are focused in environmental contaminants as ubiquitous exposures, whereas age-related neurodegeneration is centred in Alzheimer's disease as the main cause of dementia. Neuroprotective mechanisms analysed include those activated by lifestyles of physical exercise and dietary supplements. This basic research will contribute to the design of new strategies

and pharmacological treatments for increasing brain resilience against nerve cell injury and age-related neurodegeneration, specifically Alzheimer's disease.

PUBLICATIONS

Originals / I.F.: 115.440

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20. Alvarez-Salas E, Mengod G, García-Luna C, Soberanes-Chávez P, Matamoros-Trejo G, De Gortari P. **Mct8 and trh co-expression throughout the hypothalamic paraventricular nucleus is modified by dehydration-induced anorexia in rats.** *Neuropeptides.* 56:33-40. IF: 2.726

21. Martín-Álvarez R, Paúl-Fernández N, Palomo V, Gil C, Martínez A, Mengod G. **A preliminary investigation of phoshodiesterase 7 inhibitor VP3.15 as therapeutic agent for the treatment of experimental autoimmune encephalomyelitis mice.** *J Chem Neuroanat.* 80:27-36. IF: 1.800

GRANTS FOR RESEARCH IN PROGRESS

Artigas F. **Grup de Recerca Consolidat, Neuroquímica i Neurofarmacologia.**
Sponsored by: Generalitat de Catalunya. 2014SGR798
Duration: 01/01/2014-30/04/2017

Artigas, F. **Alteraciones de la corteza infralímbica en depresión: mecanismo de acción de nuevas estrategias antidepresivas.**
Sponsoredby: Ministerio de Economía y Competitividad, cofinanciado con fondos FEDER. SAF2015-68346-P
Duration: 01/01/2016-31/12/2019

Artigas, F. **Oscilaciones cerebrales como biomarcadores de afectación cognitiva en la esquizofrenia. Importancia para el diagnóstico en la adolescencia.**
Sponsoredby: Fundación Alicia Koplowitz.
Duration: 30/10/2015-30/10/2017

Bortolozzi, A. **Sinucleínas, depresión y enfermedad de Parkinson. Nuevas estrategias terapéuticas basadas en ácidos nucleicos de interferencia.**
Sponsoredby: Instituto de Salud Carlos III, Ministerio de Economía y Competitividad, cofinanciado por el FEDER PI13/01390
Duration: 01/01/2014-31/12/2016

Bortolozzi, A. **Nuevas estrategias terapéuticas para el tratamiento de sinucleinopatías.**
Sponsoredby: Ministerio de Economía y Competitividad RTC-2014-2812-1
Duration: 04/02/2014-31/12/2017

Celada M.P. **Actividad de la corteza prefrontal en nuevas estrategias antidepresivas.**
Sponsored by: Instituto de Salud Carlos III, Ministerio de Economía y Competitividad, cofinanciado por el FEDERPI12/00156.
Duration: 01/01/2013-30/06/2017

Sanfeliu C. **Estudi de funcionalitat cognitiva i biomarcadors sanguinis perifèrics en subjectes de mitjana edat practicants d'esport recreatiu en equip.**
Sponsored by: Institut d'Estudis Catalans
Duration: 01/04/2014-31/03/2017

Sanfeliu C. **Grup de Recerca Consolidat, Farmacologia i Toxicologia: Prevenció de l Neurodegeneració.**
Sponsored by: Generalitat de Catalunya. 2014SGR625
Duration: 01/01/2014-31/12/2016

Sanfeliu C. **Estudio de la epóxido hidrolasa soluble como nueva diana farmacológica para la enfermedad de Alzheimer: Modulacion de las vias de inflamacion y proteólisis.**
Sponsored by: Ministerio de Economía y Competitividad, cofinanciado por el FEDER. SAF2016-77703-C2-2-
Duration: 30/12/2016-29/12/2019

Saura J. **Nanoparticle delivery system for neurodegenerative disorders.**
Sponsored by: Instituto de Salud Carlos III , Ministerio de Economía y Competitividad, cofinanciado por el FEDER AC14/0016 (EURONANOMED, 5th call)
Duration: 01/01/2015-31/12/2017

Saura J. **C/EBPs microgliales como potencial diana terapéutica en la endermedad de Parkinson.**
Sponsored by: Instituto de Salud Carlos III, Ministerio de Economía y Competitividad, cofinanciado por el FEDER PI14/302
Duration: 01/01/2015-31/12/2017

Solà C. **El sistema CD200-CD200R1 como diana terapéutica y biomarcador en enfermedades neurológicas: la enfermedad de Parkinson.**
Sponsored by: Instituto de Salud Carlos III, Ministerio de Economía y Competitividad, cofinanciado por el FEDER PI15/00033
Duration: 01/01/2016-31/12/2018

Bortolozzi A. **Sinucleinopatías y oligonucleótidos inhibitorios: rol de alfa y gama sinucleínas en la regulación de la función cognitiva.**
Sponsored by: Ministerio de Economia y Competitividad cofinanciado por el FEDER. SAF2016-75797-R
Duration: 30/12/2016-29/12/2019

Mengod G. **¿Están implicados los cambios fenotípicos de las microglía/ macrófagos en los efectos beneficiosos de los inhibidores de PDEs del AMPc en la EAE crónica?**
Sponsored by: Instituto de Salud Carlos III, Ministerio de Economía y Competitividad, cofinanciado por el FEDER PI15/00148
Duration: 01/01/2016-31/12/2018

DOCTORAL THESES

Artigas F, Bortolozzi A. **Modulación post-transcripcional de genes expresados en neuronas serotonérgicas de ratón como nuevas dianas terapéuticas en depresión.**
PhD student: Albert Ferrés Coy

Celada P, Artigas F. **Modulación de receptores serotoninérgicos corticales por psicofármacos. Implicaciones en esquizofrenia y depresión.**
PhD student: Maurizio Riga

Saura J, Solà C. **Deleció condicional de C/EBPß a les cèl·lules de la micròglia. Nova eina per a l'estudi i la modulació de l'activació glial en models de neurodegeneració.**
PhD student: Marta Pulido Salgado

Sanfeliu C, Lladó A. **Desarrollo de modelos celulares para estudios terapéuticos en la Enfermedad de Alzheimer.**
PhD student: Patricia Molina Martínez.

Sanfeliu C. **Mecanismos de neuroprotección mediante la modulación de SIRT1.**
PhD student: Rubén Corpas Expósito.

4.2 Brain ischemia: Clinical and experimental studies

LOCATION
CELLEX building
IIBB-CSIC labs

KEYWORDS
1. **Brain**
2. **Stroke**
3. **Cerebrovascular diseases**
4. **Neuroinflamamtion**
5. **Oxidative stress**

Original publications from 2014 to 2016

YEAR	I.F.	TOTAL	Q1	Q2
2014	58.15	10	7	3
2015	162.17	19	17	2
2016	97.32	12	11	1

TEAM INVOLVED IN
RED INVICTUSPLUS (RD16/0019/0014)
AGAUR_SGR14: 574



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STRATEGIC OBJECTIVES

Study of cerebrovascular pathology from the clinical and basic perspective, with special emphasis on inflammation, immune response, and oxidative stress, as well as on the use of neuroimaging techniques. Translational research integrating experimental models and clinical studies. The ultimate aim is to develop therapeutic strategies in application to stroke.



TEAM Ángel Chamorro

MAIN LINES OF RESEARCH

Inflammation and immunity in stroke
- Immunological mechanisms in the progression of stroke and infectious complications.
- Cerebral infiltration of myeloid cells and lymphocytes after ischemic stroke: role in brain damage and repair.
- Innate immunity in stroke: the lectin pathway of complement activation
- Inflammatory and immune responses as targets for stroke treatment

Vascular damage
- Endothelial damage and blood-brain barrier disruption, after recanalization therapies.
- Hemorrhagic transformation after acute ischemic stroke
- Brain hemorrhage
- Vascular dementia

Brain protection and repair
- Antioxidant treatments in stroke (Uric acid).
- Functional recovery by rehabilitation therapies.

Multimodal neuroimaging in Stroke
- Magnetic resonance imaging (MRI), CT/ perfusion, optical imaging techniques.

PUBLICATIONS

Originals / I.F.: 93.320

1. Saver JL, Goyal M, van der Lugt A, Menon BK, Majoie CB, Dippel DW, Campbell BC, Nogueira RG, Demchuk AM, Tomasello A, Cardona P, Devlin TG, Frei DF, du Mesnil de Rochemont R, Berkhemer OA, Jovin TG, Siddiqui AH, van Zwam WH, Davis SM, Castaño C, Sapkota BL, Fransen PS, Molina C, van Oostenbrugge RJ, Chamorro Á, Lingsma H, Silver FL, Donnan GA, Shuaib A, Brown S, Stouch B, Mitchell PJ, Davalos A, Roos YB, Hill MD; HERMES Collaborators. **Time to Treatment With Endovascular Thrombectomy and Outcomes From Ischemic Stroke: A Meta-analysis.** *JAMA.* 316(12):1279-1288. IF: 37.684

2. Guglielmetti C, Le Blon D, Santermans E, Salas-Perdomo A, Daans J, De Vocht N, Shah D, Hoornaert C, Praet J, Peerlings J, Kara F, Bigot C, Mai Z, Goossens H, Hens N, Hendrix S, Verhoye M, Planas AM, Berneman Z, van der Linden A, Ponsaerts P. **Interleukin-13 immune gene therapy prevents CNS inflammation and demyelination via alternative activation of microglia and macrophages.** *Glia.* 64(12):2181-2200. IF: 5.997

3. Miro-Mur F, Perez-De-Puig I, Ferrer-Ferrer M, Urra X, Justicia C, Chamorro A, Planas AM. **Immature monocytes recruited to the ischemic mouse brain differentiate into macrophages with features of alternative activation.** *Brain Behav Immun.* 53:18-33. IF: 5.874

4. Pérez de la Ossa N, Abilleira S, Dorado L, Urra X, Ribó M, Cardona P, Giralt E, Martí-Fàbregas J, Purroy F, Serena J, Cánovas D, Garcés M, Krupinski J, Pellisé A, Saura J, Molina C, Dávalos A, Gallofré M; Catalan **Stroke Code and Reperfusion Consortium. Access to Endovascular Treatment in Remote Areas: Analysis of the Reperfusion Treatment Registry of Catalonia.** *Stroke.* 47(5):1381-1384. IF: 5.787

5. Ribo M, Molina CA, Cobo E, Cerdà N, Tomasello A, Quesada H, De Miquel MA, Millan M, Castaño C, Urra X, Sanroman L, Dàvalos A, Jovin T; REVASCAT Trial Investigators. **Association Between Time to Reperfusion and Outcome Is Primarily Driven by the Time From Imaging to Reperfusion.** *Stroke.* 47(4):999-1004. IF: 5.787

6. Gonzalez-Valcarcel J, Sissani L, Labreuche J, Bousser MG, Chamorro A, Fisher M, Ford I, Fox KM, Hennerici MG, Mattle HP, Rothwell PM, Steg PG, Vicaut E, Amarenco P; PERFORM Investigators. **Paracetamol, Ibuprofen, and Recurrent Major Cardiovascular and Major Bleeding Events in 19 120 Patients With Recent Ischemic Stroke.** *Stroke.* 47(4):1045-52. IF: 5.787

7. Brait VH, Tarrasón G, Gavaldà A, Godessart N, Planas AM. **Selective Sphingosine 1-Phosphate Receptor 1 Agonist Is Protective Against Ischemia/ Reperfusion in Mice.** *Stroke.* 47(12):3053-3056. IF: 5.787

8. Amaro S, Laredo C, Renú A, Llull L, Rudilosso S, Obach V, Urra X, Planas AM, Chamorro, A. **Uric Acid Therapy Prevents Early Ischemic Stroke Progression A Tertiary Analysis of the URICO-ICTUS Trial (Efficacy Study of Combined Treatment With Uric Acid and r-tPA in Acute Ischemic Stroke).** *Stroke.* 47(11):2874-2876. IF: 5.787

9. Llull L, Thiel S, Amaro S, Cervera A, Planas AM, Chamorro A. **Ficolin-1 Levels in Patients Developing Vasospasm and Cerebral Ischemia After Spontaneous Subarachnoid Hemorrhage.** *Mol Neurobiol.* 1-9. IF: 5.397

10. Corpas R, Revilla S, Ursulet S, Castro-Freire M, Kaliman P, Petegnief V, Giménez-Llort L, Sarkis C, Pallas M, Sanfeliu C. **SIRT1 Overexpression in Mouse Hippocampus Induces Cognitive Enhancement Through Proteostatic and Neurotrophic Mechanisms.** *Mol Neurobiol.* 54(7):5604-5619. IF: 5.397

11. Sanchis L, Montserrat S, Obach V, Cervera A, Chamorro A, Vidal B, Mas-Stachurska A, Bijnens B, Sitges, M. **Left Atrial Function Is Impaired in Some Patients With Stroke of Undetermined Etiology: Potential Implications for Evaluation and Therapy.** *Rev Esp Cardiol.* 69(7):650-656. IF: 4.596

12. Chamorro Á, Amaro S, Castellanos M, Gomis M, Urra X, Blasco J, Arenillas JF, Román LS, Muñoz R, Macho J, Cánovas D, Marti-Fabregas J, Leira EC, Planas AM; URICO-ICTUS Investigators. **Uric acid therapy improves the outcomes of stroke patients treated with intravenous tissue plasminogen activator and mechanical thrombectomy.** *Int J Stroke.* 1:1747493016684354. IF: 3.440

Reviews / I.F.: 42.050

1. Chamorro A, Dirnagl U, Urra X, Planas AM. **Neuroprotection in acute stroke: Targeting excitotoxicity, oxidative and nitrosative stress, and inflammation.** *Lancet Neurol*. 15(8):869-881. IF: 23.468

2. Dichgans M, Planas AM, Biessels GJ, van der Worp B, Sudlow C, Norrving B, Lees K, Mattle HP. **Third European Stroke Science Workshop.** *Stroke.* 47(7):e178-86. IF: 5.787

3. Ludewig P, Gallizioli M, Urra X, Behr S, Brait VH, Gelderblom M, Magnus T, Planas AM. **Dendritic cells in brain diseases.** *Biochim Biophys Acta-Mol Basis*. 1862(3):352-367. IF: 5.158

4. Miro-Mur F; Urra X; Gallizioli M; Chamorro A; Planas AM. **Antigen Presentation After Stroke.** *Neurotherapeutics.* 13(4):719-728. IF: 4.676

5. Llull L, Amaro S, Chamorro A. **Administration of Uric Acid in the Emergency Treatment of Acute Ischemic Stroke.** *Curr Neurol Neurosci Rep.* 16(1):4. IF: 2.961

Letters / I.F.: 8.230

1. Rudilosso S, Urra X, Chamorro A. **Computed Tomography Perfusion and Diffusion-Weighted Imaging in Patients With Acute Stroke-Reply.** *JAMA Neurol.* 73(8):1032-1033. IF: 8.230

Case reports / I.F.: 8.230

1. Rudilosso S, Urra X, Chirife O, Chamorro A. **Altered Brain Computed Tomography Perfusion in Patients With Fluctuating Lacunar Syndrome and Normal Magnetic Resonance Imaging.** *JAMA Neurol.* 73(3):348-349. IF: 8.23

Consortium publications / I.F.: 25.894

1. Carcel C, Sato S, Zheng D, Heeley E, Arima H, Yang J, Wu G, Chen G, Zhang S, Delcourt C, Lavados P, Robinson T, Lindley RI, Wang X, Chalmers J, Anderson CS; Intensive Blood Pressure Reduction in Acute Cerebral Hemorrhage Trial 2 Investigators. **Prognostic Significance of Hyponatremia in Acute Intracerebral Hemorrhage: Pooled Analysis of the Intensive Blood Pressure Reduction in Acute Cerebral Hemorrhage Trial Studies.** *Crit Care Med.* 44(7):1388-94. IF: 7.422

2. Zheng D, Sato S, Arima H, Heeley E, Delcourt C, Cao Y, Chalmers J, Anderson CS; INTERACT2 Investigators. **Estimated GFR and the Effect of Intensive Blood Pressure Lowering After Acute Intracerebral Hemorrhage.** *Am J Kidney Dis.* 68(1):94-102. IF: 6.269

3. Lyden P, Hemmen T, Grotta J, Rapp K, Ernstrom K, Rzesiewicz T, Parker S, Concha M, Hussain S, Agarwal S, Meyer B, Jurf J, Altafullah I, Raman R; Collaborators. **Results of the ICTuS 2 Trial (Intravascular Cooling in the Treatment of Stroke 2).** *Stroke.* 47(12):2888-2895. IF: 5.787

4. Sato S, Delcourt C, Zhang S, Arima H, Heeley E, Zheng D, Al-Shahi Salman R, Stapf C, Tzourio C, Robinson T, Lindley RI, Chalmers J, Anderson CS; INTERACT2 Investigators. **Determinants and Prognostic Significance of Hematoma Sedimentation Levels in Acute Intracerebral Hemorrhage.** *Cerebrovasc Dis.* 41(1-2):80-6. IF: 3.359

5. Zheng D, Arima H, Sato S, Gasparrini A, Heeley E, Delcourt C, Lo S, Huang Y, Wang J, Stapf C, Robinson T, Lavados P, Chalmers J, Anderson CS; INTERACT2 investigators. **Low Ambient Temperature and Intracerebral Hemorrhage: The INTERACT2 Study.** *PLoS One.* 11(2):e0149040. IF: 3.057

GRANTS FOR RESEARCH IN PROGRESS

Amaro S. **Daño precoz de la barrera hemato-encefálica en el ictus isquémico agudo: detección con TC perfusión y relevancia del estrés oxidativo.**
Sponsored by: Instituto De Salud Carlos III. PI13/01268
Duration: 01/01/2014-31/12/2016

Chamorro A. **Enfermedades vasculares cerebrales (Ictus).**
Sponsored by: Instituto de Salud Carlos III (ISCIII) RD12/0014/0011. RED INVICTUS
Duration: 01/01/2013-31/12/2016

Planas AM. **Imaging of Neuroinflammation in Neurodegenerative Diseases.**
Sponsored by: European Commission 278850.
Duration: 01/03/2012-28/02/2017

Planas AM. **Benefits and risks of the immune response to stroke.**
Sponsored by : MINECO (SAF2014-56279-R)
Duration: 01/01/2015-31/12/2017

Planas AM. **Neuroinflammation.**
Sponsored by: European Community (FP7-PEOPLE-2013-ITN- nº607962)
Duration: 01/09/2013- 31/08/2017

Justicia C. **Cambios vasculares durante el envejecimiento y en modelos animales de demencia de origen vascular.**
Sponsored by MICINN (DPI-2015-64358-C2-2-R)
Duration: 01/01/2016-31/12/2019

Chamorro A. **Respuesta inmune y estrés oxidativa en la hemorragia cerebral.**
Sponsored by: Instituto de Salud Carlos III. PI15/00430
Duration: 01/01/2016-31/12/2018

DOCTORAL THESES

Planas AM. **Mecanismes implicats en l'activació clàssica o alternativa de les cèl·lules microglials: paper en la isquèmia cerebral.**
PhD student: Ester Bonfill Teixidor

4.3 Neurodegenerative diseases: Clinical and experimental research

LOCATION
HCB building
CELLEX building

KEYWORDS
1. **Parkinson disease**
2. **Alzheimer disease**
3. **Degenerative neurological diseases**

Original publications from 2014 to 2016

YEAR	I.F.	TOTAL	Q1	Q2
2014	131.65	24	20	3
2015	286.11	49	38	8
2016	125.66	22	17	1

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CIBERNED

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Esteban Muñoz (HCB)
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PRE-DOCTORAL RESEARCHERS
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Cristina Simonet (FCRB)
Lluís Planellas (FCRB)
Darly Giraldo (FCRB)

TECHNICIANS
Manel Fernández (IDIBAPS/CIBERNED)
Paloma Bravo (CIBERNED)

ADMINISTRATIVE STAFF
Gemma Castillo (FCRB)
Laura Maragall (CIBERNED)

STRATEGIC OBJECTIVES

1. Development of research projects with results aimed at impacting in a better diagnosis and treatment of Parkinson Disease (PD) and related neurodegenerative movement disorders.
2. Identification of clinical, molecular and imaging biomarkers specific for the preclinical and prodromal phase of PD, as well as for the motor phase of disease.
3. Recruitment of cohorts of PD patients and subjects at-risk of PD and establishment of biorepositories useful for state-of-the-art research in movement disorders.

MAIN LINES OF RESEARCH

1. LRRK2-associated Parkinson disease. Clinical, imaging and genetic characterization of disease and its prodromic phase. Longitudinal follow-up of subjects.
2. Blood and cerebrospinal fluid (CSF) biomarkers research (microRNAs, epigenetic, and protein markers) of PD and its prodromic phase.
4. Generation of iPSC-derived dopaminergic neurons by reprogramming of skin fibroblasts from idiopathic and LRRK2-associated PD patients. Molecular, gene expression, and epigenetic characterization. Elucidation of novel underlying pathophysiologic mechanisms.
4. Recruitment of patients with atypical parkinsonisms including multiple system atrophy (MSA) and dystonia. Establishment of biorepositories, and biomarkers research.

PUBLICATIONS

Originals / I.F.: 125.658

1. Vilas D, Iranzo A, Tolosa E, Aldecoa I, Berenguer J, Vilaseca I, Marti C, Serradell M, Lomena F, Alos L, Gaig C, Santamaria J, Gelpi, E. **Assessment of alpha-synuclein in submandibular glands of patients with idiopathic rapid-eye-movement sleep behaviour disorder: a case-control study.** Lancet Neurol . 15(7):708-718. IF: 23.468

2. De Marzi R, Seppi K, Hogl B, Muller C, Scherfler C, Stefani A, Iranzo A, Tolosa E, Santamaria J, Gizewski E, Schocke M, Skalla E, Kremser C, Poewe W. **Loss of Dorsolateral Nigral Hyperintensity on 3.0 Tesla Susceptibility-Weighted Imaging in Idiopathic Rapid Eye Movement Sleep Behavior Disorder.** *Ann Neurol.* 79(6):1026-1030. IF: 9.638

3. Sailer A, Scholz SW, Nalls MA, Schulte C, Federoff M, Price TR, Lees A, Ross OA, Dickson DW, Mok K, Mencacci NE, Schottlaender L, Chelban V, Ling

H, O'Sullivan SS, Wood NW, Traynor BJ, Ferrucci L, Federoff HJ, Mhyre TR, Morris HR, Deuschl G, Quinn N, Widner H, Albanese A, Infante J, Bhatia KP, Poewe W, Oertel W, Höglinger GU, Wüllner U, Goldwurm S, Pellecchia MT, Ferreira J, Tolosa E, Bloem BR, Rascol O, Meissner WG, Hardy JA, Revesz T, Holton JL, Gasser T, Wenning GK, Singleton AB, Houlden H; European Multiple System Atrophy Study Group and the UK Multiple System Atrophy Study Group. **A genome-wide association study in multiple system atrophy.** *Neurology.* 87(15):1591-1598. IF: 8.166

4. Mirelman A, Bernad-Elazari H, Thaler A, Giladi-Yacobi E, Gurevich T, Gana-Weisz M, Saunders-Pullman R, Raymond D, Doan N, Bressman SB, Marder KS, Alcalay RN, Rao AK, Berg D, Brockmann K, Aasly J, Waro BJ, Tolosa E, Vilas D, Pont-Sunyer C, Orr-Urtreger A, Hausdorff JM, Giladi N. **Arm swing as a potential new prodromal marker of Parkinson's disease.** *Mov Disord.* 31(10):1527-1534. IF: 6.010

5. Yarnall AJ; Lashley T; Ling H; Lees AJ; Coleman SY; O'Sullivan SS; Compta Y; Revesz T; Burn DJ. **Apomorphine: A potential modifier of amyloid deposition in Parkinson's disease?** *Mov Disord.* 31(5):668-675. IF: 6.010

6. Vilas D, Shaw LM, Taylor P, Berg D, Brockmann K, Aasly J, Marras C, Pont-Sunyer C, Rios J, Marek K, Tolosa E. **Cerebrospinal fluid biomarkers and clinical features in leucine-rich repeat kinase 2 (LRRK2) mutation carriers.** *Mov Disord.* 31:906-914. IF: 6.010

7. Bergareche A, Rodriguez-Oroz M C, Estanga A, Gorostidi A, Lopez De Munain A, Castillo-Trivino T, Ruiz-Martinez J, Mondragon E, Gaig C, Lomena F, Sarasqueta C, Tolosa E, Marti-Masso J F. **DAT imaging and clinical biomarkers in relatives at genetic risk for LRRK2 R1441G Parkinson's disease.** *Mov Disord.* 31(3):335-343. IF: 6.010

8. Marras C, Alcalay RN, Caspell-Garcia C, Coffey C, Chan P, Duda JE, Facheris MF, Fernandez-Santiago R, Ruiz-Martinez J, Mestre T, Saunders-Pullman R, Pont-Sunyer C, Tolosa E, Waro B. **Motor and nonmotor heterogeneity of LRRK2-related and idiopathic Parkinson's disease.** *Mov Disord.* 31(8):1192-1202. IF: 6.010

9. Vilas D, Segura B, Baggio HC, Pont-Sunyer C, Compta Y, Valldeoriola F, Jose Marti M, Quintana M, Bayes A, Hernandez-Vara J, Calopa M, Aguilar M, Junque C, Tolosa E. **Nigral and striatal connectivity alterations in asymptomatic LRRK2 mutation carriers: A magnetic resonance imaging study.** *Mov Disord.* 31(12):1820-1828. IF: 6.010

10. Uribe C, Segura B, Baggio HC, Abos A, Marti MJ, Valldeoriola F, Compta Y, Bargallo N, Junque C. **Patterns of Cortical Thinning in Nondemented Parkinson's Disease Patients.** *Mov Disord.* 31:699-708. IF: 6.010

11. Dangla-Valls A, Molinuevo JL, Altirriba J, Sanchez-Valle R, Alcolea D, Fortea J, Rami L, Balasa M, Munoz-Garcia C, Ezquerra M, Fernandez-Santiago R, Lleo A, Llado A, Antonell A. **CSF microRNA Profiling in Alzheimer's Disease: a Screening and Validation Study.** *Mol Neurobiol.* 1-8. IF: 5.397

12. Guerreiro R, Escott-Price V, Darwent L, Parkkinen L, Ansorge O, Hernandez DG, Nalls MA, Clark L, Honig L, Marder K, van der Flier W, Holstege H, Louwersheimer E, Lemstra A, Scheltens P, Rogaeva E, St George-Hyslop P, Londos E, Zetterberg H, Ortega-Cubero S, Pastor P, Ferman TJ, Graff-Radford NR, Ross OA, Barber I, Braae A, Brown K, Morgan K, Maetzler W, Berg D, Troakes C, Al-Sarraj S, Lashley T, Compta Y, Revesz T, Lees A, Cairns NJ, Halliday GM, Mann D, Pickering-Brown S. **Genome-wide analysis of genetic correlation in dementia with Lewy bodies, Parkinson's and Alzheimer's diseases.** *Neurobiol Aging.* 38:214.e7-214.e10. IF: 5.153

13. Podlesniy P, Vilas D, Taylor P, Shaw LM, Tolosa E, Trullas R. **Mitochondrial DNA in CSF distinguishes LRRK2 from idiopathic Parkinson's disease.** *Neurobiol Dis.* 94:10-17. IF: 4.856

14. Brockmann K, Apel A, Schulte C, Schneiderhan-Marra N, Pont-Sunyer C, Vilas D, Ruiz-Martinez J, Langkamp M, Corvol JC, Cormier F, Knorpp T, Joos TO, Gasser T, Schule B, Aasly JO, Foroud T, Marti-Masso JF, Brice A, Tolosa E, Marras C, Berg D, Maetzler, W. **Inflammatory profile in LRRK2-associated prodromal and clinical PD.** *J Neuroinflamm.* 13(1):122. IF: 4.667

15. Compta Y, Ramos-Campoy O, Grau-Rivera O, Colom-Cadena M, Clarimon J, Marti MJ, Gelpi E. **Conjoint FTLD-FUS of the neuronal intermediate filament inclusion disease type, progressive supranuclear palsy and alzheimer's pathology presenting as parkinsonism with early falls and late hallucinations, psychosis and dementia.** *Neuropathol Appl Neurobiol.* 43(4):352-357. IF: 4.483

16. Sierra M, Gelpi E, Martí MJ, Compta Y. **Lewy- and Alzheimer-type pathologies in midbrain and cerebellum across the Lewy body disorders spectrum.** *Neuropathol Appl Neurobiol.* 42(5):451-62. IF: 4.483

17. Valadas A, Contarino MF, Albanese A, Bhatia KP, Falup-Pecurariu C, Forsgren L, Friedman A, Giladi N, Hutchinson M, Kostic VS, Krauss JK, Lokkegaard A, Marti MJ, Milanov I, Pirtosek Z, Relja M, Skorvanek M, Stamelou M, Stepens A, Tamás G, Taravari A, Tzoulis C, Vandenberghe W, Vidailhet M, Ferreira JJ, Tijssen MA. **Management of dystonia in Europe: a survey of the European network for the study of the dystonia syndromes.** *Eur J Neurol.* 23(4):772-9. IF: 3.956

18. Fabbri M, Leodori G, Fernandes RM, Bhidayasiri R, Marti MJ, Colosimo C, Ferreira JJ. **Neutralizing Antibody and Botulinum Toxin Therapy: A Systematic Review and Meta-analysis.** *Neurotox Res.* 29(1):105-17. IF: 3.140

19. Compta Y, Buongiorno M, Bargallo N, Valldeoriola F, Muñoz E, Tolosa E, Rios J, Camara A, Fernandez M, Marti MJ. **White matter hyperintensities, cerebrospinal amyloid-β and dementia in Parkinson's disease.** *J Neurol Sci.* 367:284-290. IF: 2.126

20. Santos-García D, Mir P, Cubo E, Vela L, Rodríguez-Oroz MC, Martí MJ, Arbelo JM, Infante J, Kulisevsky J, Martínez-Martín P; COPPADIS Study Group. **Erratum to: COPPADIS-2015 (COhort of Patients with PArkinson's DIsease in Spain, 2015), a global--clinical evaluations, serum biomarkers, genetic studies and neuroimaging--prospective, multicenter, non-interventional, long-term study on Parkinson's disease progression.** *BMC Neurol.* 16:44. IF: 1.961

21. Luis L, Lehnen N, Muñoz E, de Carvalho M, Schneider E, Valls-Solé J, Costa J. **Anticompensatory quick eye movements after head impulses: A peripheral vestibular sign in spontaneous nystagmus.** *J Vestib Res-Equilib Orientat.* 25(5-6):267-71. IF: 1.047

22. Luis L, Costa J, Muñoz E, de Carvalho M, Carmona S, Schneider E, Gordon CR, Valls-Solé J. **Vestibulo-ocular reflex dynamics with head-impulses discriminates spinocerebellar ataxias types 1, 2 and 3 and Friedreich ataxia.** *J Vestib Res-Equilib Orientat.* 26(3):327-34. IF: 1.047

Reviews / I.F.: 50.623

1. Salat D, Noyce AJ, Schrag A, Tolosa E. **Challenges of modifying disease progression in prediagnostic Parkinson's disease.** *Lancet Neurol*. 15(6):637-648. IF: 23.468

2. Iranzo A, Santamaria J, Tolosa E. **Idiopathic rapid eye movement sleep behaviour disorder: diagnosis management and the need for neuroprotective interventions.** *Lancet Neurol*. 15(4):405-419. IF: 23.468

3. Fernandez-Santiago R, Ezquerra M. **Epigenetic Research of Neurodegenerative Disorders Using Patient iPSC-Based Models.** *Stem Cells Int.* 9464591. IF: 3.687

Letters / I.F.: 23.759

1. Tell-Marti G, Puig-Butille JA, Potrony M, Badenas C, Mila M, Malvehy J, Marti MJ, Ezquerra M, Fernandez-Santiago R, Puig S. **Is the MC1R Variant p. R160W Associated With Parkinson's? Reply.** *Ann Neurol.* 79(1):161-163. IF: 9.638

2. Tell-Marti G, Anton Puig-Butille J, Potrony M, Badenas C, Mila M, Malvehy J, Jose Marti M, Ezquerra M, Fernandez-Santiago R, Puig, S. **Reply to Letter to Editor ANA-16-0021 'Lack of association between MC1R variants and Parkinson's disease in European descent' by Jiang Q and Liu G.** *Ann Neurol.* 79(5):868. IF: 9.638

3. Solla P, Grau-Rivera O, Gelpi E, Marrosu F, Martí MJ. **Pisa syndrome in a patient with pathologically confirmed Parkinson's disease.** *Neuropathol Appl Neurobiol.* 42(7):654-658. IF: 4.483

Case reports / I.F.: 5.584

1. Cerquera C, Rumia J, Herrera JM, Moreno V, Bargallo N, Valldeoriola F. **A single case report of MR-guided focused ultrasound thalamotomy for tremor in fragile X-associated tremor/ataxia.** *Parkinsonism Relat Disord.* 28:159-160. IF: 3.794

2. Falgàs N, Alfaro I, Crespo G, Berenguer J, García-Pagán JC, Muñoz E. **Aphasia in a patient with acute hepatic encephalopathy associated with multifocal cortical brain lesions.** *Neurologia.* pii: S0213-4853(16)30026-3. IF: 1.790

GRANTS FOR RESEARCH IN PROGRESS

Martí MJ. **Catalan Network of Multiple System Atrophy: Biomarkers and Pathophysiology.**
Sponsored by: Fundació Marató TV3
Duration: 03/06/2015-02/06/2018

Tolosa E. **The Parkinson's progression Markers Initiative (PPMI).**
Sponsored by: Michael J. Fox Foundation for Parkinson's Research
Duration:21/05/2013-31/12/2018

Martí MJ. **Fox Trial Finder Spain.**
Sponsored by: Michael J. Fox Foundation for Parkinson's Research. INT_MJFF_2014
Duration: 01/07/2014-30/06/2016

Marti MJ,Tolosa E. **Alpha-synuclein and other biomarkers in biological samples of LRRK2 PD.**
Sponsored by: Michael J. Fox Foundation for Parkinson's Research. INT_MJFF_2013
Duration: 07/04/2014-06/04/2016

Valldeoriola F. **El sistema nervioso autónomo entérico como biomarcador precoz en la Enfermedad de Parkinson.**
Sponsored by: Instituto De Salud Carlos III. PI13/01455
Duration: 01/01/2014-31/12/2016

Ezquerra M. **Epigenetic analysis of iPSC-derived dopaminergic neurons and blood cells in Parkinson disease.**
Sponsored by: Instituto De Salud Carlos III. PI14/00426
Duration: 01/01/2015-31/12/2017

Lladó A. **Fenotipos clínicos y nuevos biomarcadores fisiopatológicos, diagnósticos y pronósticos en la enfermedad de Alzheimer de inicio precoz y variante conductual de la demencia frontotemporal.**
Sponsored by: Instituto De Salud Carlos III. PI14/00282
Duration: 01/01/2015-31/12/2017

Ezquerra M. **MicroRNAs as biomarker of conversion of REM behaviour disorder to Parkinson's disease.**
Sponsored by: Fundación Tatiana Perez de Guzmán El Bueno. FUNDTATIANA16_PROY03
Duration: 23/11/2016-22/11/2019

Martí MJ. **LRRK2 peripheral blood mononuclear cells and urine bisample collection.**
Sponsored by: Michael J. Fox Foundation for Parkinson. 11849
Duration: 01/02/2016-31/01/2018

Ezquerra M. **MicroRNAs as biomarkers of the prodromal stage of Parkinson disease.**
Sponsored bay: The Michael J Fox Foundation for Parkinson´s Disease Research (MJFF)
Duration: 14/04/2016-31/06/2018

Martí MJ. **Identification of pathophysiological pathways and candidate biomarkers in the prediagnostic phase of Parkinson's disease.**
Sponsored by: Centre for Networked Biomedical Research on Neurodegenerative Diseases (CIBERNED), Health Institute Carlos III (ISCIII)
Duration: 02/03/2016-01/03/2018

DOCTORAL THESES

Tolosa E. **Caracterización clínica, bioquímica y de neuroimagen de la enfermedad de Parkinson asociada a mutaciones del gen LRRK2 y de su fase prodrómica.**
PhD student: Dolores Vilas Rolan

4.4 Neurophysiology and functional studies of the nervous system

LOCATION
HCB building
UB Medical School

FOR FURTHER INFORMATION
www.ub.edu/neurofisiologia

KEYWORDS
1. **Neurophysiology**
2. **Motor Control and Sensorimotor Integration**
3. **Neuropathic Pain**
4. **Sleep**
5. **Epilepsy**
6. **Glutamate receptors**

Original publications from 2014 to 2016

YEAR	I.F.	TOTAL	Q1	Q2
2014	124.83	27	16	7
2015	110.97	27	11	12
2016	129.87	28	15	8

TEAM INVOLVED IN
OFTARED
AGAUR_SGR14: 316, 1165

AWARDS
Premio al major trabajo publicado 2016
Institution: Sociedad Española de Sueño
Awardee/s: Fernández-Arcos A, Iranzo A, Serradell M, Gaig C, Santamaria J. The Clinical Phenotype of Idiopathic Rapid Eye Movement Sleep Behavior Disorder at Presentation:
A Study in 203 Consecutive Patients.

Premi Salvà Campillo 2016 i ingrés com a Acadèmic corresponent
Institution: Reial Acadèmia de Medicina de Catalunya
Awardee/s: Xavier Gasull Casanova



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David Soto del Cerro (UB)

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Esther Gratacós Batlle (UB)
Judith Navarro (HCB)
Jordi Palés (UB)
Ana Tercero (HCB)

VISITING SCIENTISTS
Juan M Castellote
Joao Leote

STRATEGIC OBJECTIVES

Our goal is to expand on scientific knowledge of functional aspects of the nervous system, with maximum integration of basic and clinical aspects, fundamentally using neurophysiological techniques. Key words of our research include motor control, sensory perception, pain, sleep, epilepsy, neuronal excitability, ion channels, dry eye and glaucoma.



TEAM. Josep Valls Solé

MAIN LINES OF RESEARCH

1. The participation of subcortical motor systems in the execution of movements, postural maintenance and reflex control. Startle and prepulse phenomena.
2. Physiology and physiopathology of neuropathic pain. Nociceptive evoked potentials and reflex reactions to pain. Conscious sensory perception.
3. Study of sleep and its disturbances. Narcolepsy. Excessive daytime sleepiness and REM sleep behaviour disorder. Restless legs syndrome. Periodic leg movements during sleep.
4. Epileptic phenomena and their treatment. Status epilepticus. Monitoring of epileptic seizures. Video-EEG and epidural recording.
5. Characterization of ion channels involved in neuronal excitability. Study of sensory transduction and the generation of inflammatory and neuropathic pain.
6. Physiology of aqueous humour drainage and physiopathology of glaucoma. Ocular pathology in aging. Physiology of the ocular trabecular meshwork. Physiopathology of dry eye.
7. Axonal excitability and physiology of peripheral nerve reactions to local anaesthetics or other types of axonal blocks.
8. Role of glutamate receptors and new accessory proteins. Role of mutations in these proteins producing neurological diseases.

RESEARCH GROUP
NEUROPHYSIOLOGY



GROUP LEADER
Xavier Gasull (UB)

Within the field of neurophysiology, the group is interested in establishing the role of different ion channels implicated in shaping the excitability of sensory neurons of the dorsal root and trigeminal ganglia, and determining which alterations occur during inflammatory and neuropathic pain states. We are especially interested on ocular pain after inflammation, injury or dry eye disease. On the other hand, in trabecular cells that regulate aqueous humor flow in the eye and intraocular pressure, we are exploring the role of ion channels that regulate contraction, shape and cell volume and how this is related to the physiopathology of glaucoma.

PUBLICATIONS

Originals / I.F.: 129.868

1. Vilas D, Iranzo A, Tolosa E, Aldecoa I, Berenguer J, Vilaseca I, Marti C, Serradell M, Lomena F, Alos L, Gaig C, Santamaria J, Gelpi, E. **Assessment of alpha-synuclein in submandibular glands of patients with idiopathic rapid-eye-movement sleep behaviour disorder: a case-control study.** *Lancet Neurol.* 15(7):708-718. IF: 23.468

2. De Marzi R, Seppi K, Hogl B, Muller C, Scherfler C, Stefani A, Iranzo A, Tolosa E, Santamaria J, Gizewski E, Schocke M, Skalla E, Kremser C, Poewe W. **Loss of Dorsolateral Nigral Hyperintensity on 3.0 Tesla Susceptibility-Weighted Imaging in Idiopathic Rapid Eye Movement Sleep Behavior Disorder.** *Ann Neurol.* 79(6):1026-1030. IF: 9.638

3. Fernández-Santiago R, Iranzo A, Gaig C, Serradell M, Fernández M, Tolosa E, Santamaría J, Ezquerra M. **Absence of LRRK2 mutations in a cohort of patients with idiopathic REM sleep behavior disorder.** *Neurology.* 86(11):1072-3. IF: 8.166

4. Kovacs I, Luna C, Quirce S, Mizerska K, Callejo G, Riestra A, Fernandez-Sanchez L, Meseguer V M, Cuenca N, Merayo-Lloves J, Acosta M C, Gasull X, Belmonte C, Gallar J. **Abnormal activity of corneal cold thermoreceptors underlies the unpleasant sensations in dry eye disease.** *Pain.* 157(2):399-417. IF: 5.557

5. Granovsky Y, Anand P, Nakae A, Nascimento O, Smith B, Sprecher E, Valls-Solé J. **Normative data for Aδ contact heat evoked potentials in adult population: a multicenter study.** *Pain.* 157(5):1156-63. IF: 5.557

6. Dauvilliers Y, Gaig C, Barateau L, Graus F, Iranzo A, Lopez R, Santamaria J. **Absence of NMDA receptor antibodies in the rare association between Type 1 Narcolepsy and Psychosis.** *Sci Rep.* 6:25230. IF: 5.228

7. Martinez-Marmol R, Barneda-Zahonero B, Soto D, Andres RM, Coccia E, Gasull X, Planells-Ferrer L, Moubarak RS, Soriano E, Comella, JX. **FAIM-L regulation of XIAP degradation modulates Synaptic Long-Term Depression and Axon Degeneration.** *Sci Rep.* 6:35775. IF: 5.228

8. Cabib C, Cipullo F, Morales M, Valls-Sole J. **Transcranial Direct Current Stimulation (tDCS) Enhances the Excitability of Trigemino-Facial Reflex Circuits.** *Brain Stimul.* 9(2):218-224. IF: 4.793

9. Fernandez-Arcos A, Iranzo A, Serradell M, Gaig C, Santamaria J. **The Clinical Phenotype of Idiopathic Rapid Eye Movement Sleep Behavior Disorder at Presentation: A Study in 203 Consecutive Patients.** *Sleep.* 39(1):121-132. IF: 4.793

10. Ramos-Perdigues S, Baillés E, Mane A, Carreno M, Donaire A, Rumia J, Bargallo N, Boget T, Setoain X, Valdes M, Pintor L. **A prospective study contrasting the psychiatric outcome in drug-resistant epilepsy between patients who underwent surgery and a control group.** *Epilepsia.* 57(10):1680-1690. IF: 4.706

11. Mayoral M, Marti-Fuster B, Carreno M, Carrasco JL, Bargallo N, Donaire A, Rumia J, Perissinotti A, Lomena F, Pintor L, Boget T, Setoain X. **Seizure-onset zone localization by statistical parametric mapping in visually normal F-FDG PET studies.** *Epilepsia.* 57(8):1236-1244. IF: 4.706

12. Sierra-Marcos A, Carreno M, Setoain X, Lopez-Rueda A, Aparicio J, Donaire A, Bargallo N. **Accuracy of arterial spin labeling magnetic resonance imaging (MRI) perfusion in detecting the epileptogenic zone in patients with drug-resistant neocortical epilepsy: Comparison with electrophysiological data, structural MRI, SISCOM and FDG-PET.** *Eur J Neurol.* 23(1):160-167. IF: 3.956

13. Aparicio J, Carreño M, Bargalló N, Setoain X, Rubí S, Rumià J, Falcón C, Calvo A, Martí-Fuster B, Padilla N, Boget T, Pintor L, Donaire A. **Combined 18F-FDG-PET and diffusion tensor imaging in mesial temporal lobe epilepsy with hippocampal sclerosis.** *NeuroImage-Clin.* 12:976-989. IF: 3.857

14. Chahine LM, Xie SX, Simuni T, Tran B, Postuma R, Amara A, Oertel WH, Iranzo A, Scordia C, Fullard M, Linder C, Purri R, Darin A, Rennert L, Videnovic A, Del Riva P, Weintraub D. **Longitudinal changes in cognition in early Parkinson's disease patients with REM sleep behavior disorder.** *Parkinsonism Relat Disord.* 27:102-106. IF: 3.794

15. Lopez-Serrano C, Torres-Espin A, Hernandez J, Alvarez-Palomo AB, Requena J, Gasull X, Edel MJ, Navarro X. **Effects of the Post-Spinal Cord Injury Microenvironment on the Differentiation Capacity of Human Neural Stem Cells Derived From Induced Pluripotent Stem Cells.** *Cell Transplant.* 25(10):1833-1852. IF: 3.427

16. Cabib C, Llufriu S, Martinez-Heras E, Saiz A, Valls-Solé J. **Enhanced mirror activity in 'crossed' reaction time tasks in multiple sclerosis.** *Clin Neurophysiol.* 127(4):2001-9. IF: 3.426

17. Pereira P, Leote J, Cabib C, Casanova-Molla J, Valls-Sole J. **Stimulus waveform determines the characteristics of sensory nerve action potentials.** *Clin Neurophysiol.* 127(3):1879-85. IF: 3.426

18. Brum M, Cabib C, Valls-Sole J. **Clinical Value of the Assessment of Changes in MEP Duration with Voluntary Contraction.** *Front Neurosci.* 9:505. IF: 3.398

19. Madrid A, Valls-Sole J, Oliviero A, Cudeiro J, Arias P. **Differential responses of spinal motoneurons to fatigue induced by short-lasting repetitive and isometric tasks.** *Neuroscience.* 339:655-666. IF: 3.231

20. Lacima G, Pera M, González-Argenté X, Torrents A, Valls-Sole J, Espuña-Pons M. **Is electromyography a predictive test of patient response to biofeedback in the treatment of fecal incontinence?** *Neurourol Urodyn.* 35(3):390-394. IF: 3.128

21. Sierra-Rio A, Balasa M, Olives J, Antonell A, Iranzo A, Castellví M, Bosch B, Grau-Rivera O, Fernandez-Villullas G, Rami L, Lladó A, Sánchez-Valle R, Molinuevo JL. **Cerebrospinal Fluid Biomarkers Predict Clinical Evolution in Patients with Subjective Cognitive Decline and Mild Cognitive Impairment.** *Neurodegener Dis.* 16(1-2):69-76. IF: 2.937

22. Leote J, Pereira P, Cabib C, Cipullo F, Valls-Sole J. **Anodal sensory nerve action potentials: From physiological understanding to potential clinical applicability.** *Muscle Nerve.* 53(6):897-905. IF: 2.713

23. Sansa G, Gavaldà A, Gaig C, Monreal J, Ercilla G, Casamitjana R, Ribera G, Iranzo A, Santamaria J. **Exploring the presence of narcolepsy in patients with schizophrenia.** *BMC Psychiatry.* 16:177. IF: 2.576

24. Villanueva V, Garcés M, López-González FJ, Rodriguez-Osorio X, Toledo M, Salas-Puig J, González-Cuevas M, Campos D, Serratosa JM, González-Giráldez B, Mauri JA, Camacho JL, Suller A, Carreño M, Gómez JB, Montoya J, Rodríguez-Uranga J, Saiz-Diaz R, González-de la Aleja J, Castillo A, López-Trigo J, Poza JJ, Flores J, Querol R, Ojeda J, Giner P, Molins A, Esteve P, Baiges JJ. **Safety, efficacy and outcome-related factors of perampanel over 12 months in a real-world setting: The FYDATA study.** *Epilepsy Res.* 126:201-10. IF: 2.237

25. Kumru H, Benito-Penalva J, Valls-Sole J, Murillo N, Tormos JM, Flores C, Vidal J. **Placebo-controlled study of rTMS combined with Lokomat® gait training for treatment in subjects with motor incomplete spinal cord injury.** *Exp Brain Res.* 234(12):3447-3455. IF: 2.057

26. Aguilar F, Cisternas A, Montserrat JM, Avila M, Torres-Lopez M, Iranzo A, Berenguer J, Vilaseca I. **Effect of Nasal Continuous Positive Pressure on the Nostrils of Patients with Sleep Apnea Syndrome and no Previous Nasal Pathology. Predictive Factors for Compliance.** *Arch Bronconeumol.* 52(10):519-526. IF: 1.771

27. Luis L, Lehnen N, Muñoz E, de Carvalho M, Schneider E, Valls-Solé J, Costa J. **Anticompensatory quick eye movements after head impulses: A peripheral vestibular sign in spontaneous nystagmus.** *J Vestib Res-Equilib Orientat.* 25(5-6):267-71. IF: 1.047

28. Luis L, Costa J, Muñoz E, de Carvalho M, Carmona S, Schneider E, Gordon CR, Valls-Solé J. **Vestibulo-ocular reflex dynamics with head-impulses discriminates spinocerebellar ataxias types 1, 2 and 3 and Friedreich ataxia.** *J Vestib Res-Equilib Orientat.* 26(3):327-34. IF: 1.047

Reviews / I.F.: 39.125

1. Iranzo A, Santamaria J, Tolosa E. **Idiopathic rapid eye movement sleep behaviour disorder: diagnosis management and the need for neuroprotective interventions.** *Lancet Neurol.* 15(4):405-419. IF: 23.468

2. Antelmi E, Ferri R, Iranzo A, Arnulf I, Dauvilliers Y, Bhatia KP, Liguori R, Schenck CH, Plazzi G. **From state dissociation to status dissociatus.** *Sleep Med Rev.* 28:5-17. IF: 7.341

3. Valls-Sole J, Defazio G. **Blepharospasm: Update on Epidemiology, Clinical Aspects, and Pathophysiology.** *Front Neurol.* 7:45. IF: 3.184

4. Giblin JP, Comes N, Strauss O, Gasull X**. Ion Channels in the Eye: Involvement in Ocular Pathologies.** *Adv Protein Chem Struct Biol.* 104:157-231. IF: 2.982

5. Carreño M, Fernández S. **Sleep-Related Epilepsy.** *Curr Treat Options Neurol.* 18(5):23. IF: 2.150

Case reports / I.F.: 10.104

1. Tercero-Uribe A, Gaig C, Iranzo A, Gómez JB, Graus F, Santamaria J. **Small fast rhythmic eye movements (SFREM) misdiagnosed as frontal seizures.** *Clin Neurophysiol.* 127(1):971-3. IF: 3.426

2. Matos N, Iranzo A, Gaig C, Santamaria J. **Video-polysomnographic documentation of non-rapid eye movement sleep parasomnia followed by rapid eye movement sleep behavior disorder: a parasomnia overlap disorder?** *Sleep Med.* 23:46-48. IF: 3.339

3. Matos N, Gaig C, Santamaria J, Iranzo A. **Tricks to rapidly terminate episodes of cataplexy in narcolepsy.** *Sleep Med.* 20:129-130. IF: 3.339

GRANTS FOR RESEARCH IN PROGRESS

Carreño MM. **Eficacia y seguridad de la estimulación trigeminal externa como tratamiento de la epilepsia resistente a fármacos.**
Sponsored by: Instituto De Salud Carlos III.
PI13/00509
Duration: 01/01/2014-31/12/2016

Donaire A. **Análisis de la red epileptogénica en pacientes con epilepsia focal extratemporal fármacorresistente mediante técnicas de conectividad funcional cerebral.**
Sponsored by: Instituto de Salud Carlos III.
PI13/00649
Duration: 01/01/2014-31/12/2016

Valls-Sole J. **Estudio de respuestas preconscientes y conscientes al dolor evocado en sujetos sanos y en pacien. tes con polineuropatía de fibra fina.**
Sponsored by: Fondo de Investigaciones Sanitarias del Instituto de Salud Carlos III.
PI13 0526
Duration: 01/11/2013-30/10/2016

Gasull X. **Bases fisiopatológicas del dolor crónico: foco en enfermedades inflamatorias crónicas de la superficie ocular.**
Sponsored by: Fondo de Investigaciones Sanitarias del Instituto de Salud Carlos III.
PI14/00141
Duration: 01/01/2015-31/12/2017

Santamaria J. **Ictal brain SPECT in the premotor stage of Parkinson disease.**
Sponsored by Marató TV3 20143910
Duration: 1/8/2015-31/07/2017

Soto D. **Modulación de receptores AMPA por CPT1C: papel en la fisiología neuronal.**
Sponsored by: Ministerio de Economía y Competitividad. BFU2014-57562-P
Duration: 01/01/2015-31/12/2017

DOCTORAL THESES

Valls J. **Alteraciones de la excitabilidad refleja y del control motor en esclerosis múltiple.**
PhD student: Christopher Cabib

Soto D. **Novel regulation of AMPA receptors function by interacting protein CPT1C.**
PhD student: Yefimenko Nosova

Carreño M, Valls-Solé J. **Utilidad de la neuroimagen funcional multimodal en el estudio de la epilepsia focal fármacoresistente.**
PhD student: Santiago Fernández Fernández

Santamaria J. **Factors de confusió en el diagnòstic de narcolepsia.**
PhD student: Gemma Sansa Fayos

4.5 Muscle research and mitochondrial function

LOCATION
CELLEX building
Faculty of Medicine
University of Barcelona

KEYWORDS
1. **Muscle**
2. **Mitochondria**
3. **Alcoholic Cardiomyopathy**
4. **Chronic fatigue syndrome**
5. **Septic shock**

Original publications from 2014 to 2016

YEAR	I.F.	TOTAL	Q1	Q2
2014	42.05	12	6	4
2015	89.98	15	11	2
2016	62.86	15	9	6

TEAM INVOLVED IN
CIBERER
CIBEROBN
AGAUR_SGR14: 376



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Anna Peguero (HCB)
Sara Fernández (HCB)

TECHNICIANS
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STRATEGIC OBJECTIVES

1. Management of patients with rare diseases (metabolic, mitochondrial and neuromuscular).
2. Mitochondrial, inflammatory, autoimmune and toxic muscle disease.
3. Mitotoxicity.
4. Mitochondrial involvement in neurodegeneration and psychiatrics.
5. Mitochondrial basis of obstetric outcome.
6. Cardiomyopathy in alcoholism.
7. Chronic fatigue syndrome (CFS).
8. Septic shock and organ failure.
9. Journalology.



TEAM Josep M. Grau Junyent

MAIN LINES OF RESEARCH

1. Diagnosis and management of patients with rare diseases, inborn errors of metabolism or neuromuscular disorders (coordinating 42 groups). Research, training, register and biobanking.
2. Etiology, biomarkers and therapeutics in muscle pathology; special focus in inclusion body myositis, myopathy secondary to statins and mtDNA mantainance-syndromes.
3. Mitochondrial toxicity induced by drugs (antiretrovirals, antibiotics, antipsychotics) or toxic agents (HIV, CO, tobacco).
4. Etiology, biomarkers and therapeutics in neurodegeneration and psychiatrics: Parkinson disease (familial Parkin and LRRK2 or idiopathic forms), X-Fragile syndrome, schizophrenia and autism.
5. Etiology, biomarkers and therapeutics in preeclampsia.and intrauterine growth restriction with associated cardiovascular fetal remodeling.
6. Pathological mechanisms of alcohol at neurological and cardiocirculatory level: (i) Prognosis of alcoholic myocardiopathy and management options; (ii) Muscle and myocardial apoptosis; (iii) Myocardial regeneration; (iv) and Myocyte hyperthrophy (myostatin, IGF-1, Titin).
7. Clinical and functional repercussions of CFS. (i) Long-term multidisciplinar therapy, (ii) Role of co-morbidity, (iii) Influence of chemicals and environment.
8. Clinical and translational research on septic shock and multiorgan failure. Research on antibiotic policies in critically-ill patients.
9. Journalology of biomedical journals: research of editorial and ethical policies of biomedical journals.

PUBLICATIONS

Originals / I.F.: 62.857

1. Hernandez-Rodriguez J, Ruiz-Ortiz E, Tome A, Espinosa G, Gonzalez-Roca E, Mensa-Vilaro A, Prieto-Gonzalez S, Espigol-Frigole G, Mensa J, Cardellach F, Grau J M, Cid M C, Yague J, Arostegui J I, Cervera R. **Clinical and genetic characterization of the autoinflammatory diseases diagnosed in an adult reference center.** *Autoimmun Rev.* 15(1):9-15. IF: 8.490

2. Alvarado-Cardenas M, Marin-Sánchez A, Martínez MA, Martínez-Martínez L, Pinal-Fernandez I, Labrador-Horrillo M, Balada E, Mundet-Tuduri X, Gonzalez-Mera L, Casademont J, Acebes EM, Moreno PJ, Juarez C, Grau-Junyent JM, Pujol-Borrell R, Selva-O'Callaghan A. **Statin-associated autoimmune myopathy: A distinct new IFL pattern can increase the rate of HMGCR antibody detection by clinical laboratories.** *Autoimmun Rev.* 15(12):1161-1166. IF: 8.490

3. Alvarez-Mora MI, Rodriguez-Revenga L, Madrigal I, Guitart-Mampel M, Garrabou G, Mila M. **Impaired Mitochondrial Function and Dynamics in the Pathogenesis of FXTAS.** *Mol Neurobiol.* 1-7. IF: 5.397

4. Catalán-Garcia M, Garrabou G, Moren C, Guitart-Mampel M, Hernando A, Diaz-Ramos A, González-Casacuberta I, Juarez-Flores DL, Bañó M, Enrich-Bengoa J, Emperador S, Milisenda J, Moreno P, Tobias E, Zorzano A, Montoya J, Cardellach F, Grau JM. **Mitochondrial-DNA disturbances and deregulated expression of OXPHOS and mitochondrial fusion proteins in sporadic inclusion body myositis.** *Clin Sci.* 130(19):1741-1751. IF: 5.016

5. Garrabou G, Hernàndez A-S, Catalán García M, Moren C, Tobias E, Cordoba S, Lopez M, Figueras F, Grau JM, Cardellach F. **Molecular basis of reduced birth weight in smoking pregnant women: Mitochondrial dysfunction and apoptosis.** *Addict Biol.* 21(1):159-170-170. IF: 4.547

6. Yek C, Gianella S, Plana M, Castro P, Scheffler K, García F, Massanella M, Smith DM. **Standard vaccines increase HIV-1 transcription during antiretroviral therapy.** Aids. 30(15):2289-98. IF: 4.407

7. Bosch M, Fajardo A, Alcalá-Vida R, Fernández-Vidal A, Tebar F, Enrich C, Cardellach F, Pérez-Navarro E, Pol A. **Hepatic Primary and Secondary Cholesterol Deposition and Damage in Niemann-Pick Disease.** *Am J Pathol.* 186(3):517-23. IF: 4.206

8. Trallero-Araguás E, Grau-Junyent JM, Labirua-Iturburu A, García-Hernández FJ, Monteagudo-Jiménez M, Fraile-Rodriguez G, Les-Bujanda I, Rodriguez-Carballeira M, Sáez-Comet L, Selva-O'Callaghan A; IIM Study Group and Autoimmune Diseases Study Group (GEAS) of the Spanish Society of Internal Medicine (SEMI). **Clinical manifestations and long-term outcome of anti-Jo1 antisynthetase patients in a large cohort of Spanish patients from the GEAS-IIM group.** *Semin Arthritis Rheum.* 46(2):225-31. IF: 3.946

9. Torrell H, Alonso Y, Garrabou G, Mulet D, Catalán M, Valiente-Pallejà A, Carreño-Gago L, García-Arumí E, Montaña E, Vilella E, Martorell L. **Mitochondrial dysfunction in a family with psychosis and chronic fatigue syndrome.** *Mitochondrion.* pii: S1567-7249(16)30221-5. IF: 3.647

10. Calvo-Cano A, Gómez-Junyent J, Lozano M, Castro P, Cid J, Nicolás JM, Quintó L, Martin M, Muñoz J, Gascon J. **The role of red blood cell exchange for severe imported malaria in the artesunate era: a retrospective cohort study in a referral centre.** *Malar J.* 15:216. IF: 3.079

11. Cobos-Trigueros N, Sole M, Castro P, Torres JL, Rinaudo M, de Lazzari E, Morata L, Hernandez C, Fernandez S, Soriano A, Nicolas JM, Mensa J, Vila J, Martinez JA. **Evaluation of a Mixing versus a Cycling Strategy of Antibiotic Use in Critically-Ill Medical Patients: Impact on Acquisition of Resistant Microorganisms and Clinical Outcomes.** *PLoS One.* 11(3):e0150274. IF: 3.057

12. Rosón B, Corbella X, Perney P, Santos A, Stauber R, Lember M, Arutyunov A, Ruza I, Vaclavik J, García L, Pujol R, Stauber R, Vogel W, Vaclavik J, Gajdová J, Smrzova A, Liberdová A, Cibickova L, Plasek J, Svarcova T, Salupere R, Lember M, Rosón B, Guillem

MN, Fernández-Sola J, Zapatero A, Monte R, Puerta RB, Gamallo R, Durán C, Perney P, Ouakli A, Oziol E, Bastide D, Tourneaire P, Allard G, Cros H, Piala JM, Quere I, Condouret S, Ruža I, Funka K, Zarina L, Barata J, Gonsalves O, Santos A, Oliveira N, Yakushin S, Petrovicheva L, Sleptsov A, Arutyunov A, Mitkhat G, Marusenko I; ALCHIMIE Study Group. **Prevalence, Clinical Characteristics, and Risk Factors for Non-recording of Alcohol Use in Hospitals across Europe: The ALCHIMIE Study.** *Alcohol Alcohol.* 51(4):457-64. IF: 2.724

13. Diego E, Castro P, Soy D, Poch E, Nicolas JM. **Predictive performance of glomerular filtration rate estimation equations based on cystatin C versus serum creatinine values in critically ill patients.** *Am J Health-Syst Pharm.* 73(4):206-15. IF: 2.451

14. Hernandez-Rodriguez J, Murgia G, Villar I, Campo E, Mackie SL, Chakrabarty A, Hensor EMA, Morgan AW, Font C, Prieto-Gonzalez S, Espigol-Frigole G, Grau JM, Cid MC. **Description and Validation of Histological Patterns and Proposal of a Dynamic Model of Inflammatory Infiltration in Giant-cell Arteritis.** *Medicine (Baltimore).* 95(8):e2368. IF: 2.133

15. Pérez-López J, Ceberio-Hualde L, García Morillo JS, Grau-Junyent JM, Hermida Ameijeiras Á, López-Rodríguez M, Morales-Conejo M, Nava Mateos JJ, Aldámiz Echevarri Azuara LJ, Campistol J, Couce ML, García-Silva MT, González Gutiérrez-Solana L, Del Toro M; Sociedad Española de Medicina Interna (SEMI); Sociedad Española de Neurología Pediátrica (SENEP). **Transition process from paediatric to adult care in patients with inborn errors of metabolism. Consensus statement.** *Med Clin.* 147(11):506.e1-506.e7. IF: 1.267

Reviews / I.F.: 7.371

1. Fernández-Solà J, Planavila Porta A. **New Treatment Strategies for Alcohol-Induced Heart Damage.** *Int J Mol Sci.* 17(10). IF: 3.257

2. Moren C, Juarez-Flores DL, Cardellach F, Garrabou G. **The Role of Therapeutic Drugs on Acquired Mitochondrial Toxicity.** *Curr Drug Metab.* 17(7):648-662. IF: 2.847

3. Cardellach F, Vilardell M, Pujol R. **Training doctors for the future: A review 10 years later.** *Med Clin.* 147(7):313-5. IF: 1.267

Letters / I.F.: 1.267

1. Nicolás D, Castro P, Cibeira MT, Nicolás JM. **Respiratory failure caused by amyloid myopathy.** *Med Clin.* 146(5):e25-6. IF: 1.267

Case reports / I.F.: 8.166

1. Milisenda JC, Pujol T, Grau JM. **Not only bright tongue sign in Pompe disease.** *Neurology.* 87(15):1629-1630. IF: 8.166

GRANTS FOR RESEARCH IN PROGRESS

Fernandez-Solà J. **Cell Death in Alcoholic Heart and Muscle.**
Sponsored by: National Institute of Health (NIH). 1 U01 AA021122
Duration: 01/05/2015-30/04/2017

Cardellach F. **Influencia de la dieta en la modulación mitocondrial y de cardiomiocinas del remodelado cardiovascular fetal asociado al crecimiento intrauterino restringido.**
Sponsored by: Instituto de Salud Carlos III. PI15/00817
Duration: 01/01/2016-31/12/2018

Fernàndez-Solà J. **Paper de les noves cardiomiocines FGF21 i Metrnl en el dany cardíac induït per l'alcoholisme i la hipertensió arterial.**
Sponsored by: Fundació la Marató de TV3. 20153331
Duration: 29/06/2016-28/06/2019

Garrabou G, Moren C. **Alteraciones mitocondriales en modelos celular de la Enfermedad de Parkinson.**
Sponsored by: Consejo Nacional de Ciencia y Tecnologia (CONACyT (México) segunda convocatoria 2014. 328988
Duration: 01/01/2014-31/12/2017

Chamorro A, Cardellach F. **Molecular links between diabetes and neurodegenerative disorders.**
Sponsored by: Proyectos de Excelencia (InterCIBER) ISCIII. PIE14/00061
Duration: 01/01/2015-31/12/2017

Grau JM. **Analisis proteómico del músculo de pacientes con miositis por cuerpos de inclusión (forma esporádica) y estudio de la respuesta a proteínas mal plegadas.**
Sponsored by: Fundació Privada Cellex. IP004219.
Duration: 01/01/2015-31/12/2017

Grau JM. **Identificación de nuevos antígenos en pacientes con miopatía inflamatoria.**
Sponsored by: Instituto de Salud Carlos III. 15/02100.
Duration: 01/01/2015-31/12/2018

Castro P. **Caracterización de la disfunción endotelial en los síndromes sépticos e influencia del defibrotide.**
Sponsored by: Instituto de Salud Carlos III. PI12/00832
Duration: 01/01/2013-31/06/2017

Morén C, Cardellach F. **Elaboración de un modelo in vitro de neuonas dopaminérgicas derivadas de pacientes con enfermedad de Parkinson: plataforma para estudios moleculares y terapéuticos Investigador.**
Sponsored by: Fundación Privada Cellex
Duration: 01/01/2016-31/12/2018

DOCTORAL THESES

Nicolas JM, Castro P. **Factores asociados al fracaso multiorgánico en la sepsis.**
PhD student: Jesus Aibar Gallizo

4.6

Pathophysiology and treatment of neurodegenerative disorders

LOCATION
CELLEX building
UB School of Medicine

KEYWORDS
1. **Huntington's disease**
2. **Motor and cognitive function**
3. **Neuroprotection**
4. **Trophic factors**
5. **Stem cells**

Original publications from 2014 to 2016

YEAR	I.F.	TOTAL	Q1	Q2
2014	44.96	7	6	1
2015	49.84	9	8	1
2016	73.96	15	11	4

TEAM INVOLVED IN
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RED TERAPIA CELULAR
AGAUR_SGR14: 968
HD-iPSCs Consortium



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Esther Pérez (UB)

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Mercè Massana (IDIBAPS)
Andrés Míguez (IDIBAPS)
Ana Saavedra (CIBERNED)
Philip Sanders (IDIBAPS)
Marco Straccia (IDIBAPS)
Javier Gómez Orlandi (FBG)

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Mónica Pardo (UB)
Nuria Suelves (UB)
Elena Álvarez (CIBERNED)
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COLLABORATORS
Raquel Martín-Ibáñez (UB)
David Vanneste (UB)

STRATEGIC OBJECTIVES

1. To study of the cellular and molecular bases involved in neuronal dysfunction and death associated to motor and cognitive alterations in basal ganglia neurodegenerative disorders.
2. The use of stem cell technology to differentiate neurons for using in regenerative medicine for neurodegenerative disorders.



TEAM Jordi Alberch

MAIN LINES OF RESEARCH

1. Group of neuroprotection and neuronal plasticity in Huntington's disease. PI: Jordi Alberch: To study the mechanisms that modulate cortico-striatal connectivity for understanding the intracellular mechanisms to develop molecules that modulate neuronal plasticity for the treatment of Huntington's disease.
2. Group of kinases and phosphatases in neuronal function and dysfunction PI: Esther Pérez-Navarro: The group is interested in studying the involvement of kinases and phosphatases in the control of motor and cognitive processes in Huntington's disease.
3. Group of neurodegeneration and cognitive dysfunction in Huntington's Disease. PI: Silvia Ginés: The research group is interested in defining the molecular mechanisms involved in depressive, cognitive and motor disorders in Huntington's disease.
4. Group of stem cells and regenerative medicine. PI: Josep M. Canals: To study the mechanisms underlying the differentiation of stem cells into neurons, for exploring the cellular mechanisms involved in Huntington's and Parkinson's disease. Another line of research is the characterization of extrinsic factors and new transcription factors of human and mouse brain development.

PUBLICATIONS

Originals / I.F.: 73.962

1. Rue L, Banez-Coronel M, Creus-Muncunill J, Giralt A, Alcala-Vida R, Mentxaka G, Kagerbauer B, Zomeno-Abellan MT, Aranda Z, Venturi V, Perez-Navarro E, Estivill X, Marti E. **Targeting CAG repeat RNAs reduces Huntington's disease phenotype independently of huntingtin levels.** *J Clin Invest.* 126(11):4319-4330. IF: 12.575

2. Azkona G, Saavedra A, Aira Z, Aluja D, Xifro X, Baguley T, Alberch J, Ellman J A, Lombroso P J, Azkue J J, Perez-Navarro E. **STEP modulates nociception: evidences from genetic deletion and pharmacological inhibition.** *Pain.* 157(2):377-386. IF: 5.557

3. Azkona G, Saavedra A, Aira Z, Aluja D, Xifró X, Baguley T, Alberch J, Ellman JA, Lombroso PJ, Azkue JJ, Pérez-Navarro E. **Striatal-enriched protein tyrosine phosphatase modulates nociception: evidence from genetic deletion and pharmacological inhibition.** *Pain.* 157(2):377-86. IF: 5.557

4. Saavedra A, Puigdellivol M, Tyebji S, Kurup P, Xu J, Gines S, Alberch J, Lombroso PJ, Perez-Navarro E. **BDNF Induces Striatal-Enriched Protein Tyrosine Phosphatase 61 Degradation Through the Proteasome.** *Mol Neurobiol.* 53(6):4261-4273. IF: 5.397

5. Martín-Flores N, Romaní-Aumedes J, Rue L, Canal M, Sanders P, Straccia M, Allen ND, Alberch J, Canals JM, Perez-Navarro E, Malagelada, C. **RTP801 Is Involved in Mutant Huntingtin-Induced Cell Death.** *Mol Neurobiol.* 53(5):2857-2868. IF: 5.397

6. Anglada-Huguet M, Giralt A, Rue L, Alberch J, Xifro X. **Loss of striatal 90-kDa ribosomal S6 kinase (Rsk) is a key factor for motor synaptic and transcription dysfunction in Huntington's disease.** *Biochim Biophys Acta-Mol Basis.* 1862(7):1255-1266. IF: 5.158

7. Canal M, Martín-Flores N, Perez-Sisques L, Romaní-Aumedes J, Altas B, Man HY, Kawabe H, Alberch J, Malagelada C. **Loss of NEDD4 contributes to RTP801 elevation and neuron toxicity: implications for Parkinson's disease.** *Oncotarget.* 7(37):58813-58831. IF: 5.008

8. Anglada-Huguet M, Vidal L, Giralt A, Garcia-Diaz Barriga G, Xifro X, Alberch J. **Prostaglandin E2 EP2 activation reduces memory decline in R6/1 mouse model of Huntington's disease by the induction of BDNF-dependent synaptic plasticity.** *Neurobiol Dis.* 95:22-34. IF: 4.856

9. Lao-Peregrín C, Ballesteros JJ, Fernández M, Zamora-Moratalla A, Saavedra A, Gómez Lázaro M, Pérez-Navarro E, Burks D, Martín ED. **Caffeine-mediated BDNF release regulates long-term synaptic plasticity through activation of IRS2 signaling.** *Addict Biol.* 25. IF: 4.547

10. Bosch M, Fajardo A, Alcalá-Vida R, Fernández-Vidal A, Tebar F, Enrich C, Cardellach F, Pérez-Navarro E, Pol A. **Hepatic Primary and Secondary Cholesterol Deposition and Damage in Niemann-Pick Disease.** *Am J Pathol.* 186(3):517-23. IF: 4.206

11. Xu J, Kurup P, Azkona G, Baguley TD, Saavedra A, Nairn AC, Ellman JA, Pérez-Navarro E, Lombroso PJ. **Down-regulation of BDNF in cell and animal models increases striatal-enriched protein tyrosine phosphatase 61 (STEP61) levels.** *J Neurochem.* 136(2):285-94. IF: 3.842

12. Telezhkin V, Schnell C, Yarova P, Yung S, Cope E, Hughes A, Thompson BA, Sanders P, Geater C, Hancock JM, Joy S, Badder L, Connor-Robson N, Comella A, Straccia M, Bombau G, Brown JT, Canals JM, Randall AD, Allen ND, Kemp PJ. **Forced cell cycle exit and modulation of GABA(A), CREB, and GSK3 beta signaling promote functional maturation of induced pluripotent stem cell-derived neurons.** *Am J Physiol -Cell Physiol.* 310(7):C520-C541. IF: 3.395

13. Straccia M, Carrere J, Rosser AE, Canals JM. **Human t-DARPP is induced during striatal development.** *Neuroscience.* 333():320-330. IF: 3.231

14. Ciezka M, Acosta M, Herranz C, Canals JM, Pumarola M, Candiota AP, Arús C. **Development of a transplantable glioma tumour model from genetically engineered mice: MRI/MRS/MRSI characterisation.** *J Neuro-Oncol.* 129(1):67-76. IF: 2.754

15. Pont L, Benavente F, Jaumot J, Tauler R, Alberch J, Gines S, Barbosa J, Sanz-Nebot V. **Metabolic profiling for the identification of huntington biomarkers by on-line solid-phase extraction capillary electrophoresis mass spectrometry**

combined with advanced data analysis tools. *Electrophoresis.* 37(5-6):795-808. IF: 2.482

Reviews / I.F.: 5.256

1. Puigdellivol M, Saavedra A, Perez-Navarro E. **Cognitive Dysfunction in Huntington's Disease: Mechanisms and Therapeutic Strategies Beyond BDNF.** *Brain Pathol.* 26(6):752-771. IF: 5.256

Editorials / I.F.: 5.008

1. Brito V, Ginés S. **p75NTR in Huntington's disease: beyond the basal ganglia.** *Oncotarget.* 7(1):1-2. IF: 5.008

GRANTS FOR RESEARCH IN PROGRESS

Canals JM. **Red de terapia celular.**
Sponsored by: Instituto de Salud Carlos III (ISCIII) RD12/0019/0002
Duration: 01/01/2013-31/12/2016

Canals JM. **Stem cell Differentiation JSC-Joint Collaborative effort between the IDIBAPS, Univ of Milano and Univ of Cardiff.**
Sponsored by: CHDI Foundation. A-4530
Duration: 01/01/2012-30/06/2016

Gines S. **Cdk5 como nueva diana terapéutica y biomarcador del trastorno depresivo en la enfermedad de Huntington.**
Sponsored by Ministerio de Economía y Competitividad. SAF2015-67474-R
Duration: 01/12/2015-31/01/2018

Pérez E. **Regulación de STEP por BDNF: Implicaciones terapéuticas en enfermedades neurológicas.**
Sponsored by: Instituto De Salud Carlos III. PI13/01250
Duration: 01/01/2014-31/12/2016

Alberch J, Malagelada C. **Modulación de la plasticidad sináptica como estrategia terapéutica en la enfermedad de Huntington.**
Sponsored by: Ministerio de Economia y Competitividad. SAF2014-57160-R
Duration: 01/01/2015-31/12/2017

Alberch J. **Modulation of synaptic plasticity deficits as a therapeutic strategy for Huntington's disease.**
Sponsored by: Fundació la Marató de TV3
Duration: 04/03/2015-28/02/2018

Alberch J. **Dinámica mitochondrial y mitofagia como dianas terapéuticas en las enfermedades de Parkinson y Huntington.**
Sponsored by: Instituto de Salud Carlos III. Ministerio de Ciencia e Innovación. Proyecto colaborativo Intra-CIBERNED (2013/08)
Duration: 01/06/2014-31/05/2016

Pérez E. **La lámina nuclear en la enfermedad de Huntington: Papel en la fisiopatología y aplicaciones terapéuticas.**
Sponsored by: Fundación Ramón Areces
Duration: 01/04/2015-31/03/2018

Pérez E. **Optimización y desarrollo de un agente terapéutico basado en ácidos nucleicos para el tratamiento de la enfermedad de Huntington. Participantes: nLife Therapeutics, S.L. (coordinador), Universidad de Barcelona-FBG (IP: E. Pérez) y Universidad Autónoma de Barcelona (IP: A. Bosch).**
Sponsored by: RETOS-COLABORACIÓN. Ministerio de Economia y Competitividad. RTC-2015-3731-1
Duration: 29/09/2015-31/12/2017

Pérez E. **Evaluación de la eficacia de inhibidores epigenéticos en modelos experimentales de patologías humanas. Participantes: Oryzon Genomics SA (coordinador), Universidad de Barcelona-FBG (IP: E. Pérez (enfermedad de Huntington); IP: M. Pallas (envejecimiento)) y Universidad Autónoma de Barcelona (IP: A. Armario).**
Sponsored by: RETOS-COLABORACIÓN. Ministerio de Economia y Competitividad. RTC-2015-3898-1
Duration: 29/09/2015-31/12/2017

Alberch J. **Custom architecturally defined 3D stem cell derived functional human neural networks for transformative progress in neuroscience and medicine (MESO_BRAIN) (IP: Jordi Soriano Fradera).**
Sponsored by: 8P1FET - HORIZON 2020. PILLAR 1-EXCELLENT SCIENCE. FET. Future and Emerging Technologies. EUUN - Unió Europea
Duration: 01/01/2016 – 31/12/2019

Alberch J, Canals JM. **European Training Network for Cell-based Regenerative Medicine (Training4CRM).**
Sponsored by: 8P1MCA - HORIZON 2020. PILLAR 1-EXCELLENT SCIENCE. MCA. Marie
Sklodowska-Curie Actions. EUUN - Unió Europea
Duration: 01/01/2016 – 31/12/2020

Alberch J. **Fisiopatologia i tractament de les malalties neurodegeneratives.**
Sponsored by: 2014SGR968 Generalitat de Catalunya
Duration: 01/01/2014 –30/04/ 2017

Canals JM. **Desarrollo, diferenciación y maduración neuronal en la enfermedad de Huntington.**
Sponsored by: SAF2015-66505-R Plan Nacional de biomedicina. Ministerio de Ciencia e Innovación
Duration: 01/01/2016 – 31/12/2019

Canals JM. **Centre per a la producció i validació de teràpies avançades - ub (cat-ub).**
Sponsored by: TECDTP15-1-0022 Ajuts destinats a incentivar els plans d'actuació en transferència tecnològica dels desenvolupadors de tecnologia catalans. Agència per a la Competitivitat de l'Empresa (ACCIÓ); Generalitat de Catalunya
Duration: 01/01/2016-31/12/2017

Canals JM. **Studying Human MSN Differentiation from PSC using Single-Cell RNAseq and Rodent**

Chimeric Models.
Sponsored by: A12076. CHDI Foundation Inc
Duration: 01/01/2016-31/12/2018

Canals JM. **ADVANCECAT: acceleradora pel desenvolupament de teràpies avançades a Catalunya (ADVANCECAT: accelerating development for advanced therapies in Catalonia).**
Sponsored by: COMRDI15-1-0013. RIS3CAT Agència per a la Competitivitat de l'Empresa (ACCIÓ); Generalitat de Catalunya
Duration: 01/01/2016-31/12/2019

DOCTORAL THESES

Ginés S. **Study of mitochondrial dysfunction mechanisms in Huntington's disease striatal degeneration.**
PhD student: Marta Cherubini

4.7 Biological bases of psychiatric disorders and nuclear psychiatry

LOCATION
HCB building

KEYWORDS
1. **Schizophrenia**
2. **Bipolar disorders**
3. **Psychiatry**
4. **Alcohol**
5. **Child and Adolescent Psychiatry and Psychology**
6. **Depression**

Original publications from 2014 to 2016

YEAR	I.F.	TOTAL	Q1	Q2
2014	307.20	76	54	16
2015	243.59	66	32	27
2016	424.43	89	62	14

TEAM INVOLVED IN
CIBERSAM
AGAUR_SGR14: 398, 441, 489, 649, 1411
Institut de neurociències de la UB

AWARDS

Award for the Best Publication in Hospital Care
Institution: Col·legi de Metges de Barcelona (COMB)
Awardee/s: Miquel Bioque

Ajuts Pons Balmes 2016
Institution: Hospital Clinic
Awardee/s: Miquel Bernardo

Socio de Honor
Institution: Sociedad Española de Patología Dual
Awardee/s: Miquel Bernardo

Socio de Honor
Institution: Asociación Psiquiátrica de América Latina
Awardee/s: Miquel Bernardo

Premi Fi de Residència Emili Letang
Institution: Hospital Clínic de Barcelona
Awardee/s: Pol Bruguera

Premi excel·lència professional del Col.legi Oficial de Metges de Barcelona
Institution: Col·legi de Metges de Barcelona (COMB)
Awardee/s: Josefina Castro-Fornieles

Iria Grande
Institution: Universitat de Barcelona
Awardee/s: Premi extraordinary de Doctorat

Eduard Vieta
Institution: Universitat de València
Awardee/s: Doctor Honoris Causa



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STRATEGIC OBJECTIVES

Our group study severe psychiatric disorders from the differents perspectives: neurobiological, anatomofunctional mechanisms involved in the development of the disease (genetics, neuromodulators, hormone factors, molecular psychiatry and neuroimaging), as well as psychological and therapeutical approaches.

MAIN LINES OF RESEARCH

- The bipolar disorders group investigates the neurobiological mechanisms and the efficacy of treatments for the early detection and prevention of recurrences.

- The Schizophrenia and related disorders unit focuses on first and second psychotic episodes, resistant and comorbid schizophrenia.

- The child and adolescent psychiatry and psychology focuses on: psychotic disorders, eating disorders, obsessive-compulsive disorder, neurodevelopmental disorders, and the study of the neural mechanisms underlying the development of psychotic disorders in children and adolescents.

- The depression group studies the neurobiological bases and clinical indicators associated with treatment response and the course of the illness.

- Alcoholism group focuses on perspectives of longitudinal follow-up, development of screening tools for early detection and brief interventions in alcohol use disorders.

- The liaison psychiatry focuses on psychiatric and psychological aspects in the main neurological diseases.

- Other main research lines focuses on personality disorders (diagnostic systems, their relationship to environmental adjustment and validation of new instruments), perinatal and gender related psychiatric disorders.

RESEARCH GROUP
SCHIZOPHRENIA



GROUP LEADER
Miquel Bernardo (HCB)

This interdisciplinary group focuses on schizophrenia and related disorders in clinical care, research and teaching. The research is centered on the study of first episodes, childhood and adolescent-onset, resistant and comorbid schizophrenia. We have active collaboration (multicenter studies in translational and innovative investigation) with other IDIBAPS, CIBERSAM, and international research groups. We collaborate with a European network of research in schizophrenia and maintain close relationship to American research networks.

RESEARCH GROUP
CHILD AND ADOLESCENT PSYCHIATRY AND PSYCHOLOGY



GROUP LEADER
Josefina Castro-Fornieles (HCB)

This research group is integrated in the Department of Child and Adolescent Psychiatry of the Neuroscience Institute of the Hospital Clinic of Barcelona. The aim is to facilitate clinical research and to collaborate with groups specialized in genetics, neuroimaging and neurobiology. The group has established important collaborations with other neuroscience departments in the same center as well as with other centers within the CIBERSAM. At the international level the group collaborates with the European College of Neuopsychopharmacology, the University of Pittsburgh (United States), and the Child and Adolescent Psychiatry Center of Yale.

EMERGENT GROUP
CLINICAL DEPRESSION GROUP

GROUP LEADER
Cristobal Gastó (HCB)

Our group investigates the neurobiological bases and clinical indicators associated with treatment response and the course of depression. Depression is currently one of the most important health problems, due to its slow and sometimes incomplete resolution, the interference with the normal functions of patients and relatives, and its high suicide risk. Our group is actively involved in the early detection and treatment of this disease, and its comorbidities. The genetic and neuroendocrine markers we are investigating have contributed to better understanding the physiopathological mechanisms of depression. We also work on the design of new pharmacological and psychotherapeutic management strategies.



GROUP Miquel Bernardo



GROUP Josefina Castro-Fornieles

50/50 PROGRAM

MULTIMODAL NEUROIMAGING IN HIGH RISK AND EARLY PSYCHOSIS



GROUP LEADER

Gisela Sugranyes (HCB-IDIBAPS)

Dr. Sugranyes' group was established in 2013 with the aim to understand the neural mechanisms underlying the development of psychotic disorders in children and adolescents. We have since been successful in describing age-related changes in brain function in neurotypical youth, and group-related changes in function and structure in children and adolescents in the early stages of psychosis. We have now set out to explore the neurochemical underpinnings of these findings, and to explore the relationship between neuroimaging measures and clinical and neuropsychological phenotypes. On a translational level, priority is given to the identification of factors predicting transition to psychosis and functional outcomes.

RESEARCH GROUP

BIPOLAR DISORDERS



GROUP LEADER

Eduard Vieta (HCB)

The bipolar disorders program mainly investigates the neurobiological and anatomofunctional mechanisms involved in the development of the disease (genetics, neuromodulators, hormone factors and neuroimaging) and its relapses, the clinical course and neuropsychological consequences, the efficacy of drug treatments and novel therapies, and psychological interventions for the early detection and prevention of recurrences.

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GRANTS FOR RESEARCH IN PROGRESS

Baeza I. **Estudio multicéntrico longitudinal sobre marcadores neurobiológicos de estrés en niños y adolescentes con síndrome de riesgo de psicosis y la transición a psicosis.**
Sponsored by: Instituto de Salud Carlos III (ISCIII). PI15/00444
Duration: 01/01/2016-31/12/2018

Baeza I. **Estudio multicéntrico longitudinal sobre características clínicas, cognitivas y de neuroimagen en niños y adolescentes con Síndrome de Riesgo de Psicosis.**
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Duration: 01/01/2012-30/06/2016

Benabarre A. **Identificación de variables predictoras clínicas, neurocognitivas y genéticas en la emergencia y recurrencia de la conducta suicida en el trastorno bipolar.**
Sponsored by: Instituto de Salud Carlos III (ISCIII). PI12/00906
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Bernardo M. **Estudio de aplicabilidad clínica de un modelo predictivo en recaídas en primeros episodios de esquizofrenia.**
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Duration: 01/01/2015-31/12/2017

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Bernardo M. **Study of new noninvasive strategies for the analysis of antipsychotic drugs: achieving better clinical practices.**
Sponsored by: Fundació Clínic per a la Recerca Biomèdica
Duration: 01/06/2016-31/12/2017

Calvo R. **Tacklingteenage ("afrontar la adolescencia"): adaptacion a nuestro medio de un programa de entrenamiento en desarrollo psicosexual en adolescentes con trastornos del espectro autista.**
Sponsored by: Instituto de Salud Carlos III (ISCIII) PI12/00762
Duration: 01/01/2013-30/06/2016

Castro J. **Aggression subtyping for improved insight and treatment innovation in psychiatric disorders.**
Sponsored by: European Commission. 602805-2
Duration: 01/11/2013-31/10/2018

Castro J. **Estudio de seguimiento tras cuatro años de la primera evaluación de niños y adolescentes hijos de pacientes con esquizofrenia o trastorno bipolar.**
Sponsored by: Instituto de Salud Carlos III (ISCIII). PI11/00683
Duration: 01/01/2012-30/06/2016

Castro J. **Multidisciplinary Approaches to Translational Research In Conduct Syndromes.**
Sponsored by: European Comission. CE_FP7_HEALTH_IN1_13
Duration: 01/03/2014-28/02/2019

Catalan R. **Evaluación del coste/efectividad de la intervención farmacogenética en la optimización del tratamiento con antipsicóticos en pacientes con esquizofrenia.**
Sponsored by: Instituto de Salud Carlos III (ISCIII). PI11/02006
Duration: 01/01/2012-30/06/2016

Pacchiarotti I. **Bioequivalencia, aplicabilidad clínica y utilidad terapéutica de la monitorización salivar de litio y valproato en pacientes bipolares.**
Sponsored by: Instituto de Salud Carlos III (ISCIII). PI12/00910
Duration: 01/01/2013-30/06/2017

Garcia C. **Evolución metabólica e inmune del tratamiento con clozapina: implicaciones terapéuticas.**
Sponsored by: Instituto de Salud Carlos III (ISCIII). PI14/00753
Duration: 01/01/2015-31/12/2017

Goikolea JM. **Bases cerebrales de dos intervenciones psicoterapéuticas eficaces en el trastorno bipolar: la psicoeducación grupal y la rehabilitación funcional. Un estudio de neuroimagen multimodal.**
Sponsored by: Instituto de Salud Carlos III (ISCIII). PI14/00723
Duration: 01/01/2015-31/12/2017

Gual A. **Red de Trastornos Adictivos.**
Sponsored by: Instituto de Salud Carlos III (ISCIII). RD12/0028/0016
Duration: 01/01/2013-31/12/2016

Gual A. **Addictions and Lifestyles In Contemporary Europe - Reframing Addictions Project.**
Sponsored by: European Commission. 266813
Duration: 01/04/2011-31/03/2016

Gual A. **Estudio controlado aleatorizado de no-inferioridad para el acceso facilitado desde Atención Primaria a una Intervención Breve Virtual para la reducción de consumo de alcohol (EFAR-Spain).**
Sponsored by: Instituto de Salud Carlos III (ISCIII).PI13/00540
Duration: 01/01/2014-31/12/2016

Gual A. **La UPE: creación de una unidad estándard de cuantificación del consumo de sustancias psicoactivas procedentes del cannabis.**
Sponsored by: Ministerio de Sanidad. MSSSI_PNSD13
Duration: 01/01/2014-31/12/2016

Gual A. **LEADER project. Looking at Economic Analysis of Drugs and Economic Recession.**
Sponsored by: DG Migration and Home Affairs. JUST/2013/DPIP/AG4755
Duration: 15/01/2015-15/09/2016

Lazaro L. **Identificación de predictores farmacogenéticos en la respuesta terapéutica a Fluoxetina en niños y adolescentes (Parte II).**
Sponsored by: Fundación Alicia Koplowitz
Duration: 01/11/2015- 01/11/2017

Lázaro L. **Genética, epigenética y desregulación de la microglia derivada de monocitos en pacientes con trastorno obsesivo compulsivo de inicio en la infancia.**
Sponsored by: Instituto de Salud Carlos III (ISCIII).PI13/01767
Duration: 01/01/2014-31/12/2016

Martinez-Aran A. **Eficacia comparativa de una estrategia de rehabilitación neurocognitiva en pacientes con trastorno bipolar tipo I tras un primer episodio maníaco versus pacientes con múltiples episodios.**
Sponsored by: Instituto de Salud Carlos III (ISCIII). PI11/00637
Duration: 01/01/2012-30/06/2016

Martin-Santos R, Navinés R. **Estudio de la actividad y conectividad cerebral en el Trastorno de ansiedad social: búsqueda de nuevos endofenotipos a través de la comparación con el S. Williams-Beuren". Estudio TASWI.**
Sponsored by: Instituto de Salud Carlos III (ISCIII). PI14/01411
Duration: 01/11/2015- 01/11/2017

Morer A. **European Multicentre Tics in Children Studies.**
Sponsored by: European Commission. 278367
Duration: 01/12/2011-31/05/2017

Morer A. **Desregulación de la microglia derivada de monocitos en pacientes con trastorno obsesivo-compulsivo de inicio en la infancia.**
Sponsored by: Fundación Alicia Koplowitz
Duration: 01/10/2014-30/09/2016

Penadès R. **El BDNF (Brain-derivedneurotrophic factor) como posible biomarcador del tratamiento de rehabilitación neurocognitiva en la esquizofrenia de predominio negativo.**
Sponsored by: Instituto de Salud Carlos III (ISCIII). PI 11/01958
Duration 01/01/2012-30/06/2016

Sugranyes G.**Estudio longitudinal de primeros episodios psicóticos en la infancia y adolescencia.**
Seguimiento a 10 años.
Sponsored by: Instituto de Salud Carlos III (ISCIII). PI13/00614
Duration: 01/01/2014-31/12/2016

Torrent C. **Efectos de la rehabilitación funcional en la neuroplasticidad de pacientes bipolares**
Sponsored by: Instituto de Salud Carlos III (ISCIII). PI12/01498
Duration: 01/01/2013-30/07/2017

Vieta E. **Especificidad de los síntomas prodrómicos en el trastorno bipolar y predicción del curso clínico de la enfermedad.**
Sponsored by: Instituto de Salud Carlos III (ISCIII). PI12/00912
Duration: 01/01/2013-30/06/2017

Vieta E. **Metilfenidato en el tratamiento inicial de mania aguda.**
Sponsored by: Ministerio de Sanidad, Política Social e Igualdad. EC10-064
Duration: 01/01/2011-31/12/2016

Baeza I. **Estudio multicéntrico longitudinal sobre el papel de marcadores neurobiológicos e estrés en niños y adolescentes con síndrome de riesgo de psicosis y la transición a psicosis.**
Sponsored by: Instituto de Salud Carlos III. PI15/00444
Duration: 01/01/2016-31/12/2018

Castro J. **Estudio de seguimiento a 8 años de la primera evaluación de niños y adolescents hijos de pacientes con esquizofrenia o trastorno bipolar.**
Sponsored by: Instituto de Salud Carlos III. PI15/00467
Duration: 01/01/2016-31/12/2018

Gutiérrez F. **Un modelo integrado para la patología de la personalidad: estructura jerárquica, significación e impacto biográfico.**
Sponsored by: Instituto de Salud Carlos III. PI15/00536
Duration: 01/01/2016-31/12/2018

Martínez-Arán A. **Eficacia de un módulo e-neurocognitivo como coadyudante a la rehabilitación funcional para pacientes con trastorno bipolar.**
Sponsored by: Instituto de Salud Carlos III. PI15/00330
Duration: 01/01/2016-31/12/2018

Penadés R. **Epigenetic regulation of bdnf expression according to response to cognitive remediation in schizophrenia.**
Sponsored by: NARSAD. NARSAD16_IIG_002
Duration: 15/09/2016-14/09/2018

DOCTORAL THESES

Pomarol E, Vieta E. **El Trastorno Bipolar: Cambios cerebrales asociados con el estado de ánimo y el deterioro cognitivo.**
PhD student: Silvia Alonso Lana

Vieta E, Colom F. **Application of information and communication technologies (ICTs) in bipolar disorder.**
PhD student: Diego Alberto Hidalgo Mazzei

Bernardo M, Pomarol E. **Caracterización clínica y biológica de la esquizofrenia con predominio de síntomas negativos.**
PhD student: Alicia Valiente Gómez

Valdés M. **Caracterització de la fibromiàlgia i factors pronòstics de resposta al tractament.**
PhD student: Francisco Javier Torres Mata

Gutiérrez F, Obiols J. **Estructura de la psicopatología de la personalitat, impacte clínic i eficacia biológica.**
PhD student: Gemma Vall Boada.

Gutiérrez F. **Personalidad, resultado biográfico y afrontamiento.**
PhD student: Miguel Gárriz Vera.

Braqueihais M, Pintor L. **Estudio sobre intentos de suicidio graves ingresados en un hospital general: aspectos sociodemográficos y clínicos.**
PhD student: Maria Quesada Franco

4.8 Neuropsychology

LOCATION
UB School of Medicine

FOR FURTHER INFORMATION
www.ub.edu/neuropsychology/html/portada.html

KEYWORDS
1. **Magnetic Resonance Imaging**
2. **Structural and functional connectivity**
3. **Aging and degenerative illness**
4. **Transcranial Magnetic Stimulation**
5. **Brain Plasticity**

Original publications from 2014 to 2016

YEAR	I.F.	TOTAL	Q1	Q2
2014	129.78	28	24	4
2015	152.00	32	27	5
2016	125.59	29	24	3

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Cristina Sánchez (UB)
Bárbara Segura (UB)
Cristina Solé (UB)
Kilian Abellaneda (UB)
Alexandra Abós (UB)
Anna Campabadal (IDIBAPS)
Juan Pablo Martin (UB)
Carme Uribe (UB)

STRATEGIC OBJECTIVES

1. To study the consequences of cerebral lesions and dysfunctions in behavior and cognition.
2. We are involved in the Barcelona Brain Health Initiative project which is framed within the strategic research line towards a better understanding of the risk and protective factors, as well as the brain mechanisms, related to preserved cognitive function and mental health in late life.

MAIN LINES OF RESEARCH

1. Neuropsychology and neuroimaging in Parkinson's disease: This line of research makes use of combined structural and functional magnetic resonance imaging to detect early alterations in brain connectivity and its evolution during the degenerative process.
2. Cerebral plasticity: In the field we study changes in brain structure and function induced by transcranial electric and magnetic stimulation through magnetic resonance imaging.
3. Development of imaging techniques to study the brain areas implicated in higher



TEAM Carme Junqué

cognitive function impairment in epileptic patients, based on functional magnetic resonance imaging.

4. Brain changes related to life style in normal aging. The objective is to build a prospective study cohort of >3.000 volunteers aged 40 to 65 years to obtain information as regards lifestyles, and to follow up a group of 1.500 yearly (including measures of MRI, EEG,...) and undertake a non-pharmacological trial intervention to modify the brain health related habits.

PUBLICATIONS

Originals / I.F.: 125.595

1. Galluzzi S, Marizzoni M, Babiloni C, Albani D, Antelmi L, Bagnoli C, Bartres-Faz D, Cordone S, Didic M, Farotti L, Fiedler U, Forloni G, Girtler N, Hensch T, Jovicich J, Leeuwis A, Marra C, Molinuevo JL, Nobili F, Pariente J, Parnetti L, Payoux P, Del Percio C, Ranjeva JP, Rolandi E, Rossini PM, Schönknecht P, Soricelli A, Tsolaki M, Visser PJ, Wiltfang J, Richardson JC, Bordet R, Blin O, Frisoni GB; PharmaCog Consortium. **Clinical and biomarker profiling of prodromal Alzheimer's disease in workpackage 5 of the Innovative Medicines Initiative PharmaCog project: a 'European ADNI study'.** *J Intern Med.* 279(6):576-91. IF: 7.803

2. Bonnin CM, Torrent C, Arango C, Amann BL, Solé B, González-Pinto A, Crespo JM, Tabarés-Seisdedos R, Reinares M, Ayuso-Mateos JL, García-Portilla MP, Ibañez Á, Salamero M, Vieta E, Martinez-Aran A; CIBERSAM Functional Remediation Group. **Functional remediation in bipolar disorder: 1-year follow-up of neurocognitive and functional outcome.** *Br J Psychiatry.* 208(1):87-93. IF: 7.060

3. Vilas D, Segura B, Baggio HC, Pont-Sunyer C, Compta Y, Valldeoriola F, Jose Marti M, Quintana M, Bayes A, Hernandez-Vara J, Calopa M, Aguilar M, Junque C, Tolosa E. **Nigral and striatal connectivity alterations in asymptomatic LRRK2 mutation carriers: A magnetic resonance imaging study.** *Mov Disord.* 31(12):1820-1828. IF: 6.010

4. Uribe C, Segura B, Baggio HC, Abos A, Marti MJ, Valldeoriola F, Compta Y, Bargallo N, Junque C. **Patterns of Cortical Thinning in Nondemented Parkinson's Disease Patients.** *Mov Disord.* 31:699-708. IF: 6.010

5. Jovicich J, Minati L, Marizzoni M, Marchitelli R, Sala-Llonch R, Bartrés-Faz D, Arnold J, Benninghoff J, Fiedler U, Roccatagliata L, Picco A, Nobili F, Blin O, Bombois S, Lopes R, Bordet R, Sein J, Ranjeva JP, Didic M, Gros-Dagnac H, Payoux P, Zoccatelli G, Alessandrini F, Beltramello A, Bargalló N, Ferretti A, Caulo M, Aiello M, Cavaliere C, Soricelli A, Parnetti L, Tarducci R, Floridi P, Tsolaki M, Constantinidis M, Drevelegas A, Rossini PM, Marra C, Schönknecht P, Hensch T, Hoffmann KT, Kuijer JP, Visser PJ, Barkhof F, Frisoni GB; PharmaCog Consortium. **Longitudinal reproducibility of default-mode network connectivity in healthy elderly participants: A multicentric resting-state fMRI study.** *Neuroimage.* 124(Pt A):442-454. IF: 5.463

6. Córdova-Palomera A, Tornador C, Falcón C, Bargalló N, Brambilla P, Crespo-Facorro B, Deco G, Fañanás L. **Environmental factors linked to depression vulnerability are associated with altered cerebellar resting-state synchronization.** *Sci Rep.* 6:37384. IF: 5.228

7. Fernandez-Cabello S, Valls-Pedret C, Schurz M, Vidal-Piñeiro D, Sala-Llonch R, Bargallo N, Ros E, Bartres-Faz D. **White matter hyperintensities and cognitive reserve during a working memory task: a functional magnetic resonance imaging study in cognitively normal older adults.** *Neurobiol Aging.* 48:23-33. IF: 5.153

8. Marchitelli R, Minati L, Marizzoni M, Bosch B, Bartrés-Faz D, Müller BW, Wiltfang J, Fiedler U, Roccatagliata L, Picco A, Nobili F, Blin O, Bombois S, Lopes R, Bordet R, Sein J, Ranjeva JP, Didic M, Gros-Dagnac H, Payoux P, Zoccatelli G, Alessandrini F, Beltramello A, Bargalló N, Ferretti A, Caulo M, Aiello M, Cavaliere C, Soricelli A, Parnetti L, Tarducci R, Floridi P, Tsolaki M, Constantinidis M, Drevelegas A, Rossini PM, Marra C, Schönknecht P, Hensch T, Hoffmann KT, Kuijer JP, Visser PJ, Barkhof F, Frisoni GB, Jovicich J. **Test-retest reliability of the default mode network in a multi-centric fMRI study of healthy elderly: Effects of data-driven physiological noise correction techniques.** *Hum Brain Mapp.* 37(6):2114-32. IF: 4.962

9. Sole B, Jimenez E, Torrent C, Bonnin CD, Torres I, Reinares M, Priego A, Salamero M, Colom F, Varo C, Vieta E, Martinez-Aran A. **Cognitive variability in bipolar II disorder: who is cognitively impaired and who is preserved.** *Bipolar Disord.* 18(3):288-299. IF: 4.882

10. Ramos-Perdigues S, Baillés E, Mane A, Carreno M, Donaire A, Rumia J, Bargallo N, Boget T, Setoain X, Valdes M, Pintor L. **A prospective study contrasting the psychiatric outcome in drug-resistant epilepsy between patients who underwent surgery and a control group.** *Epilepsia.* 57(10):1680-1690. IF: 4.706

11. Mayoral M, Marti-Fuster B, Carreno M, Carrasco JL, Bargallo N, Donaire A, Rumia J, Perissinotti A, Lomena F, Pintor L, Boget T, Setoain X. **Seizure-onset zone localization by statistical parametric mapping in visually normal F-FDG PET studies.** *Epilepsia.* 57(8):1236-1244. IF: 4.706

12. Eixarch E, Munoz-Moreno E, Bargallo N, Batalle D, Gratacos E. **Motor and cortico-striatal-thalamic connectivity alterations in intrauterine growth restriction.** *Am J Obstet Gynecol.* 214(6):725.e1-725.e9. IF: 4.681

13. Penades R, Pujol N, Catalan R, Masana G, Garcia-Rizo C, Bargallo N, Gonzalez-Rodriguez A, Vidal-Pineiro D, Bernardo M, Junqué C. **Cortical thickness in regions of frontal and temporal lobes is associated with responsiveness to cognitive remediation therapy in schizophrenia.** *Schizophr Res.* 171(1-3):110-116. IF: 4.453

14. Artigue J, Tizón J, Salamero M. **Reliability and Validity of the List of Mental Health Items (LISMEN).** *Schizophr Res.* 176(2-3):423-30. IF: 4.453

15. Batalle D, Muñoz-Moreno E, Tornador C, Bargallo N, Deco G, Eixarch E, Gratacos E. **Altered resting-state whole-brain functional networks of neonates with intrauterine growth restriction.** *Cortex.* 77:119-131. IF: 4.314

16. Masoller N, Sanz-Cortes M, Crispi F, Gomez O, Bennasar M, Egana-Ugrinovic G, Bargallo N, Martinez JM, Gratacos E. **Mid-gestation brain Doppler and head biometry in fetuses with congenital heart disease predict abnormal brain development at birth.** *Ultrasound Obstet Gynecol.* 47(1):65-73. IF: 4.254

17. Ortiz A E, Gasso P, Mas S, Falcon C, Bargallo N, Lafuente A, Lazaro L. **Association between Genetic Variants of Serotonergic and Glutamatergic Pathways and the Concentration of Neurometabolites of the Anterior Cingulate Cortex in Pediatric Patients with Obsessive-Compulsive Disorder.** *World J Biol Psychiatry.* 17(5):394-404. IF: 4.159

18. Solé-Padullés C, Castro-Fornieles J, de la Serna E, Calvo R, Baeza I, Moya J, Lazaro L, Rosa M, Bargallo N, Sugranyes G. **Intrinsic connectivity networks from childhood to late adolescence: Effects of age and sex.** *Dev Cogn Neurosci.* 17:35-44. IF: 3.963

19. Sierra-Marcos A, Carreno M, Setoain X, Lopez-Rueda A, Aparicio J, Donaire A, Bargallo N. **Accuracy of arterial spin labeling magnetic resonance imaging (MRI) perfusion in detecting the epileptogenic zone in patients with drug-resistant neocortical epilepsy: Comparison with electrophysiological data, structural MRI, SISCOM and FDG-PET.** *Eur J Neurol.* 23(1):160-167. IF: 3.956

20. Sanchez-Valle R, Monte GC, Sala-Llonch R, Bosch B, Fortea J, Llado A, Antonell A, Balasa M, Bargallo N, Molinuevo JL. **White Matter Abnormalities Track Disease Progression in PSEN1 Autosomal Dominant Alzheimer's Disease.** *J Alzheimers Dis.* 51(3):827-835. IF: 3.920

21. Aparicio J, Carreño M, Bargalló N, Setoain X, Rubí S, Rumià J, Falcón C, Calvo A, Martí-Fuster B, Padilla N, Boget T, Pintor L, Donaire A. **Combined 18F-FDG-PET and diffusion tensor imaging in mesial temporal lobe epilepsy with hippocampal sclerosis.** *NeuroImage-Clin.* 12:976-989. IF: 3.857

22. Sole-Padulles C, Castro-Fornieles J, de la Serna E, Romero S, Calvo A, Sanchez-Gistau V, Padros-Fornieles M, Baeza I, Bargallo N, Frangou S, Sugranyes G. **Altered Cortico-Striatal Connectivity in Offspring of Schizophrenia Patients Relative to Offspring of Bipolar Patients and Controls**. *PLoS One.* 11(2):e0148045. IF: 3.057

23. Mas S, Gassó P, Morer A, Calvo A, Bargalló N, Lafuente A, Lázaro L. **Integrating Genetic, Neuropsychological and Neuroimaging Data to Model Early-Onset Obsessive Compulsive Disorder Severity.** *PLoS One.* 11(4):e0153846. IF: 3.057

24. Alonso-Lana S, Goikolea JM, Bonnin CM, Sarro S, Segura B, Amann BL, Monte GC, Moro N, Fernandez-Corcuera P, Maristany T, Salvador R, Vieta E, Pomarol-Clotet E, Mckenna PJ. **Structural and Functional Brain Correlates of Cognitive Impairment in Euthymic Patients with Bipolar Disorder.** *PLoS One.* 11(7):e0158867. IF: 3.057

25. Roura E, Sarbu N, Oliver A, Valverde S, Gonzalez-Villa S, Cervera R, Bargallo N, Llado X. **Automated Detection of Lupus White Matter Lesions in MRI.** *Front Neuroinformatics.* 10:33. IF: 3.047

26. Ferreira D, Bartrés-Faz D, Nygren L, Rundkvist LJ, Molina Y, Machado A, Junqué C, Barroso J, Westman E. **Different reserve proxies confer overlapping and unique endurance to cortical thinning in healthy middle-aged adults.** *Behav Brain Res.* 311:375-383. IF: 3.002

27. Masoller Narcis, Sanz-Cortes Magda, Crispi Fatima, Gomez Olga, Bennasar Mar, Egana-Ugrinovic Gabriela, Bargallo Nuria, Maria Martinez Josep, Gratacos Eduard. **Severity of Fetal Brain Abnormalities in Congenital Heart Disease in Relation to the Main Expected Pattern of in utero Brain Blood Supply.** *Fetal Diagn Ther.* 39(4):269-278. IF: 2.700

28. Compta Y, Buongiorno M, Bargallo N, Valldeoriola F, Muñoz E, Tolosa E, Rios J, Camara A, Fernandez M, Marti MJ. **White matter hyperintensities, cerebrospinal amyloid-β and dementia in Parkinson's disease.** *J Neurol Sci.* 367:284-290. IF: 2.126

29. Grau-Rivera O, Sanchez-Valle R, Bargallo N, Llado A, Gaig C, Nos C, Ferrer I, Graus F, Gelpi E. **Sporadic MM2-thalamic + cortical Creutzfeldt-Jakob disease: Utility of diffusion tensor imaging in the detection of cortical involvement in vivo.** *Neuropathology.* 36(2):199-204. IF: 1.556

Reviews / I.F.: 9.268

1. Guillamon A, Junque C, Gómez-Gil E. **A Review of the Status of Brain Structure Research in Transsexualism.** *Arch Sex Behav.* 45(7):1615-48. IF: 2.704

2. Lanteaume L, Cassé-Perrot C, Lefebvre MN, Audebert C, Deguil J, Auffret A, Otten L, Bartrés-Faz D, Blin O, Bordet R, Micallef J. **Neurobehavioral and Cognitive Changes Induced by Hypoxia in Healthy Volunteers.** *CNS Neurol Disord-Drug Targets.* 15(7):816-22. IF: 2.188

3. Cassé-Perrot C, Lanteaume L, Deguil J, Bordet R, Auffret A, Otten L, Blin O, Bartrés-Faz D, Micallef J. **Neurobehavioral and Cognitive Changes Induced by Sleep Deprivation in Healthy Volunteers.** *CNS Neurol Disord-Drug Targets.* 15(7):777-801. IF: 2.188

4. Martin-Trias P, Bragulat V, Peña-Gómez C, Sala-Llonch R, Lanteaume L, Cassé-Perrot C, Blin O, Micallef J, Auffret A, Bartrés-Faz D. **Translational Challenge Models in Support of Efficacy Studies: Neurobehavioral and Cognitive Changes Induced by Transcranial Magnetic Stimulation in Healthy Volunteers.** *CNS Neurol Disord-Drug Targets.* 15(7):802-15. IF: 2.188

Editorials / I.F.: 2.188

1. Deguil J, Auffret A, Schenker E, Aujard F, Lamberty Y, Bartrès-Faz D, Blin O, Micallef J, Richardson JC, Bordet R. **Editorial: Combining Forces to Improve Alzheimer's Disease Drug Discovery: The Symptomatic Battle.** *CNS Neurol Disord-Drug Targets.* 15(7):754-5. IF: 2.188

Case reports / I.F.: 3.794

1. Cerquera C, Rumia J, Herrera JM, Moreno V, Bargallo N, Valldeoriola F. **A single case report of MR-guided focused ultrasound thalamotomy for tremor in fragile X-associated tremor/ataxia.** *Parkinsonism Relat Disord.* 28:159-160. IF: 3.794

GRANTS FOR RESEARCH IN PROGRESS

Bargallo N. **Utilidad de los estudios de perfusión cerebral obtenidos mediante ASL en pacientes con epiplepsia refractaria.**
Sponsored by: Instituto de Salud Carlos III (ISCIII). PI12/00465
Duration: 01/01/2013-30/06/2016

Bargalló N. **Técnicas no convencionales de resonancia magnética en neurolupus. Correlación con las características clínicas y de laboratorio.**
Sponsored by: Sociedad Española de Radiología, 06_NBA_INV_SERAM_13
Duration: 01/02/2014-31/03/2016

Bartres D. **Efectos del entrenamiento cognitivo combinado con estimulación cerebral no-invasiva guiada por información funcional cerebral en el deterioro cognitivo leve.**
Sponsored by: Ministerio de Economia y Competitividad (MINECO). PSI2015-64227-R
Duration: 01/01/2016-31/12/2018

Bartres D. **Barcelona Brain Health Initiative.**
Sponsored by: Obra social La Caixa, Fundació Abertis
Duration: 1/07/2016-1/07/2019

Junque C. **Reorganización de las redes cerebrales implicadas en la cognición durante el proceso degenerativo en la enfermedad de Parkinson.**
Sponsored by: Ministerio de Economia y Competitividad (MINECO). PSI-2013-41393-P
Duration: 01/01/2014-31/12/2017

Junqué C. **Brain connectivity changes during the degenerative process in Parkinson's disease.**
Sponsored by: Marató TV3 20142310
Duration: 22/05/2015-21/05/2018

DOCTORAL THESES

Bargalló N. **Usefulness of advanced functional-MRI techniques in the study of the epileptogenic zone in adult patients with drug-resistant neocortical epilepsy.**
PhD student: Alba Sierra Marcos

Junqué C, Gratacós E. **Brain imaging in preterm infants with and without intrauterine growth restriction.**
PhD student: Nelly Fabiola Padilla Gomes

4.9

Systems neuroscience

LOCATION
CEK building

FOR FURTHER INFORMATION
www.sanchez-vives.org
complab.fcrb.es
www.delarochalab.fcrb.es

KEYWORDS
1. **Cerebral cortex**
2. **Computational neuroscience**
3. **Oscillations**
4. **Virtual reality**
5. **Body representation**
6. **Working memory**
7. **Spatial Memory**
8. **Decision-making**

Original publications from 2014 to 2016

YEAR	I.F.	TOTAL	Q1	Q2
2014	45.32	8	5	2
2015	55.34	9	6	3
2016	48.56	8	8	-

TEAM INVOLVED IN
AGAUR_SGR14: 855, 12650



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David Sánchez Bestué (IDIBAPS)
Jose Valenzuela (IDIBAPS)

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GROUP Maria Victoria Sánchez Vives

VISITING SCIENTISTS

Almudena Barbero (Sept 2015-July 2016)
Pol Boada (January 2015-June 2016)
Mattia D'Andola (February 2013-April 2016)
Nahuel Rodolfo (Dec 2015-Sep 2016)
Władysław Średniawa (August 2016-September 2016)
Alejandro Suarez (Feb 2016-July 2016)

STRATEGIC OBJECTIVES

The growing knowledge of synaptic physiology and brain circuits, together with the development of new instruments with which to record, analyze and model the activity of a large number of neurons has made possible to address one of the great pending challenges in neuroscience: to understand the relationship between the activity of the neuronal population and behavioral performance. The general objective of the Systems Neuroscience group is to address this challenge combining experimental studies in cerebral cortex networks with a combined experimental and theorical approach.

MAIN LINES OF RESEARCH

1. **Cortical networks and EVENT Lab. Headed by Dr. Sánchez-Vives:**
We study different aspects of spontaneous and evoked cortical activity: the mechanisms that regulate it, the information it encodes, its spatiotemporal properties and its consequences on the network. Moreover, we explore cortical activity in transgenic mouse models of neurological disease in the search for the underlying altered mechanisms and their possible reversion.
I addition, we are interested in the integration of cortical information that gives rise to body representation and in the combination of brain-computer interfaces and virtual reality to understand these processes (EVENT lab, http://www.event-lab.org).

2. **Theoretical neurobiology of cortical circuits. Headed by Dr. Compte:**
- Circuit mechanisms of spatial and feature working memory
- Network basis of cognitive and perceptual alterations in anti-nmdar encephalitis patients
- Mechanisms of spatial working memory deficits in schizophrenia

3. **Cortical circuit dynamics. Headed by Dr. de la Rocha:**
- Neural circuit dynamics during perceptual decision making.
- Network mechanisms underlying spontaneous activity and brain state changes.
- The role hippocampal circuits during spatial long term memory acquisition and retrieval.



GROUP Albert Compte

RESEARCH GROUP

THEORETICAL NEUROBIOLOGY OF CORTICAL CIRCUITS



GROUP LEADER

Albert Compte (IDIBAPS)

We investigate the circuit mechanisms that operate in the cerebral cortex during perceptual and cognitive processes. We focus our efforts on cortical mechanisms for working memory, and their failure in anti-NMDAR encephalitis and schizophrenia patients. Our methods include biologically-plausible computational modelling, together with behavioral, electrophysiological and neuroimaging experiments in healthy human participants and in patients. By building computational models of cognitive function and testing model-derived hypotheses experimentally, we aim at providing links between specific synaptic, cellular and circuit mechanisms and cognitive and perceptual functions and dysfunctions.

RESEARCH GROUP
CORTICAL CIRCUIT DYNAMICS



GROUP LEADER
Jaime de la Rocha (IDIBAPS)

We study the neuronal circuit mechanisms underlying cognitive functions such as perception, decision making and memory. For this, we train rats to perform perceptual discrimination tasks and characterize the variables that determine their behavior, the brain areas where these variables are represented and the detailed circuit dynamics underlying their processing. We investigate how expectation is formed from recent experiences and how it impacts the representation of sensory stimuli. We use population neural recordings, quantitative analysis and computational modeling to address these questions. We moreover apply this methods to understand neural disorders such as anti-NMDAR encephalitis.

PUBLICATIONS

Originals / I.F.: 48.563

1. B Sancristobal, B Rebollo, P Boada, MV Sanchez-Vives and J Garcia-Ojalvo. **Collective Stochastic Coherence in Recurrent Neuronal Networks.** *Nat Phys.* 12(9):881–887. IF: 18.791

2. Ruiz-Mejias M, Martinez de Lagran M, Mattia M, Castano-Prat P, Perez-Mendez L, Ciria-Suarez L, Gener T, Sancristobal B, Garcia-Ojalvo J, Gruart A, Delgado-Garcia JM, Sánchez-Vives MV, Dierssen M. **Overexpression of Dyrk1A, a Down Syndrome Candidate, Decreases Excitability and Impairs Gamma Oscillations in the Prefrontal Cortex.** *J Neurosci.* 36(13):3648-3659. IF: 5.924

3. Wimmer K, Spinelli P, Pasternak T. **Prefrontal Neurons Represent Motion Signals from Across the Visual Field But for Memory-Guided Comparisons Depend on Neurons Providing These Signals.** *J Neurosci.* 36(36):9351-9364. IF: 5.924

4. Wimmer K, Ramon M, Pasternak T, Compte A. **Transitions between multiband oscillatory patterns characterize memory-guided perceptual decisions in prefrontal circuits.** *J Neurosci.* 36(2):489-505. IF: 5.924

5. G Padrao, M Gonzalez-Franco, MV Sanchez-Vives, M Slater, A Rodriguez-Fornells. **Violating body movement semantics: neural signatures of self-generated and external-generated errors.** *Neuroimage.* 124(A):147-156. IF: 5.463

6. S Seinfeld, I Bergstrom, A Pomes, J Arroyo-Palacios, F Vico, M Slater, MV Sanchez-Vives. **Influence of Music on Anxiety Induced by Fear of Heights in Virtual Reality.** *Front Psychol.* 6:1969. IF: 2.463

7. Roxin A, Compte A. **Oscillations in the bistable regime of neuronal networks.** *Phys Rev E.* 94(1):012410. IF: 2.252

8. M Monleón Pradas & JM Soria Brenda Rocamonde, S Paradells, MA Garcia Esparza, MV Sáanchez -Vives, S Sauro, C Martínez Ramos. **Combined application of polyacrylate scaffold and lipoic acid treatment promotes neural tissue reparation after brain injury.** *Brain Inj.* 30(2):208-216. IF: 1.822



GROUP Jaime de la Rocha

GRANTS FOR RESEARCH IN PROGRESS

De la Rocha J. **Neural circuit dynamics underlying expectation and their impact on the variability of perceptual choices.**
Sponsored by: ERC Consolidator grant 2015. ERC-2015-CoG – 683209_PRIORS
Duration: 12/03/2015-11/03/2020

Sanchez-Vives MV. **Cortical organization generated in transgenic models of cognitive deficit and reversal exploration. (COGITARE).**
Sponsored by: Ministerio de Economia. BFU2014-52467R
Duration: 01/01/2015-31/12/2017

Sanchez-Vives M.V. **Computations and**

Organization of Retes Through the Interaction of Computational, Optical and Neurophysiological Investigations of the Cerebral cortex (CORTICONIC).
Sponsored by: European Commission. 600806
Duration: 01/01/2013-30/04/2016

Sanchez-Vives MV. **Neurological Recordings with Graphene (Neurographene).**
Sponsored by: European Commission. 604391
Duration: 01/10/2014-31/03/2016

Sanchez-Vives MV. **Dinámica de las oscilaciones lentas: experimentos, análisis, modelos e intervenciones terapéuticas (SloW-Dyn).**
Sponsored by: FLAG-ERA Ministerio de Economia y Competividad (MINECO) PCIN-2015-162-C02-01
Duration: 01/12/2015-30/11/2018

Compte A. **Prefrontal network mechanisms of working memory dynamics: from dopamine neuromodulation to network dysfunction in anti-NMDAR encephalitis.**
Sponsored by: Ministerio de Economia y Competitividad . EBFU2015-65318
Duration: 01/01/2016-31/12/2018

Compte A. **Alteraciones cognitivas en pacientes adolescentes con encefalitis antiNMDAR: posible disfunción en la percepción de la continuidad temporal y sus mecanismos.**
Sponsored by: Fundación Alicia Koplowitz
Duration: 28/10/2016- 27/10/2018

De la Rocha J. **La dinámica de los circuitos neuronales durante la toma de decisiones perceptuales.**
Sponsored by: Ministerio de Economia y Competitividad . SAF2015-70324-R
Duration: 01/01/2016-31/12/2018

Compte A. **Cortical substrates of working memory for visual motion.**
Sponsored by: National Institutes of Health / NIMH
Duration: 10/09/2015-28/02/2016

Compte A, de la Rocha J. **Dynamics in neuronal networks.**
Sponsored by: AGAUR- Generalitat de Catalunya, SGR
Duration:01/01/2014-30/04/2017

Sanchez-Vives MV. **Graphene-based disruptive technologies.**
Sponsored by: H2020: Research & Innovation Actions (RIA). 696656
Duration: 01/04/2016-31/03/2018

Sanchez-Vives MV. **Human Brain Project Specific Grant Agreement 1.**
Sponsored by: Systems and Cognitive Neuroscience" for Human Brain Project (HBP) FET Flagship Call. 720270
Duration: 01/04/2016-31/03/2018

Sanchez-Vives MV. **Activitat emergent del cortex cerebral normal I en models transgenics d'alteracions neurologiques.**
Awarding entity: Catalan Administration – FI Doctorate Fellowship. AGAUR-FI-2014 (Personal contract)
Duration: 01/04/2014-31/03/2017.

Sanchez-Vives MV. **Suport a Grups de Recerca Consolidats "NeuroVirtual Group".**
Awarding entity: AGAUR. 2014 SGR 855
Duration: 01/01/2014-30/04/2017

Sanchez-Vives MV. **Dinamica y modulacion de ritmos de la red cortical en diferentes estados cerebrales.**
Awarding entity: MINECO – FPI Doctorate Fellowship. MINECO-FPI-2013 (Personal contract)
Duration: 01/12/2012-31/11/2016

DOCTORAL THESES

Sanchez Vives MV. **Modulation of emergent cortical activity and perturbational complexity index by electromagnetic fields.**
PhD student: Mattia D'andola

Sanchez Vives MV, Narvaez Bueno JA. **Spatio-tenporal structure of spontaneous slow-wave oscillation and identification of Up and Down cortical states in simultaneous intra- and extracellular recordings in vivo.**
PhD Student: Yamina Seamari

4.10 Clinical and experimental neuroimmunology

LOCATION
CELLEX building

FOR FURTHER INFORMATION
www.neuroimmunologybcn.org

KEYWORDS
1. **Autoantibodies**
2. **Encephalitis**
3. **Multiple Sclerosis**
4. **Paraneoplastic**
5. **Cancer**

Original publications from 2014 to 2016

YEAR	I.F.	TOTAL	Q1	Q2
2014	240.28	32	28	2
2015	185.55	35	25	5
2016	199.30	32	21	6

TEAM INVOLVED IN
REEM
CIBERER
AGAUR_SGR14: 95

AWARDS

Highly Cited Researcher
Institution: Thomson Reuters
Awardee/s: Josep Dalmau

Mary Ann Lee Epilepsy Lecture
Institution: Calgary University
Awardee/s: Josep Dalmau

Donald Baxter Lecture
Institution: McGill University
Awardee/s: Josep Dalmau

Member of Excellence Lecture
Institution: French Society of Neurology
Awardee/s: Josep Dalmau

George C. Cotzias Presidential Lecture
Institution: American Academy of Neurology
Awardee/s: Josep Dalmau



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VISITING SCIENTISTS
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Alfredo Ramirez (UB)
Anusha Yeshokumar (Johns Hopkins Hospital, USA)

STRATEGIC OBJECTIVES

The principal objective of the Neuroimmunology Group is the study of autoimmune (inflammatory) diseases of the nervous system and the elucidation of the underlying immunopathogenic mechanisms involved in the inflammatory response. Diseases under study include multiple sclerosis, neuromy-

elitis optica, autoimmune encephalitis and paraneoplastic neurological disorders.

MAIN LINES OF RESEARCH

1. Identification of novel autoimmune diseases of the nervous system in adults and children and the development of diagnostic tests for these disorders.
2. Development of biomarkers and new therapies for multiple sclerosis, neuromyelitis optica and other demyelinating diseases.
3. Characterization of the immunopathogenic mechanisms that result in autoimmune encephalitis and paraneoplastic neurologic disorders.
4. To elucidate how autoimmunity affects synaptic function and brain networks using advanced neuroimaging, electrophysiology, behavioral and in-silico models.
5. The development of models of autoimmune diseases of the nervous system.
6. The use of systems biology and functional brain imaging to dissect the immunological mechanisms leading to brain damage in demyelinating diseases.



TEAM Josep Dalmau



GROUP Sara Llufriu

RESEARCH GROUP

PATHOGENESIS OF AUTOIMMUNE NEURONAL DISORDERS



GROUP LEADER

Josep Dalmau (ICREA-IDIBAPS)

Our research focuses on immune-mediated diseases of the synapse and autoimmune brain diseases triggered by cancer. Studies include the description of novel syndromes and immune-mechanisms, isolation of the target antigens and development of diagnostic tests and new treatments. We have shown that these diseases associate with antibodies that target neuronal proteins and synaptic receptors that play important roles in synaptic transmission, signaling and plasticity. We are investigating the mechanisms that underlie the disorders by examining how the antibodies modify the levels and function of the target proteins and receptors, and by in vitro, in vivo, and in-silico modeling.

50/50 PROGRAM

ADVANCED IMAGING IN NEUROIMMUNOLOGICAL DISEASES (IMAGINEM)



GROUP LEADER

Sara Llufriu (IDIBAPS)

Our research is focused on the understanding of the basis of disease evolution in multiple sclerosis and other neuroimmunological diseases, through

the use of advanced magnetic resonance techniques. We aim to identify imaging biomarkers of physical and cognitive disability and of response to conventional and new therapies. Recently, we are interested in the study of mechanisms of neural reorganization as a response of disease evolution and after cognitive rehabilitation. We have developed technical improvements with new sequences and novel image processing to use them in the translational research to the patient. We are part of the European network MAGNIMS (Magnetic Resonance Imaging in Multiple Sclerosis).

RESEARCH GROUP

PATHOGENESIS AND NEW TREATMENTS IN MULTIPLE SCLEROSIS

GROUP LEADER

Pablo Villoslada (IDIBAPS)

Our team is pioneering the application of Systems Medicine to the study of Multiple Sclerosis (MS) and the development of new tools for personalized medicine. We are developing new therapies such as the trophic factor like drug BN201 or antigen-specific tolerization. We have developed new diagnostic tools such as molecular imaging of the retina to monitor disease progression. Another of our strategic objectives is the diffusion of knowledge and optimum use of synergies, with a view to transferring the advances in research to clinical practice. Lastly, the group has a commitment to innovation, both in terms of the generation of patents and as regards the creation of spin-off companies.

PUBLICATIONS

Originals / I.F.: 199.300

1. Martinez-Lapiscina EH, Arnow S, Wilson JA, Saidha S, Preiningerova JL, Oberwahrenbrock T, Brandt AU, Pablo LE, Guerrieri S, Gonzalez I, Outteryck O, Mueller AK, Albrecht P, Chan W, Lukas S, Balk LJ, Fraser C, Frederiksen JL, Resto J, Frohman T, Cordano C, Zubizarreta I, Andorra M, Sanchez-Dalmau B, Saiz A, Bermel R, Klistorner A, Petzold A, Schippling S, Costello F, Aktas O, Vermersch P, Oreja-Guevara C, Comi G, Leocani L, Garcia-Martin E, Paul F, Havrdova E, Frohman E, Balcer LJ, Green AJ, Calabresi PA, Villoslada P; IMSVISUAL consortium. **Retinal thickness measured with optical coherence tomography and risk of disability worsening in multiple sclerosis: A cohort study.** *Lancet Neurol*. 15(6):574-584. IF: 23.468

2. Borroto A, Reyes-Garau D, Jiménez MA, Carrasco E, Moreno B, Martínez-Pasamar S, Cortés JR, Perona A, Abia D, Blanco S, Fuentes M, Arellano I, Lobo J, Heidarieh H, Rueda J, Esteve P, Cibrián D, Martinez-Riaño A, Mendoza P, Prieto C, Calleja E, Oeste CL, Orfao A, Fresno M, Sánchez-Madrid F, Alcamí A, Bovolenta P, Martín P, Villoslada P, Morreale A, Messeguer A, Alarcon B. **First-in-class inhibitor of the T cell receptor for the treatment of autoimmune diseases.** *Sci Transl Med.* 8(370):370ra184. IF: 16.264

3. Gelpi E, Hoftberger R, Graus F, Ling H, Holton JL, Dawson T, Popovic M, Pretnar-Oblak J, Högl B, Schmutzhard E, Poewe W, Ricken G, Santamaria J, Dalmau J, Budka H, Revesz T, Kovacs GG. **Neuropathological criteria of anti-IgLON5-related tauopathy.** *Acta Neuropathol.* 132(4):531-543. IF: 11.360

4. Planagumà J, Haselmann H, Mannara F, Petit-Pedrol M, Grunewald B, Aguilar E, Ropke L, Martín-García E, Titulaer MJ, Jercog P, Graus F, Maldonado R, Geis C, Dalmau J. **EphrinB2 prevents NMDA receptor antibody effects on memory and neuroplasticity.** *Ann Neurol.* 80(3):388-400. IF: 9.638

5. Flach AC, Litke T, Strauss J, Haberl M, Gomez CC, Reindl M, Saiz A, Fehling HJ, Wienands J, Odoardi F, Luhder F, Flugel A. **Autoantibody-boosted T-cell reactivation in the target organ triggers manifestation of autoimmune CNS disease.** *Proc Natl Acad Sci USA.* 113(12):3323-8. IF: 9.423

6. Iizuka T, Kaneko J, Tominaga N, Someko H, Nakamura M, Ishima D, Kitamura E, Masuda R, Oguni E, Yanagisawa T, Kanazawa N, Dalmau J, Nishiyama K. **Association of progressive cerebellar atrophy with long-term outcome in patients with Anti-N-Methyl-D-Aspartate receptor encephalitis.** *JAMA Neurol.* 73(6):706-713. IF: 8.230

7. Martinez-Hernandez E, Arino H, McKeon A, Iizuka T, Titulaer MJ, Simabukuro MM, Lancaster E, Petit-Pedrol M, Planagumà J, Blanco Y, Harvey RJ, Saiz A, Graus F, Dalmau J. **Clinical and Immunologic Investigations in Patients With Stiff-Person Spectrum Disorder.** *JAMA Neurol.* 73(6):714-20. IF: 8.230

8. Armangue T, Sabater L, Torres-Vega E, Martinez-Hernandez E, Arino H, Petit-Pedrol M, Planagumà J, Bataller L, Dalmau J, Graus, F. **Clinical and Immunological Features of Opsoclonus-Myoclonus Syndrome in the Era of Neuronal Cell Surface Antibodies.** *JAMA Neurol.* 73(4):417-424. IF: 8.230

9. Arino H, Armangue T, Petit-Pedrol M, Sabater L, Martinez-Hernandez E, Hara M, Lancaster E, Saiz A, Dalmau J, Graus F. **Anti-LGI1-associated cognitive impairment: Presentation and long-term outcome.** *Neurology.* 87(8):759-765. IF: 8.166

10. Gresa-Arribas N, Planagumà J, Petit-Pedrol M, Kawachi I, Katada S, Glaser CA, Simabukuro MM, Armangue T, Martinez-Hernandez E, Graus F, Dalmau J. **Human neurexin-3alpha antibodies associate with encephalitis and alter synapse development.** *Neurology.* 86(24):2235-2242. IF: 8.166

11. Van Sonderen A, Arino H, Petit-Pedrol M, Leypoldt F, Kortvelyessy P, Wandinger KP, Lancaster E, Wirtz PW, Schreurs MW, Sillevis Smitt PA, Graus F, Dalmau J, Titulaer MJ. **The clinical spectrum of Caspr2 antibody-associated disease.** *Neurology.* 87:521-528. IF: 8.166

12. Izquierdo C , Velasco R , Vidal N , Sánchez JJ , Argyriou AA , BesoraS , Graus F , Bruna J . **Lymphomatosis cerebri: a rare form of primary central nervous system lymphoma. Analysis of 7 cases and systematic review of the literature.** *Neuro Oncol.* 18(5):707-15. IF: 7.371

13. Waters P, Reindl M, Saiz A, Schanda K, Tuller F, Kral V, Nytrova P, Sobek O, Nielsen HH, Barington T, Lillevang ST, Illes Z, Rentzsch K, Berthele A, Berki T, Granieri L, Bertolotto A, Giometto B, Zuliani L, Hamann D, van Pelt ED, Hintzen R, Höftberger R, Costa C, Comabella M, Montalban X, Tintoré M, Siva A, Altintas A, Deniz G, Woodhall M, Palace J, Paul F, Hartung HP, Aktas O, Jarius S, Wildemann B, Vedeler C, Ruiz A, Leite MI, Trillenberg P, Probst M, Saschenbrecker S, Vincent A, Marignier R. **Multicentre comparison of a diagnostic assay: aquaporin-4 antibodies in neuromyelitis optica.** *J Neurol Neurosurg Psychiatry.* 87(9):1005-1015. IF: 6.431

14. Keshavan A, Paul F, Beyer MK, Zhu AH, Papinutto N, Shinohara RT, Stern W, Amann M, Bakshi R, Bischof A, Carriero A, Comabella M, Crane JC, D'Alfonso S, Demaerel P, Dubois B, Filippi M, Fleischer V, Fontaine B, Gaetano L, Goris A, Graetz C, Gröger A, Groppa S, Hafler DA, Harbo HF, Hemmer B, Jordan K, Kappos L, Kirkish G, Llufriu S, Magon S, Martinelli-Boneschi F, McCauley JL, Montalban X, Mühlau M, Pelletier D, Pattany PM, Pericak-Vance M, Cournu-Rebeix I, Rocca MA, Rovira A, Schlaeger R, Saiz A, Sprenger T, Stecco A, Uitdehaag BM, Villoslada P, Wattjes MP, Weiner H, Wuerfel J, Zimmer C, Zipp F; International Multiple Sclerosis Genetics Consortium. **Power estimation for non-standardized multisite studies.** *Neuroimage.* 134:281-94. IF: 5.463

15. Dauvilliers Y, Gaig C, Barateau L, Graus F, Iranzo A, Lopez R, Santamaria. **Absence of NMDA receptor antibodies in the rare association between Type 1 Narcolepsy and Psychosis.** *Sci Rep.* 6:25230. IF: 5.228

16. Martinez-Rodriguez JE, Cobo-Calvo A, Villar LM, Munteis E, Blanco Y, Rasal R, Vera A, Muntasell A, Alvarez-Lafuente R, Saiz A, Alvarez-Cermeno JC, Martinez-Yelamos S, Roquer J, Lopez-Botet M. **Adaptive natural killer cell response to cytomegalovirus and disability progression in multiple sclerosis.** *Mult Scler J.* 22(6):741-752. IF: 4.671

17. Cobo-Calvo A, Sepulveda M, Bernard-Valnet R, Ruiz A, Brassat D, Martinez-Yelamos S, Saiz A, Marignier R. **Antibodies to myelin oligodendrocyte glycoprotein in aquaporin 4 antibody seronegative longitudinally extensive transverse myelitis: Clinical and prognostic implications.** *Mult Scler J.* 22(3):312-319. IF: 4.671

18. Sepulveda M, Ros C, Martinez-Lapiscina E H, Sola-Valls N, Hervas M, Llufriu S, La Puma D, Casals E, Blanco Y, Villoslada P, Graus F, Castelo-Branco C, Saiz A. **Pituitary-ovary axis and ovarian reserve in fertile women with multiple sclerosis: A pilot study.** *Mult Scler J.* 22(4):564-568. IF: 4.671

19. Sepúlveda M, Fernández-Diez B, Martínez-Lapiscina EH, Llufriu S, Sola-Valls N, Zubizarreta I, Blanco Y, Saiz A, Levy D, Glimcher P, Villoslada P. **Impairment of decision-making in multiple sclerosis: A neuroeconomic approach.** *Mult Scler J.* 1:1352458516682103. IF: 4.671

20. Sabater L, Planagumà J, Dalmau J, Graus F. **Cellular investigations with human antibodies associated with the anti-IgLON5 syndrome.** *J Neuroinflamm.* 13(1):226. IF: 4.667

21. Hannam JA, Borrat X, Trocóniz IF, Valencia JF, Jensen EW, Pedroso A, Muñoz J, Castellví-Bel S, Castells A, Gambús PL. **Modeling Respiratory Depression Induced by Remifentanil and Propofol during Sedation and Analgesia Using a Continuous Noninvasive Measurement of pCO2.** *J Pharmacol Exp Ther.* 356(3):563-73. IF: 3.760

22. Cabib C, Llufriu S, Martinez-Heras E, Saiz A, Valls-Sole J. **Enhanced mirror activity in 'crossed' reaction time tasks in multiple sclerosis.** *Clin Neurophysiol.* 127(4):2001-2009. IF: 3.426

23. Sepulveda M, Armangue T, Martinez-Hernandez E, Arrambide G, Sola-Valls N, Sabater L, Tellez N, Midaglia L, Arino H, Peschl P, Reindl M, Rovira A, Montalban X, Blanco Y, Dalmau J, Graus F, Saiz A. **Clinical spectrum associated with MOG autoimmunity in adults: significance of sharing rodent MOG epitopes.** *J Neurol.* 263(7):1349-1360. IF: 3.408

24. Storstein A, Raspotnig M, Vitaliani R, Giometto B, Graus F, Grisold W, Honnorat J, Vedeler CA. **Prostate cancer Hu antibodies and paraneoplastic neurological syndromes.** *J Neurol.* 263(5):1001-1007. IF: 3.408

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26. Martinez-Lapiscina EH, Sepulveda M, Torres-Torres R, Alba-Arbalat S, Llufriu S, Blanco Y, Guerrero-Zamora AM, Sola-Valls N, Ortiz-Perez S, Villoslada P, Sanchez-Dalmau B, Saiz A. **Usefulness of optical coherence tomography to distinguish optic neuritis associated with AQP4 or MOG in neuromyelitis optica spectrum disorders.** *Ther Adv Neurol Disord.* 9(5):436-440. IF: 2.642

27. Torres-Vega E, Duran-Moreno M, Sanchez Del Pino M, Yanez Y, Canete A, Castel V, Lopez-Cuevas R, Vilchez JJ, Dalmau J, Graus F, Garcia Verdugo JM, Bataller L. **Immunoproteomic studies on paediatric opsoclonus-myoclonus associated with neuroblastoma.** *J Neuroimmunol.* 297:98-102. IF: 2.536

28. Sabater L, Saiz A, Dalmau J, Graus F. **Pitfalls in the detection of CV2 (CRMP5)**

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29. Keller J, Oakley JD, Russakoff DB, Andorrà-Inglés M, Villoslada P, Sánchez-Dalmau BF. **Changes in macular layers in the early course of non-arteritic ischaemic optic neuropathy.** *Graefes Arch Clin Exp Ophthalmol.* 254(3):561-567. IF: 1.991

30. Prckovska V, Rodrigues P, Puigdellivol Sanchez A, Ramos M, Andorra M, Martinez-Heras E, Falcon C, Prats-Galino A, Villoslada P. **Reproducibility of the Structural Connectome Reconstruction across Diffusion Methods.** *J Neuroimaging.* 26(1):46-57. IF: 1.625

31. Grau-Rivera O, Sanchez-Valle R, Bargallo N, Llado A, Gaig C, Nos C, Ferrer I, Graus F, Gelpi E. **Sporadic MM2-thalamic + cortical Creutzfeldt-Jakob disease: Utility of diffusion tensor imaging in the detection of cortical involvement in vivo.** *Neuropathology.* 36(2):199-204. IF: 1.556

32. Melia U, Gabarron E, Agusti M, Souto N, Pineda P, Fontanet J, Vallverdu M, Jensen EW, Gambus P. **Comparison of the qCON and qNOX indices for the assessment of unconsciousness level and noxious stimulation response during surgery.** *J Clin Monitor Comp.* 1-9. IF: 1.819

Reviews / I.F.: 39.135

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2. Dalmau, J. **NMDA receptor encephalitis and other antibody-mediated disorders of the synapse: The 2016 Cotzias Lecture.** *Neurology.* 87(23):2471-2482. IF: 8.166

3. Cruz-Herranz A, Balk LJ, Oberwahrenbrock T, Saidha S, Martinez-Lapiscina EH, Lagreze WA, Schuman JS, Villoslada P, Calabresi P; Balcer, L; Petzold, A; Green, AJ; Paul, F; Brandt, AU; Albrecht, P. **The APOSTEL recommendations for reporting quantitative optical coherence tomography studies.** *Neurology.* 86:2303-2309. IF: 8.166

4. Auffray C, Balling R, Barroso I, Bencze L, Benson M, Bergeron J, Bernal-Delgado E, Blomberg N, Bock C, Conesa A, Del Signore S, Delogne C, Devilee P, Di Meglio A, Eijkemans M, Flicek P, Graf N, Grimm V, Guchelaar HJ, Guo YK, GutIG, Hanbury A, Hanif S, Hilgers RD, Honrado Á, Hose DR, Houwing-Duistermaat J, Hubbard T, Janacek SH, Karanikas H, Kievits T, Kohler M, Kremer A, Lanfear J, Lengauer T, Maes E, Meert T, Müller W, Nickel D, Oledzki P, Pedersen B, Petkovic M, Pliakos K, Rattray M, I Màs JR, Schneider R, Sengstag T, Serra-Picamal X, Spek W, Vaas LA, van Batenburg O, Vandelaer M, Varnai P, Villoslada P, Vizcaíno JA, Wubbe JP, Zanetti G. **Making sense of big data in health research: Towards an EU action plan.** *Genome Med.* 8(1):71. IF: 5.846

5. Kayser MS, Dalmau J. **Anti-NMDA receptor encephalitis, autoimmunity, and psychosis.** *Schizophr Res.* 176(1):36-40. IF: 4.453

Letters / I.F.: 66.378

1. Martinez-Lapiscina EH, Andorra M, Sanchez-Dalmau B, Villoslada P. **Phenytoin for neuroprotection.** *Lancet Neurol.* 15(9):901-902. IF: 23.468

2. Graus F, Dalmau J. **Role of 18F-FDG-PET imaging in the diagnosis of autoimmune encephalitis – Authors' reply.** *Lancet Neurol.* 15(10):1010. IF: 23.468

3. Kayser MS, Dalmau J. **Reply to: N-Methyl-D-Aspartate Receptor Autoantibodies in Psychiatric Illness.** *Biol Psychiat.* 79(9):e63. IF: 11.212

4. Graus F, Arino H, Dalmau J. **Opsoclonus-Myoclonus Syndrome in the Era of Neuronal Cell Surface Antibodies-Reply.** *JAMA Neurol.* 73(7):891. IF: 8.230

Case reports / I.F.: 24.106

1. Williams TJ, Benavides DR, Patrice K-A, Dalmau J, de Avila AL, Le DT, Lipson EJ, Probasco JC, Mowry EM. **Association of Autoimmune Encephalitis With Combined Immune Checkpoint Inhibitor Treatment for Metastatic Cancer.** *JAMA Neurol.* 73(8):928-33. IF: 8.230

2. Gövert F, Witt K, Erro R, Hellriegel H, Paschen S, Martinez-Hernandez E, Wandinger K-P, Deuschl G, Dalmau J, Leypoldt F. **Orthostatic myoclonus associated with Caspr2 antibodies.** *Neurology.* 86(14):1353-5. IF: 8.166

3. Tercero-Uribe A , Gaig C, Iranzo A, Gómez JB, Graus F, Santamaria, J. **Small fast rhythmic eye movements (SFREM) misdiagnosed as frontal seizures.** *Clin Neurophysiol.* 127(1):971-973. IF: 3.426

4. Guasp M; Sola-Valls N; Martinez-Hernandez E; Gil MP; Gonzalez C; Brieva L; Saiz A; Dalmau J; Graus F; Arino H. **Cerebellar ataxia and autoantibodies restricted to glutamic acid decarboxylase 67 (GAD67).** *J Neuroimmunol.* 300:15-17. IF: 2.536

5. Domingo-Santos Á; Sepulveda M; Matarazzo M; Calleja-Castaño P; Ramos-González A; Saiz A; Benito-Leon J. **Intravenous Immunoglobulin Therapy in a Patient With Anti-Myelin Oligodendrocyte Glycoprotein-Seropositive Neuromyelitis Optica.** *Clin Neuropharmacol.* 39(6):332-334. IF: 1.748

Clinical guidelines / I.F.: 23.468

1. Graus F, Titulaer MJ, Balu R, Benseler S, Bien CG, Cellucci T, Cortese I, Dale RC, Gelfand J, Geschwind M, Glaser CA, Honnorat J, Höftberger R, Iizuka T, Irani SR, Lancaster E, Leypoldt F, Prüss H, Rae-Grant A, Reindl M, Rosenfeld MR, Rostasy K, Saiz A, Venkatesan A, Vincent A, Wandinger K-P, Waters P, Dalmau J. **A clinical approach to diagnosis of autoimmune encephalitis.** *Lancet Neurol.* 15(4):391-404. IF: 23.468

GRANTS FOR RESEARCH IN PROGRESS

Dalmau J. **Paraneoplasic Disorders of CNS: Autoantigen.**
Sponsored by: National Institutes of Health (NIH), NINDS 9RO1NS077851-05A2 (previously RO1CA107192)
Duration: 01/08/2014-31/07/2020

Dalmau J. **Treatment of anti-NMDA receptor encephalitis.**
Sponsored by: NIH Extramural-intramural, bedside-to-bench project
Duration: 09/2011-07/2016

Dalmau J. **New syndromes, antigens, and mechanisms of synaptic autoimmunity.**
Sponsored by: Instituto de Salud Carlos III (ISCIII) PI14/00203
Duration: 01/01/2015-31/12/2017

Dalmau J.**CIBER Enfermedades Raras.**
Sponsored By: Instituto de Salud Carlos III (ISCIII) CB15/00010
Duration: 01/01/2016-31/12/2020

Dalmau J. **Mechanisms of autoimmune encephalitis.**
Sponsored by: Institut National de la Sante et de la Recherche Medicale, France
Duration: 01/06/2015-31/05/2017

Graus F. **Diagnostic and prognostic biomarkers in pediatric multiple sclerosis and related demyelinating disorders.**
Sponsored by: Fundació La Marató TV3, 20141830
Duration: 22/05/2015-21/05/2018

Graus F. **Mecanismos patogénicos de los anticuerpos IgG4 contra antígenos de superficie neuronal en encefalitis autoinmunes.**
Sponsored by: Instituto de Salud Carlos III (ISCIII) PI15/00377
Duration: 01/01/2016-31/12/2018

Saiz A. **REEM. Red española de esclerosis múltiple.**
Sponsored by: Instituto de Salud Carlos III (ISCIII) RD12/0032/0002
Duration: 01/01/2013-31/12/2016

Saiz A, Llufriu S. **Biomarcadores de resonancia magnética avanzada en esclerosis múltiple: asociación con el perfil clínico evolutivo y sustrato genético.**
Sponsored by: Instituto de Salud Carlos III (ISCIII). PI15/00587
Duration: 01/01/2016-31/12/2018

Villoslada P. **Red Española de Esclerosis Múltiple.**
Sponsored by: Instituto de Salud Carlos III (ISCIII). RD12/0032/0001
Duration: 01/01/2013-31/12/2016

Villoslada P. **Tratamiento de la EM y NMO con células dendríticas reguladoras: ensayo clínico fase 1B.**
Sponsored by: FUNDACIÓN GAEM. 13FCBD70
Duration: 01/01/2014-31/12/2016

H Martinez de Lapiscina E. **Molecular imaing of the retina in patients with Multiple Sclerosis by Raman Spectroscopy.**
Sponsored by: Fundació La Marató de TV3
Duration: 03/06/2015-02/06/2018

Villoslada P, Santamaria P. **Advancing an antigen-specific nanomedicine for the treatment of central nervous system autoimmunity (MS_NANOMED).**
Sponsored by: Comisión Europea. ERANET program NEURON7-PP-715-018
Duration: 01/06/2015-30/06/2017

Villoslada P. **Advancing human antigen-specific t-regulatory cell expanding nanomedicines for autoimmune disease: translational studies in humanized mice.**
Sponsored by: Instituto Salud Carlos III. PIE14/00027
Duration: 01/05/2015-31/05/2017

Villoslada P. **Estudio del daño axonal en esclerosis múltiple mediante esudios de neuroimagen de la vía óptica.**
Sponsored by: Instituo de Salud Carlos III
Duration: 01/01/2016-31/12/2018

Villoslada P. **Cuidado personalizado de salud en la Esclerosis Múltiple usando herramientas de medicina de sistemas (Sys4MS).**
Sponsored by: Comisión Europea
Duration: 01/05/2016-31/12/2018

Gambús PL. **PREDICTHEON: A project to develop predictive Monitoring Systems for clinical applications.**
Sponsored by: Programa CaixaImpulse
Duration: 01/11/2016-01/06/2018

DOCTORAL THESES

Fàbregas N, Gambus PL. **Sedació en l'endoscòpia digestiva: definició de la combinació farmacològica òptima, desenvolupament de sistemes de control i estudi de la variabilitat en la resposta farmacològica mitjançant l'anàlisi farmacogenètica.**
PhD student: Xavier Borrat Frigola

Graus F, Dalmau J. **Animal modeling of autoimmune disorders of the central nervous system associated with antibodies against neuronal surface antigens.**
PhD student: Francesco Mannara

4.11 Neurobiology Unit

LOCATION
IIBB-CSIC labs

KEYWORDS
1. **Neurodegeneration**
2. **Alzheimer's Disease**
3. **Mitochondrial DNA**
4. **Microglia**
5. **Neuronal Pentraxin**
6. **Neuronal Death**
7. **Mitochondrial dynamics**

Original publications from 2014 to 2016

YEAR	I.F.	TOTAL	Q1	Q2
2014	27.87	7	4	1
2015	22.53	6	2	3
2016	30.09	5	4	1

TEAM INVOLVED IN
CIBERNED
AGAUR_SGR14: 785, 1115, 1165



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VISITING SCIENTISTS
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Anna Wojdala (Poland)
Dawid Kargul (Poland)

STRATEGIC OBJECTIVES

1. To determine the role of mitochondrial DNA, mitochondrial dynamics and mitophagy on synapse elimination and neuronal death in models of neurodegenerative dementias and Parkinson's disease.
2. To gain knowledge on the mechanisms regulating neuroinflammation in neurodegenerative disorders.
3. To characterize cell-free mitochondrial DNA as a biomarker for neurodegenerative diseases

MAIN LINES OF RESEARCH

The Neurobiology Unit group investigates the molecular mechanisms of neurodegeneration to identify new targets for therapeutic intervention. Specific lines of research aim to:

1. Characterize cell-free mitochondrial DNA in cerebrospinal fluid as a biomarker for the early detection of Alzheimer's and Parkinson's diseases.
2. Investigate the function of Neuronal



TEAM Ramon Trullàs

Pentraxin 1 in the neuronal death program, with the hypothesis that inhibition of this protein may constitute a new treatment for chronic neurodegenerative disorders.

3. Study the role of mitochondrial DNA and mitochondrial dynamics in fibroblasts from patients with Parkinson's disease and other cellular models of neurodegeneration.
4. Study the mechanism by which KATP channel participates in the control of microglial activity in different neurological disorders.
5. Investigate the mechanisms whereby CX3CR1 regulates microglial activation in amyotrophic lateral sclerosis.
6. Study the mechanisms that alter the main proteolytic systems, including autophagy, involved in the maintenance of intracellular proteostasis.
7. Study the role of mitochondrial function in neuroinflammation and amyloid beta-induced cell death.

PUBLICATIONS

Originals / I.F.: 30.092

1. Podlesniy P, Llorens F, Golanska E, Sikorska B, Liberski P, Zerr I, Trullas R. **Mitochondrial DNA differentiates Alzheimer from Creutzfeldt-Jakob disease. Alzheimers Dement.** 12(5):546-555. IF: 11.619

2. de Mingo Á, de Gregorio E, Moles A, Tarrats N, Tutusaus A, Colell A, Fernandez-Checa JC, Morales A, Marí M. **Cysteine cathepsins control hepatic NF-κB-dependent inflammation via sirtuin-1 regulation.** *Cell Death Dis.* 7(11):e2464. IF: 5.378

3. Stefanovic M, Tutusaus A, Martinez-Nieto GA, Bárcena C, de Gregorio E, Moutinho C, Barbero-Camps E, Villanueva A, Colell A, Marí M, García-Ruiz C, Fernandez-Checa JC, Morales A. **Targeting glucosylceramide synthase upregulation reverts sorafenib resistance in experimental hepatocellular carcinoma.** *Oncotarget.* 7(7):8253-8267. IF: 5.008

4. Podlesniy P, Vilas D, Taylor P, Shaw LM, Tolosa E, Trullas R. **Mitochondrial DNA in CSF distinguishes LRRK2 from idiopathic Parkinson's disease.** *Neurobiol Dis.* 94:10-17. IF: 4.856

5. Martinez-Moreno M, Batlle M, Ortega FJ, Gimeno-Bayon J, Andrade C, Mahy N, Rodriguez MJ. **Diazoxide enhances excitotoxicity-induced neurogenesis and attenuates neurodegeneration in the rat non-neurogenic hippocampus.** *Neuroscience.* 333:229-243. IF: 3.231

Reviews / I.F.: 3.455

1. Rodriguez MJ, Mahy N. **Neuron-microglia interactions in motor neuron degeneration. The inflammatory hypothesis in amyotrophic lateral sclerosis revisited.** *Curr Med Chem.* 23:4753-4772. IF: 3.455

GRANTS FOR RESEARCH IN PROGRESS

Trullas R. **Mecanismos de regulación del número de copias de ADN mitocondrial para el tratamiento del Alzheimer.**
Sponsored by Ministerio de Economía y competitividad. SAF2014-56644-R
Duration 01/01/2015-31/12/2017

Colell A. **Cholesterol and Ab-induced mitochondrial oxidative stress as a causal factors and therapeutic targets in Alzheimer's Disease.**
Sponsored by: Fundació La Marató de TV3
Duration: 01/07/2015-30/06/2018

Colell A. **Papel del colesterol en la eliminación de beta-amiloide como diana terapéutica en la Enfermedad de Alzheimer.**
Sponsored by: Ministerio de Economia y Competitividad. SAF2013-47246-R
Duration: 01/01/2014-30/09/2017

4.12 Alzheimer's disease and other cognitive disorders

LOCATION
HCB building
CELLEX building

KEYWORDS
1. **Alzheimer Disease**
2. **Degenerative neurological deiseases**

Original publications from 2014 to 2016

YEAR	I.F.	TOTAL	Q1	Q2
2014	-	-	-	-
2015	-	-	-	-
2016	144.23	24	17	5

TEAM INVOLVED IN
AGAUR_SGR14: 237

AWARDS
Mutual Medica Best medical resident (2016)
Institution: Hospital Clínic Barcelona
Awardee/s: Neus Falgàs

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Jaume Olives (FCRB)
Adrià Tort (FCRB)
Neus Falgàs (FCRB)
Nina Coll (IDIBAPS)
Oriol Grau (HCB)

TECHNICIANS
Cristina Muñoz (IDIBAPS)

STRATEGIC OBJECTIVES

- Investigation to improve diagnosis and treatment of neurodegenerative diseases.
- Investigations on clinical, molecular and imaging biomarkers that characterize the preclinical phase of Alzheimer disease.
- Investigation of biological pathways involved in the pathogenesis of Alzheimer's disease and detection of new cognitive, biochemical and neuroimaging markers in preclinical and prodromal patients.

MAIN LINES OF RESEARCH

The main research lines of the Alzheimer's Disease and other Cognitive Disorders Unit (ADCDU) team are:
- Healthy aging-Alzheimer's disease continuum (subjective cognitive decline, preclinical and prodromal Alzheimer's disease).
- Study of genetic dementias in preclinical and early clinical phases.
- Biomarkers for sporadic early onset Alzheimer's disease.
- Biomarkers for non-Alzheimer dementias (prion diseases, frontotemporal dementia, primary progressive aphasia, Lewy body dem.).
- Non-pharmacological interventions in neurodegenerative cognitive disorders.

PUBLICATIONS

Originals / I.F.: 144.233

1. Gispert JD, Suárez-Calvet M, Monté GC, Tucholka A, Falcon C, Rojas S, Rami L, Sánchez-Valle R, Lladó A, Kleinberger G, Haass C, Molinuevo JL. **Cerebrospinal fluid sTREM2 levels are associated with gray matter volume increases and reduced diffusivity in early Alzheimer's disease.** *Alzheimers Dement.* 12(12):1259-1272. IF: 11.619

2. Sánchez-Benavides G, Gispert JD, Fauria K, Molinuevo JL, Gramunt N. **Modeling practice effects in healthy middle-aged participants of the Alzheimer and Families parent cohort.** *Alzheimers Dement.* 4:149-158. IF: 11.619

3. Duits FH, Martinez-Lage P, Paquet C, Engelborghs S, Lleó A, Hausner L, Molinuevo JL, Stomrud E, Farotti L, Ramakers IH, Tsolaki M, Skarsgård C, Åstrand R, Wallin A, Vyhnalek M, Holmber-Clausen M, Forlenza OV, Ghezzi L, Ingelsson M, Hoff EI, Roks G, de Mendonça A, Papma JM, Izagirre A, Taga M, Struyfs H, Alcolea DA, Frölich L, Balasa M, Minthon L, Twisk JW, Persson S, Zetterberg H, Van der Flier WM, Teunissen CE, Scheltens P, Blennow K. **Performance and complications of lumbar puncture in memory clinics: Results of the multicenter lumbar puncture feasibility study.** *Alzheimers Dement.* 12(2):154-163. IF: 11.619

4. Verheijen J, Van den Bossche T, Van der Zee J, Engelborghs S, Sanchez-Valle R, Lladó A, Graff C, Thonberg H, Pastor P, Ortega-Cubero S, Pastor MA, Benussi L, Ghidoni R, Binetti G, Clarimon J, Lleó A, Fortea J, de Mendonça A, Martins M, Grau-Rivera O, Gelpi E, Bettens K, Mateiu L, Dillen L, Cras P, de Deyn PP, Van Broeckhoven C, Sleegers K. **A comprehensive study of the genetic impact of rare variants in SORL1 in European early-onset Alzheimer's disease.** *Acta Neuropathol.* 132(2):213-24. IF: 11.360

5. Suárez-Calvet M, Kleinberger G, Araque-Caballero MÁ, Brendel M, Rominger A, Alcolea D, Fortea J, Lleó A, Blesa R, Gispert JD, Sánchez-Valle R, Antonell A, Rami L, Molinuevo JL, Brosseron F, Traschütz A, Heneka MT, Struyfs H, Engelborghs S, Sleegers K, Van Broeckhoven C, Zetterberg H, Nellgård B, Blennow K, Crispin A, Ewers M, Haass C. **sTREM2 cerebrospinal fluid levels are a potential biomarker for microglia activity in early-stage Alzheimer's disease and associate with neuronal injury markers.** *EMBO Mol Med.* 8(5):466-476. IF: 9.547

6. Galluzzi S, Marizzoni M, Babiloni C, Albani D, Antelmi L, Bagnoli C, Bartres-Faz D, Cordone S, Didic M, Farotti L, Fiedler U, Forloni G, Girtler N, Hensch T, Jovicich J, Leeuwis A, Marra C, Molinuevo JL, Nobili F, Pariente J, Parnetti L, Payoux P, del Percio C, Ranjeva JP, Rolandi E, Rossini PM, Schönknecht P, Soricelli A, Tsolaki M, Visser PJ, Wiltfang J, Richardson JC, Bordet R, Blin O, Frisoni GB; Pharmacog Consortium. **Clinical and biomarker profiling of prodromal Alzheimer's disease in workpackage 5 of the Innovative Medicines Initiative PharmaCog project: a 'European ADNI study'.** *J Intern Med.* 279(6):576-591. IF: 7.803

7. Sogorb-Esteve A, García-Ayllón MS, Fortea J, Sánchez-Valle R, Lleó A, Molinuevo JL, Sáez-Valero J. **Cerebrospinal fluid Presenilin-1 increases at asymptomatic stage in genetically determined Alzheimer's disease.** *Mol Neurodegener.* 11(1):66. IF: 6.510

8. Ritchie CW, Molinuevo JL, Truyen L, Satlin A, Van der Geyten S, Lovestone S; European Prevention of Alzheimer's Dementia (EPAD) Consortium. **Development of interventions for the secondary prevention of Alzheimer's dementia: the European Prevention of Alzheimer's Dementia (EPAD) project.** *Lancet Psychiatry.* 3(2):179-86. IF: 5.756

9. Antonell A, Llado A, Sanchez-Valle R, Sanfeliu C, Casserras T, Rami L, Munoz-Garcia C, Dangla-Valls A, Balasa M, Boya P, Kalko S G, Molinuevo J L. **Altered Blood Gene Expression of Tumor-Related Genes (PRKCB BECN1 and CDKN2A) in Alzheimer's Disease.** *Mol Neurobiol.* 53(9):5902-5911. IF: 5.397

10. Dangla-Valls A, Molinuevo JL, Altirriba J, Sanchez-Valle R, Alcolea D, Fortea J, Rami L, Balasa M, Munoz-Garcia C, Ezquerra M, Fernandez-Santiago R, Lleo A, Llado A, Antonell A. **CSF microRNA Profiling in Alzheimer's Disease: a Screening and Validation Study.** *Mol Neurobiol.* 1-8. IF: 5.397

11. Schmitz M, Ebert E, Stoeck K, Karch A, Collins S, Calero M, Sklaviadis T, Laplanche JL, Golanska E, Baldeiras I, Satoh K, Sanchez-Valle R, Ladogana A, Skinningsrud A, Hammarin AL, Mitrova E, Llorens F, Kim YS, Green A, Zerr I. **Validation of 14-3-3 Protein as a Marker in Sporadic Creutzfeldt-Jakob Disease Diagnostic.** *Mol Neurobiol.* 53(4):2189-99. IF: 5.397

12. Dols-Icardo O, Iborra O, Valdivia J, Pastor P, Ruiz A, de Munain AL, Sánchez-Valle R, Álvarez V, Sánchez-Juan P, Lleó A, Fortea J, Blesa R, Cardona F, Baquero M, Alonso MD, Ortega-Cubero S, Pastor MA, Razquin C, Boada M, Hernández I, Gorostidi A, Moreno F, Zulaika M, Lladó A, Coto E, Combarros O, Pérez-Tur J, Clarimón J; Dementia Genetics Spanish Consortium (DEGESCO). **Assessing the role of TUBA4A gene in frontotemporal degeneration.** *Neurobiol Aging.* 38:215.e13-215.e14. IF: 5.153

13. Gispert JD, Monte GC, Falcon C, Tucholka A, Rojas S, Sanchez-Valle R, Antonell A, Llado A, Rami L, Molinuevo JL. **CSF YKL-40 and pTau181 are related to different cerebral morphometric patterns in early AD.** *Neurobiol Aging.* 38:47-55. IF: 5.153

14. Bras J, Djaldetti R, Alves AM, Mead S, Darwent L, Lleo A, Molinuevo JL, Blesar, Singleton A, Hardy J, Clarimon J, Guerreiro R. **Exome sequencing in a consanguineous family clinically diagnosed with early-onset Alzheimer's disease identifies a homozygous CTSF mutation.** *Neurobiol Aging.* 46:236.e1-6. IF: 5.153

15. Sarroca S; Molina-Martínez P; Areste C; Etzrodt M; Garcia de Frutos P; Gasa R; Antonell A; Molinuevo JL; Sanchez-Valle R; Saura CA; Llado A; Sanfeliu C. **Preservation of cell-survival mechanisms by the presenilin-1 K239N mutation may cause its milder clinical phenotype.** *Neurobiol Aging.* 46:169-179. IF: 5.153

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Reviews / I.F.: 11.619

1. Dubois B, Hampel H, Feldman HH, Scheltens P, Aisen P, Andrieu S, Bakardjian H, Benali H, Bertram L, Blennow K, Broich K, Cavedo E, Crutch S, Dartigues JF, Duyckaerts C, Epelbaum S, Frisoni GB, Gauthier S, Genthon R, Gouw AA, Habert MO, Holtzman DM, Kivipelto M, Lista S, Molinuevo JL, O'bryant SE, Rabinovici GD, Rowe C, Salloway S, Schneider LS, Sperling R, Teichmann M, Carrillo MC, Cummings J, Jack CR; Proceedings of the meeting of the international working group (IWG) and the american alzheimer's association on "the preclinical state of ad"; july 23, 2015; washington DC, USA. **Preclinical Alzheimer's disease: Definition, natural history, and diagnostic criteria.** *Alzheimers Dement.* 12(3):292-323. IF: 11.619

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2. Llull L, la Puma D, Falgàs N, Renú A, Iranzo A. **Compressive C5-C6 radiculopathy secondary to spontaneous vertebral artery dissection.** *Neurologia.* 31(1):61-2. IF: 1.790

3. Falgàs N, Borrego S, Llull L, Espinosa G, López-Rueda A, Blasco J, Cervera A. **Recurrent dural arteriovenous fistulas in a patient with Behçet's disease.** *Neurologia.* pii: S0213-4853(15)00262-5. IF: 1.790

Consortium publications / I.F.: 8.166

1. Walker Z, Moreno E, Thomas A, Inglis F, Tabet N, Stevens T, Whitfield T, Aarsland D, Rainer M, Padovani A; Datscan dlb phase 4 study group. **Evolution of clinical features in possible DLB depending on FP-CIT SPECT result.** *Neurology.* 87(10):1045-51. IF: 8.166

GRANTS FOR RESEARCH IN PROGRESS

Molinuevo JL, Rami L. **AETIONOMY – Organising knowledge about neurodegenerative disease mechanisms for the improvement of drug development and therapy.**

Sponsored by: IMI-115568-European Comission. CE_IMI12_8th_2stg
Duration: 01/01/2014-31/12/2018

Molinuevo JL. **Efectos de la pérdida de peso mediante dieta mediterránea hipocalórica y aumento de la actividad física sobre la congnición y la estructura y función cerebrales determinados por resonancia magnética funcional en individuos obesos con síndrome metabólico.**
Sponsored by: Instituto De Salud Carlos III. PI14/00563
Duration: 01/01/2015-31/12/2017

Sanchez-Valle R. **Estudio de portadores de mutaciones determinantes de enfermedad de Alzheimer genética en fases preclínicas cognición, neuroimagen estructural y funcional y marcadores bioquímicos.**
Sponsored by: Instituto de Salud Carlos III (ISCIII) PI12/00013
Duration: 01/01/2013-30/06/2017

Rami L. **Subjective cognitive decline in preclinical Alzheimer's Disease: European initiative on harmonization and on a lifestyle-based prevention strategy.**
Sponsored by: Instituto De Salud Carlos III. AC14/00014
Duration: 01/01/2015-31/12/2017

Molinuevo JL. **MEDIT-AGEING: Investigating the impact of meditation training on mental health and wellbeing in the ageing population.**
Sponsored by: H2020. INSERM (Coordinator), Université de Caen Basse-Normandie, EPHE, CHU de Caen, U1077, GIP Cycéron
Duration: 01/01/2015-31/12/2020

Lladó A. **Fenotipos clínicos y nuevos biomarcadores fisiopatológicos, diagnósticos y pronósticos en la enfermedad de Alzheimer de inicio precoz y variante conductual de la demencia frontotemporal.**
Sponsored by: ISCIII. Cofinancia FEDER. Unión Europea. FIS PI14/00282
Duration: 01/01/2015-31/12/2017

Lladó A. Falgàs N. **Biomarcadores diagnósticos y pronósticos en la enfermedad de Alzheimer presenil: rendimiento y rentabilidad diagnóstica y nuevos.**
Sponsored by: Ajut a la recerca Josep Font-Hospital Clinic.
Duration: 01/01/2016-31/12/2019

Sánchez-Valle R. **Phase II/III Randomized, Double-Blind, Placebo-Controlled Multi-Center Study of 2 Potential Disease Modifying Therapies in Individuals at Risk for and With Dominantly Inherited Alzheimer's Disease.**
Sponsored by: DIAN-TU-001 Consortium. DIAN-TU-001. NCT01760005.
Duration: 01/07/2014-31/12/2019

Sánchez-Valle R. **Searching for therapeutic interventions in frontotemporal dementia with C9ORF72 repeat expansions in the presymptomatic stage (PreFrontALS).**
Sponsored by: Joint Program for Neurodegenerative diseases (JPND-European Union) and Instituto de Salud Carlos III-FIS (Spanish Research Agency). Code AC14/00013
Duration: 01/01/2015-31/12/2017

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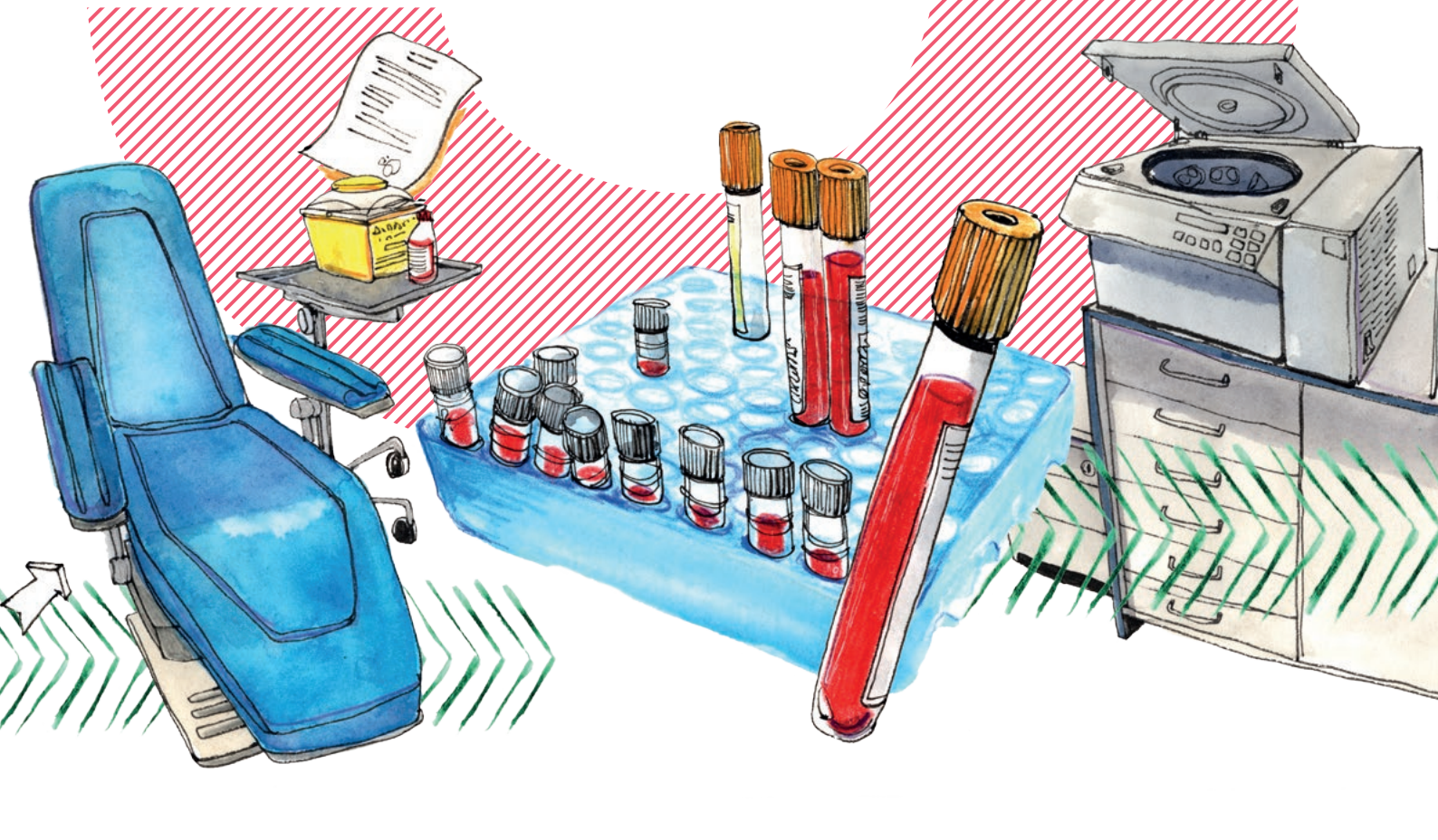
Sponsored by: Fundació La Marató de TV3. 20143810
Duration: 01/01/2015-31/12/2019

Sánchez-Valle R. **Red nacional de priones. REFERENCIA: AGL2015-71764-REDT**
Sponsored by: fundacion privada institut de bioenginyeria de catalunya.PIA182015-1
Duration: 01/12/2015-30/11/2017

Sánchez-Valle R. **Study of genetic Alzheimer's disease mutation carriers in preclinical stages of the disease: 18F-Florbetaben Positron Emission Tomography study. (FBB-FAD-2014) EudraCT number 2014-000763-41. FCRB.**
Sponsored by: Piramal Imaging Investigator Sponsored Study (ISS)
Duration: 01/01/2015-31/12/2017



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5.1 Human and experimental functional oncomorphology

LOCATION
CEK building

KEYWORDS
1. **Lymphoid Neoplasms**
2. **Mantle Cell Lymphoma**
3. **Chronic Lymphocytic Leukemia**
4. **Next Generation Sequencing**
5. **Molecular Pathology**
6. **Solid Tumors**

Original publications from 2014 to 2016

YEAR	I.F.	TOTAL	Q1	Q2
2014	399.00	50	44	4
2015	338.96	43	35	6
2016	333,82	45	36	5

TEAM INVOLVED IN
RTICC
AGAUR_SGR14: 214, 378, 475, 795
CIBERONC
ICGC
LLMPP
Blueprint Consortium

AWARDS
Premio Rey Jaime I a la Investigación Médica
Institution: Fundación Premios Rey Jaime I
Awardee/s: Elías Campo

XX Premio Claustro de Doctores por la tesis "Deciphering the DNA methylome of normal and neoplastic B cells"
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STRATEGIC OBJECTIVES

- Identification of genetic and molecular mechanisms implicated in the development and progression of human neoplasms.
- Development of strategies for transferring to clinical practice the knowledge generated by basic research on human tumors.
- Identification of parameters allowing the improved diagnosis and prognosis of neoplastic disease, and the identification of possible therapeutic targets.

MAIN LINES OF RESEARCH

Molecular Pathology of Lymphoid Neoplasms

a) To understand the genetic and molecular mechanisms involved in the development and progression of lymphoid neoplasms and to identify parameters that may improve the diagnosis of these disease, stratify patients according to biological risk, and define possible therapeutic targets.
b) To define the complete catalogue of somatic genomic alterations in several lymphoid neoplasm and their clinical and functional relevance.
c) To develop strategies for transferring the knowledge generated in the basic studies of these neoplasms into the clinics.

Molecular Pathology of Solid neoplasms

a) To study the molecular mechanisms of invasion and metastasis, transcriptional expression profiles implicated in the development and progression of different human tumors in relation to development, biological aggressivity and therapeutic options. We focus mainly on breast and prostate tumors as neoplasms under hormone influence, and skin, digestive, urological and airway neoplasms – including head and neck tumors.
b) Study of the possible criteria of treatment response and prognosis in neurological tumors.

RESEARCH GROUP
MOLECULAR PATHOLOGY OF LYMPHOID NEOPLASMS



GROUP LEADER
Elías Campo (HCB-UB)

Lymphoid neoplasias are a very heterogeneous group of tumors with remarkable variability in their biological behaviour and clinical manifestations. Our group aims to understand the genetic, epigenetic, and molecular mechanisms underlying the biological diversity of these tumors and how they may influence the clinical evolution of the patients. The use of new genomic technologies is providing new perspectives on the tumors we concentrate our research, particularly chronic lymphocytic leukemia, mantle cell lymphoma, follicular lymphoma and diffuse large B-cell lymphoma. In addition to better understand the pathogenesis of these tumors we are generating new approaches to translate this new information into the clinics.





GROUP. Elías Campo and Iñaki Martín (up)

RESEARCH GROUP
MOLECULAR PATHOLOGY OF SOLID TUMORS



GROUP LEADER
Pedro Luis Fernández (HCB)

The study of solid tumours encompasses a wide spectrum of neoplasms including urological, digestive, skin, gynaecological, H&N and neurological sites. We continue analysing microRNAs in breast and lung cancers and have shown the importance of the miR200 family in breast neoplasms, especially in the acquisition of luminal phenotypes and in metaplastic carcinomas. We are now involved in a multicentric study on advanced bladder cancer treated with target therapy and in molecular alterations in neural neoplasms, mainly in infants, and in the transition from paediatric to adult life. We also seek to define epigenetic and genetic alterations that distinguish gliomagenesis in children and adults.

RESEARCH GROUP
TRANSCRIPTIONAL REGULATION OF GENE EXPRESSION

GROUP LEADER
Antonio Postigo (ICREA-IDIBAPS)

Our group investigates the regulation of gene expression by the ZEB family of transcription factors (ZEB1 and ZEB2). We use cell lines, transgenic mice and human samples to study the role of ZEB factors in the regulation of cell stemness and differentiation and tumor progression using epithelial (colon, ovarian, breast, lung), skeletal muscle and hematopoietic systems as models. The group has received funding from the Spanish and Catalan governments and the EU as well as from national and international private foundations (e.g., AECC, La Marató de TV3, Leukemia Research Foundation, Avon Cosmetics, ACMCB, FOT).

PUBLICATIONS

Originals / I.F.: 333.820

1. Vilas D, Iranzo A, Tolosa E, Aldecoa I, Berenguer J, Vilaseca I, Martí C, Serradell M, Lomeña F, Alós L, Gaig C, Santamaria J, Gelpi E. **Assessment of alpha-synuclein in submandibular glands of patients with idiopathic rapid-eye-movement sleep behaviour disorder: a case-control study.** *Lancet Neurol*. 15(7):708-718. IF: 23.468

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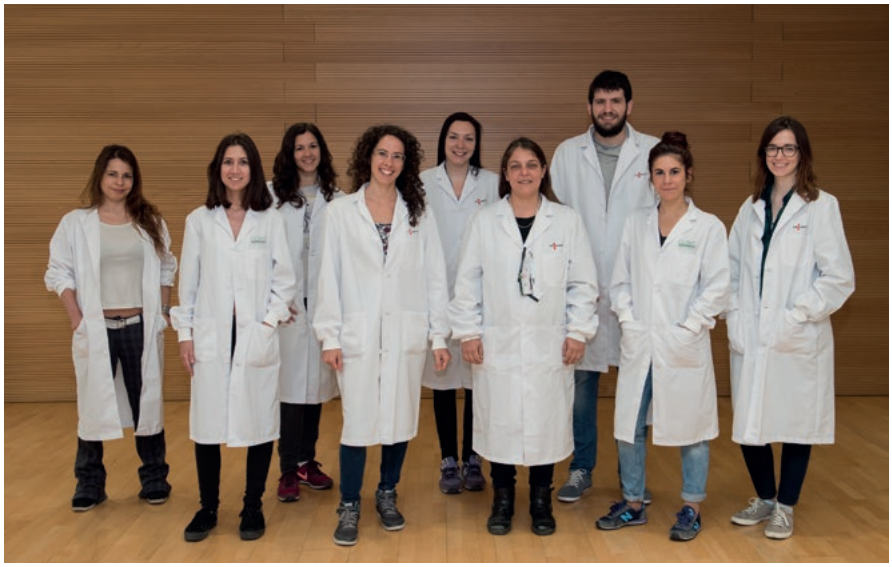
GROUP Pedro Luis Fernández



GROUP Antonio Postigo

of the Entire B Cell Lineage. *Cancer Cell.* 30(5):806-821. IF: 23.214

3. Yang Y, Kelly P, Shaffer AL 3rd, Schmitz R, Yoo HM, Liu X, Huang da W, Webster D, Young RM, Nakagawa M, Ceribelli M, Wright GW, Yang Y, Zhao H, Yu X, Xu W, Chan WC, Jaffe ES, Gascoyne RD, Campo E, Rosenwald A, Ott G, Delabie J, Rimsza L, Staudt LM. **Targeting Non-proteolytic Protein Ubiquitination for the Treatment of Diffuse Large B Cell Lymphoma.** *Cancer Cell.* 29(4):494-507. IF: 23.214

4. Carballal S, Rodríguez-Alcalde D, Moreira L, Hernández L, Rodríguez L, Rodríguez-Moranta F, Gonzalo V, Bujanda L, Bessa X, Poves C, Cubiella J, Castro I, González M, Moya E, Oquiñena S, Clofent J, Quintero E, Esteban P, Piñol V, Fernández FJ, Jover R, Cid L, López-Cerón M, Cuatrecasas M, López-Vicente J, Leoz ML, Rivero-Sánchez L, Castells A, Pellisé M, Balaguer F; Gastrointestinal Oncology Group of the Spanish Gastroenterological Association. **Colorectal cancer risk factors in patients with serrated polyposis syndrome: a large multicentre study.** *Gut.* 65(11):1829-1837. IF: 14.921

5. Carballal S, Maisterra S, López-Serrano A, Gimeno-García AZ, Vera MI, Marín-Garbriel JC, Díaz-Tasende J, Márquez L, Álvarez MA, Hernández L, De Castro L, Gordillo J, Puig I, Vega P, Bustamante-Balén M, Acevedo J, Peñas B, López-Cerón M, Ricart E, Cuatrecasas M, Jimeno M, Pellisé M; EndoCAR group of the Spanish Gastroenterological Association and Spanish Digestive Endoscopy Society. **Real-life chromoendoscopy for neoplasia detection and characterisation in long-standing IBD.** *Gut.* gutjnl-2016-312332. IF: 14.921

6. Corbera-Bellalta M, Planas-Rigol E, Lozano E, Terrades-Garcia N, Alba M A, Prieto-Gonzalez S, Garcia-Martinez A, Albero R, Enjuanes A, Espigol-Frigole G, Hernandez-Rodriguez J, Roux-Lombard P, Ferlin W G, Dayer J M, Kosco-Vilbois M H, Cid M C. **Blocking interferon gamma reduces expression of chemokines CXCL9, CXCL10 and CXCL11 and decreases macrophage infiltration in ex vivo cultured arteries from patients with giant cell arteritis.** *Ann Rheum Dis.* 75(6):1177-1186. IF: 12.384

7. Palomero J, Vegliante M C, Eguileor A, Rodriguez M L, Balsas P, Martinez D, Campo E, Amador V. **SOX11 defines two different subtypes of mantle cell lymphoma through transcriptional regulation of BCL6.** *Leukemia.* 30(7):1596-1599. IF: 12.104

8. Saba NS, Liu D, Herman SE, Underbayev C, Tian X, Behrend D, Weniger MA, Skarzynski M, Gyamfi J, Fontan L, Melnick A, Grant C, Roschewski M, Navarro A, Beà S, Pittaluga S, Dunleavy K, Wilson WH, Wiestner A. **Pathogenic role of B-cell receptor signaling and canonical NF-kappaB activation in mantle cell lymphoma.** *Blood.* 128(1):82-92. IF: 11.847

9. Nadeu F, Delgado J, Royo C, Baumann T, Stankovic T, Pinyol M, Jares P, Navarro A, Martín-García D, Beà S, Salaverria I, Oldreive C, Aymerich M, Suárez-Cisneros H, Rozman M, Villamor N, Colomer D, López-Guillermo A, González M, Alcoceba M, Terol MJ, Colado E, Puente XS, López-Otín C, Enjuanes A, Campo E. **Clinical impact of clonal and subclonal TP53, SF3B1, BIRC3, NOTCH1 and ATM mutations in chronic lymphocytic leukemia.** *Blood.* 127(17):2122-30. IF: 11.847

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GRANTS FOR RESEARCH IN PROGRESS

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Hernández L. **Búsqueda de lncRNAs relacionados con la polarización de macrófagos pro-tumorogénicos (M2-TAM) en linfomas foliculares/ difusos de células grandes y evaluación de su valor clínico.**
Sponsored by: Instituto de Salud Carlos III. PI15/00551
Duration: 01/01/2016-31/12/2018

Jares P. **Nuevos mecanismos oncogénicos de ciclina D1 en linfoma de células del manto (LCM): Implicación en la regulación transcripcional, la respuesta al daño en el ADN y el estrés eplicativo.**
Sponsored by: Instituto de Salud Carlos III (ISCIII). PI14/00355
Duration: 01/01/2015- 31/12/2017

Martin-Subero JI. **Functional and clinical impact of enhancer DNA methylation in mantle cell lymphoma.**
Sponsored by: European Hematology Association. EHA_FELLOW13SEPT_02
Duration: 16/11/2014- 15/11/2017

Martinez A. **SLPC asociados a inmunodeficiencia: estudio de la transformación secretora y de la activación litica de los herpesvirus como nuevas dianas terapéuticas.**
Sponsored by: Instituto de Salud Carlos III (ISCIII). PI14/00333
Duration: 01/01/2015- 31/12/2017

Postigo A. **ZEB proteins and tumor progression. Role of ZEB1 and ZEB2 in oncogenic transformation benign-malignant transition and cancer cell proliferation and survival.**
Sponsored by: Fundació La Marató de TV3. 20133010
Duration: 15/04/2014-31/01/2018

Postigo A. **Regulation of stemness and differentiation in normal and malignant hematopoietic cells by the ZEB family of transcription factors. Role of ZEB1 and ZEB2 as biomarkers and potential therapeutic targets in hematological malignancies.**
Sponsored by: Leukemia Research Foundation. LEUKRF_NI_14_15
Duration: 01/07/2014-30/06/2016

Postigo A. **Papel de los factores ZEB en la especificación y activación hematopoyética y en la interacción célula maligna-microambiente en neoplasias hematológicas.**
Sponsored by Ministerio de Economia y Competitividad. SAF2014-52874-R
Duration: 01/01/2015-31/12/2017

Salaverria I. **Caracterización molecular, genética e inmunofenotípica de los linfomas de centro germinal en pacientes pediátricos, adolescentes y jóvenes adultos.**
Sponsored by: Instituto de Salud Carlos III (ISCIII). PI15/00580
Duration: 01/01/2016-31/12/2018

DOCTORAL THESES

Campo E, Martínez Pozo A. **Mecanismos de progresión y transformación en linfomas de células B de bajo grado: alteraciones citogénicas y moleculares.**
PhD student: Daniel Martínez Hernández

Campo E. **Papel del factor de transcripción SOX11 en la caracterización del linfoma de células del manto.**
PhD student: Inmaculada Ribera Cortada

Martín Subero JI, Campo E. **Unraveling the epigenome of Chronic Lymphocytic Leykemia and Mantle Cell Lymphoma.**
PhD student: Ana Cristina Alves Queirós

Cuatrecasas M, Castells A. **Caracterización de la estadificación molecular en carcinoma de colon. Correlación clínico-histológica.**
PhD student: Iban Aldecoa Ansorregui

Cuatrecasas M, Ramón y Cajal Agüeras S. **Valoración de la expresión inmunohistoquímica en microarrays tisulares de rack1, 4ebp1, p53 y ki-67 en tumores colorrectales con correlación clínico patológica.**
PhD student: Paul Augusto Espinoza Madrid

5.2 Diagnosis and therapy in oncology

LOCATION
HCB building

KEYWORDS
1. **Oncology Molecular studies**
2. **Radiotherapy**
3. **Breast cancer diagnosis**
4. **Sentinel lymph node**
5. **Positron Emission Tomography**

Original publications from 2014 to 2016

YEAR	I.F.	TOTAL	Q1	Q2
2014	70.08	16	8	6
2015	93.84	23	12	6
2016	70.70	17	13	2

TEAM INVOLVED IN
AGAUR_SGR14: 279, 1340

AWARDS
Premi al millor article de l'any 2016
Institution: Societat Catalana d'Otorinolaringologia i Patologia Cervico-Facial
Awardee/s: Maria Africa Muxí

Premio a la mejor publicación de imagen mamaria en revista internacional en 2016
Institution: Sociedad Española de Diagnóstico por Imagen de la Mama (SEDIM)
Awardee/s: Gorane Santamaria



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Eugènia Verger (HCB)

STRATEGIC OBJECTIVES

- Development of techniques for improving the diagnosis, prognostic evaluation and treatment response assessment in oncological patients.
- Development and application of new therapies in oncology.

MAIN LINES OF RESEARCH

1. **Molecular studies in embryonic and tumor cells: applications to pharmacogenomics.** Comparison of microRNA patterns in embryonic



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and tumor tissues and use of allelic discrimination to analyze polymorphic profiles (SNPs), with a view to selecting more specific treatments.

2. **Effects of synchrotron radiation upon the neoplastic cell.** Carried out jointly with UAB, comparison is made of the biological action of synchrotron radiation with conventional X-rays used in radiotherapy.
3. **Breast MRI.** Tumour uptake and diffusion to predict pathological response to primary systemic treatment in breast cancer
4. **Functional mRI techniques.** Studies of perfusion, diffusion and spectroscopy applied to the staging and treatment monitoring of brain and head and neck tumours.
5. **Scintigraphic detection of the sentinel node and hybrid tracers in radioguided surgery**, applied in different tumours to avoid unnecessary lymphadenectomies.
6. **Positron Emission Tomography (PET/CT)** for the staging and control of treatment response in different types of tumors.
7. **Study of bacterial radiosensitivity** in E. coli, S. epidermidis and S. aureus.

PUBLICATIONS

Originals / I.F.: 70.699

1. Granados U, Fuster D, Pericas JM, Llopis JL, Ninot S, Quintana E, Almela M, Paré C, Tolosana JM, Falces C, Moreno A, Pons F, Lomeña F, Miro JM; Hospital Clinic Endocarditis Study Group. **Diagnostic Accuracy of F-18-FDG PET/CT in Infective Endocarditis and Implantable Cardiac Electronic Device Infection: A Cross-Sectional Study.** *J Nucl Med.* 57(11):1726-1732. IF: 5.849

2. Podlipnik S, Carrera C, Sánchez M, Arguis P, Olondo ML, Vilana R, Rull R, Vidal-Sicart S, Vilalta A, Conill C, Malvehy J, Puig S. **Performance of diagnostic tests in an intensive follow-up protocol for patients with American Joint Committee on Cancer (AJCC) stage IIB, IIC, and III localized primary melanoma: A prospective cohort study.** *J Am Acad Dermatol.* 75(3):516-524. IF: 5.621

3. Vidal M, Vidal-Sicart S, Torres F, Ruiz D M, Paredes P, Pons F. **Correlation between theoretical anatomical patterns of lymphatic drainage and lymphoscintigraphy findings during sentinel node detection in head and neck melanomas.** *Eur J Nucl Med Mol Imaging.* 43(4):626-634. IF: 5.537

4. Castellano JJ, Navarro A, Viñolas N, Marrades RM, Moises J, Cordeiro A, Saco A, Muñoz C, Fuster D, Molins L, Ramirez J, Monzo M. **LincRNA-p21 Impacts Prognosis in Resected Non-Small Cell Lung Cancer Patients through Angiogenesis Regulation.** *J Thorac Oncol.* 11(12):2173-2182. IF: 5.040

5. Cordeiro A, Navarro A, Gaya A, Díaz-Beyá M, Gonzalez-Farré B, Castellano JJ, Fuster D, Martínez C, Martínez A, Monzó M. **PiwiRNA-651 as marker of treatment response and survival in classical Hodgkin lymphoma.** *Oncotarget.* 7(29):46002-46013. IF: 5.008

6. Ruiz-Martinez M, Navarro A, Marrades RM, Viñolas N, Santasusagna S, Muñoz C, Ramírez J, Molins L, Monzo M. **YKT6 expression, exosome release, and survival in non-small cell lung cancer.** *Oncotarget.* 7(32):51515-51524. IF: 5.008

7. Ramos-Perdigues S, Baillés E, Mane A, Carreno M, Donaire A, Rumia J, Bargallo N, Boget T, Setoain X, Valdes M, Pintor L. **A prospective study contrasting the psychiatric outcome in drug-resistant epilepsy between patients who underwent surgery and a control group.** *Epilepsia.* 57(10):1680-1690. IF: 4.706

8. Mayoral M, Marti-Fuster B, Carreno M, Carrasco JL, Bargallo N, Donaire A, Rumia J, Perissinotti A, Lomena F, Pintor L, Boget T, Setoain X. **Seizure-onset zone localization by statistical parametric mapping in visually normal F-FDG PET studies.** *Epilepsia.* 57(8):1236-1244. IF: 4.706

9. Navarro A, Pairet S, Álvarez-Larrán A, Pons A, Ferrer G, Longarón R, Fernández-Rodríguez C, Camacho L, Monzó M, Besses C, Bellosillo B. **miR-203 and miR-221 regulate SOCS1 and SOCS3 in essential thrombocythemia.** *Blood Cancer J.* 6:e406. IF: 4.411

10. Hellingman D, Vidal-Sicart S, de Wit-Van Der Veen L J, Paredes P, Valdes Olmos R A. **A New Portable Hybrid Camera for Fused Optical and Scintigraphic Imaging: First Clinical Experiences.** *Clin Nucl Med.* 41(1):e39-e43. IF: 4.278

11. Sierra-Marcos A, Carreno M, Setoain X, Lopez-Rueda A, Aparicio J, Donaire A, Bargallo N. **Accuracy of arterial spin labeling magnetic resonance imaging (MRI) perfusion in detecting the epileptogenic zone in patients with drug-resistant neocortical epilepsy: Comparison with electrophysiological data, structural MRI, SISCOM and FDG-PET.** *Eur J Neurol.* 23(1):160-167. IF: 3.956

12. Aparicio J, Carreño M, Bargalló N, Setoain X, Rubí S, Rumià J, Falcón C, Calvo A, Martí-Fuster B, Padilla N, Boget T, Pintor L, Donaire A. **Combined 18F-FDG-PET and diffusion tensor imaging in mesial temporal lobe epilepsy with hippocampal sclerosis.** *NeuroImage-Clin.* 12:976-989. IF: 3.857

13. Gifre L, Vidal J, Carrasco JL, Muxi A, Portell E, Monegal A, Guañabens N, Peris P. **Denosumab increases sublesional bone mass in osteoporotic individuals with recent spinal cord injury.** *Osteoporosis Int.* 27(1):405-10. IF: 3.445

14. Caritg O, Navarro A, Moreno I, Martínez-Rodenas F, Cordeiro A, Muñoz C, Ruiz-Martinez M, Santasusagna S, Castellano JJ, Monzó M. **Identifying High-Risk Stage II Colon Cancer Patients: A Three-MicroRNA-Based Score as a Prognostic**

Biomarker. *Clin Colorectal Canc.* 15(4):e175-e182. IF: 3.090

15. Vilaseca I, Blanch JL, Berenguer J, Grau JJ, Verger E, Muxí Á, Bernal-Sprekelsen M. **Transoral laser microsurgery for locally advanced (T3-T4a) supraglottic squamous cell carcinoma: Sixteen years of experience.** *Head Neck-J Sci Spec Head Neck.* 38(7):1050-7. IF: 2.760

16. Ríos I, Rovirosa A, Ascaso C, Valduvieco I, Herreros A, Castilla L, Sabater S, Holub K, Pahisa J, Biete A, Arenas M. **Vaginal-cuff control and toxicity results of a daily HDR brachytherapy schedule in endometrial cancer patients.** *Clin Transl Oncol.* 18(9):925-30. IF: 2.075

17. Barros X, Rodríguez NY, Fuster D, Rodas L, Esforzado N, Mazza A, Rubello D, Campos F, Tapias A, Torregrosa JV. **Comparison of two different vitamin D supplementation regimens with oral calcifediol in kidney transplant patients.** *J Nephrol.* 29(5):703-9. IF: 1.352

Reviews / I.F.: 5.769

1. Sarbu N, Shih RY, Jones RV, Horkayne-Szakaly I, Oleaga L, Smirniotopoulos JG. **White Matter Diseases with Radiologic-Pathologic Correlation.** *Radiographics.* 36(5):1426-47. IF: 2.523

2. van Leeuwen FW, Valdés-Olmos R, Buckle T, Vidal-Sicart S. **Hybrid surgical guidance based on the integration of radionuclear and optical technologies.** *Br J Radiol.* 89(1062):20150797. IF: 1.840

3. García Figueiras R, Baleato González S, Padhani AR, Oleaga L, Vilanova JC, Luna A, Cobas Gómez JC. **Proton magnetic resonance spectroscopy in oncology: the fingerprints of cancer?** *Diagn Interv Radiol.* 22(1):75-89. IF: 1.406

Letters / I.F.: 5.537

1. Valdés Olmos RA, Vidal-Sicart S, van Leeuwen FW. **Crossing technological frontiers in radioguided intervention.** *Eur J Nucl Med Mol Imaging.* 43(13):2301-2303. IF: 5.537

Editorials / I.F.: 1.453

1. Fuster D, Torregrosa JV, Campos F, Giammarile F, Cook GJ, Rubello D, Pons F. **Is there a role for PET/CT in the evaluation of primary and secondary hyperparathyroidism?** *Nucl Med Commun.* 37(1):1-2. IF: 1.453

Case reports / I.F.: 4.524

1. Florez H, Peris P, Vidal-Sicart S, Monegal A, Guañabens N. **Lack of scintigraphic response of fibrous dysplasia to bisphosphonate treatment.** *RHEUMATOLOGY.* 55(10):1735. IF: 4.524

GRANTS FOR RESEARCH IN PROGRESS

Fuster D. **Evaluación de la PET/TC integrada con TC colonografía en el cáncer colorrectal obstructivo preoperatorio diagnosticado mediante colonoscopia óptica.**
Sponsored by: Instituto de Salud Carlos III (ISCIII). Beca FIS/14. PI14/00555.
Duration: 01/01/2015-31/12/2017

Oleaga A. **Predictive geometrical model for personalized flow diverter sizing and interventional planning (PoroVIEW).**
Sponsored by: Ministerio De Economia Y Competitividad. RTC-2016-5073-1
Duration: 01/11/2016-31/10/2018

DOCTORAL THESES

Monzó M, Navarro A. **ARNs no codificants petits en Limfoma de Hodgkin: Regulació epigenètica de microRNAs i importància de la via PIWI/piRNA.**
PhD student: Anna Cordeiro Santanach

Monzó M, Navarro A. **Estudio del gen YKT6 y miRNAs asociados en la liberación de exosomas en pacientes quirúrgicos de cáncer de pulmón.**
PhD student: Marc Ruiz Martinez

Pons F, Vidal Sicart S. **Reproducibilidad y correlación anatómica de la linfogammagrafía en la detección del ganglio centinela en pacientes con melanoma cutáneo maligno.**
PhD student: Mónica Alexandra Vidal González

Santamaria G, Ayuso C. **Introducción del CAD (computer-aided detection) en un programa de detección precoz de cáncer de mama.**
PhD student: Xavier Bargalló Castelló

5.3

Molecular Biology of reproduction and development

LOCATION
UB School of Medicine

KEYWORDS
1. **Germinal cell line**
2. **Male infertility**
3. **Proteomics**
4. **Epigenetics**
5. **Cancer**
6. **Endocrine system**
7. **iPSC**

Original publications from 2014 to 2016

YEAR	I.F.	TOTAL	Q1	Q2
2014	23.34	7	4	1
2015	11.33	4	2	-
2016	10.95	3	2	1

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STRATEGIC OBJECTIVES

The mechanisms involved in cell differentiation during reproduction and development, endocrine disorders and cancer cell progression and regression are the main objectives of our research group.

MAIN LINES OF RESEARCH

1. **Genomics, proteomics and epigenetics of the germinal cell line.** Our interests include the study of the human sperm and seminal plasma proteomes, small RNA contentw, and the sperm cell epigenome to further understand the function and mechanisms operating in the sperm cell, fertilization and early embryo development, and to enable translational research in male infertility.
2. **Genetics of endocrine disorders.** Our research interests involve the study of the genetic aspects of hereditary



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endocrine disorders (multiple endocrine neoplasia, congenital adrenal hyperplasia and monogenic diabetes) for which we are a reference centre. Our interest also contribute to a better understanding of the genotype-phenotype correlations in these syndromes.

3. **Mechanisms involved in redifferentiation of cancer cells.** We are studying the mechanisms involved in retinoic acid induction of cancer cell differentiation. Upon treatment with this molecule, we have reported downregulation of the Notch-3 signalling pathway and upregulation of the microRNA miR-200c in highly invasive breast cancer cells. In addition, we study the mechanisms involved in the chemoresistant phenotype of colon cancer cells.

PUBLICATIONS

Originals / I.F.: 10.945

1. Mezquita B, Pineda E, Mezquita J, Mezquita P, Pau M, Codony-Servat J, Martinez-Balibrea E, Mora C, Maurel J, Mezquita C. **LoVo Colon Cancer Cells Resistant to Oxaliplatin Overexpress c-MET and VEGFR-1 and Respond to VEGF With Dephosphorylation of c-MET.** *Mol Carcinog.* 55(5):411-419. IF: 4.722

2. López-Serrano C, Torres-Espín A, Hernández J, Alvarez-Palomo AB, Requena J, Gasull X, Edel MJ, Navarro X. **Effects of the Post-Spinal Cord Injury Microenvironment on the Differentiation Capacity of Human Neural Stem Cells Derived From Induced Pluripotent Stem Cells.** *Cell Transplant.* IF: 3.427

3. Martínez-Zamora MA, Tàssies D, Reverter JC, Creus M, Casals G, Cívico S, Carmona F, Balasch J. **Increased circulating cell-derived microparticle count is associated with recurrent implantation failure after IVF and embryo transfer.** *Reprod Biomed Online.* 33(2):168-73. IF: 2.796

Reviews / I.F.: 2.948

1. Carrell DT, Aston KI, Oliva R, Emery BR, De Jonge CJ. **The "omics" of human male infertility: integrating big data in a systems biology approach.** *Cell Tissue Res.* 363(1):295-312. IF: 2.948

Letters / I.F.: 17.578

1. Jodar M, Sendler E, Moskovtsev SI, Librach CL, Goodrich R, Swanson S, Hauser R, Diamond MP, Krawetz SA. **Response to Comment on "Absence of sperm RNA elements correlates with idiopathic male infertility".** *Sci Transl Med.* 8(353):353tr1. IF: 16.264

2. Aranda Velazquez GB, Porta MM, Martinez D, Oriola J, Halperin Rabinovich I. **Medullary thyroid carcinoma as manifestation of the loss of heterozygosity in a patient with MEN1.** *Endocrinol Nutr.* 63(7):371-373. IF: 1.314

GRANTS FOR RESEARCH IN PROGRESS

Oliva R. **Identificación proteómica de biomarcadores en espermatozoides de pacientes infértiles predictores de los resultados de reproducción asistida.**
Sponsoredby: FUNDACIÓ SALUD 2000. SERONO13_015.
Duration: 01/06/2013-01/06/2016

Oliva R. **Reproductive Biology Early Research Training.**
Sponsored by: European Commission. 289880.
Duration: 01/01/2012-31/03/2016

Oliva R. **Proteómica diferencial de espermatozoides e identificación de biomarcadores diagnósticos y pronósticos en reproducción asistida.**
Sponsoredby: Instituto de Salud Carlos III (ISCIII). PI13/00699.
Duration: 01/01/2014-31/12/2016

Jovita A. Mezquita C. Edel MJ. **Mejora de la calidad y la caracterización de la producción de células IPS por substitución de oncogenes por genes del ciclo celular y el análisisde la estabilitadgenòmica.**
Sponsoredby. Ministerio de Ciencia: BFU2014-54467-P.
Duration: 01/01/2015-31/12/2017

Oriola J. **Recerca de gens implicats en el càncer de tiroide no medul·lar familiar (FNMTC) no sindròmic.**
Sponsored by: SocietatCatalana d'Endocrinologia i Nutrició (SCEN). Ref projecteFundació Clínic: DN040587
Duration: 01/01/2016-31/12/2017

DOCTORAL THESES

Oliva R. **Identification of human sperm proteome abnormalities in infertile patients.**
PhD student: Claudio Attardo Parrinello

5.4 Genetics

LOCATION
HCB building

KEYWORDS
1. **Intellectual disability**
2. **Next Generation Sequencing**
3. **Cryptic chromosomal imbalances**
4. **FMR1 premutation associated pathologies**
5. **Porphyria**
6. **Prostate cancer**

Original publications from 2014 to 2016

YEAR	I.F.	TOTAL	Q1	Q2
2014	97.00	20	13	4
2015	91.44	13	7	3
2016	78.25	21	10	3

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Laura Foj (HCB)

TECHNICANS
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STRATEGIC OBJECTIVES

To clinically, cytogenetic and molecular characterize rare genetic diseases. The main research lines are: i) study of molecular basis of intellectual disability using high throughput technologies; ii) identification of a biological marker for FXTAS; iii) genotype–phenotype correlation of porphyrias; and iv) discovery of new biomarkers that might help the diagnosis and prognosis of prostate cancer.

MAIN LINES OF RESEARCH

1. Identification of genetic bases of ID. The application of high throughput sequencing to different groups of clinically well characterized ID patients will allow us to identify new genes and to establish new molecular causes of ID.
2. Fragile X syndrome: Study and better characterization of FMR1 premutation associated pathologies. Identification of a susceptibility risk factor for FXTAS.
3. Detection of cryptic chromosomal



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imbalances and identification of new phenotypes based on cytogenetic – molecular techniques in a prenatal and postnatal diagnostic setting.

4. Study of the genotype-phenotype correlation and expression mechanisms of porphyria.
- Advance in the study of the alterations in iron regulation and metabolism in skin and erythropoietic porphyria.
- Investigate the role of modifier genes that modulate the clinical expression of erythropoietic porphyria.
- Study of new serum and urine biomarkers of acute porphyria severity of use in clinical practice.

5. Prostate cancer:
To study the value of miRNAs in urine for the detection and prognosis of prostate cancer.
To isolate exosomes as a source of new biomarkers of prostate cancer.

PUBLICATIONS

Originals / I.F.: 78.251

1. Molina R, Marrades Rm, Augé Jm, Escudero Jm, Viñolas N, Reguart N, Ramirez J, Filella X, Molins L, Agustí A. **Assessment of a Combined Panel of Six Serum Tumor Markers for Lung Cancer.** *Am J Respir Crit Care Med.* 193(4):427-37. IF: 13.118

2. Saez M A, Fernandez-Rodriguez J, Moutinho C, Sanchez-Mut J V, Gomez A, Vidal E, Petazzi P, Szczesna K, Lopez-Serra P, Lucariello M, Lorden P, Delgado-Morales R, De La Caridad O J, Huertas D, Gelpi J L, Orozco M, Lopez-Doriga A, Mila M, Perez-Jurado L A, Pineda M, Armstrong J, Lazaro C, Esteller, M. **Mutations in JMJD1C are involved in Rett syndrome and intellectual disability.** *Genet Med.* 18(4):378-85. IF: 7.710

3. Baumann T, Delgado J, Santacruz R, Martínez-Trillos A, Rozman M, Aymerich M, López C, Costa D, Carrió A, Villamor N, Montserrat E. **CD49D (ITGA4) Expression Is A Predictor Of Time To First Treatment In Patients With Chronic Lymphocytic Leukaemia And Mutated IGHV Status.** *Br J Haematol.* 172(1):48-55. IF: 5.812

4. Alvarez-Mora MI; Rodriguez-Revenga L; Madrigal I; Guitart-Mampel M; Garrabou G; Mila M. **Impaired Mitochondrial Function and Dynamics in the Pathogenesis of FXTAS.** *Mol Neurobiol.* ():1-7. IF: 5.397

5. Martinez D, Navarro A, Martinez-Trillos A, Molina-Urra R, Gonzalez-Farre B, Salaverria I, Nadeu F, Enjuanes A, Clot G, Costa D, Carrio A, Villamor N, Colomer D, Martinez A, Bens S, Siebert R, Wotherspoon A, Bea S, Matutes E, Campo E. **NOTCH1 TP53 and MAP2K1 Mutations in Splenic Diffuse Red Pulp Small B-cell Lymphoma Are Associated With Progressive Disease.** *Am J Surg Pathol.* 40(2):192-201. IF: 4.951

6. Madrigal I, Alvarez-Mora MI, Rosell J, Rodriguez-Revenga L, Karlberg O, Sauer S, Syvanen AC, Mila M. **A novel splicing mutation in the IQSEC2 gene that modulates the phenotype severity in a family with intellectual disability.** *Eur J Hum Genet.* 24(8):1117-1123. IF: 4.580

7. Aguilera P, Badenas C, Whatley SD, To-Figueras J. **Late-onset cutaneous porphyria in a patient heterozygous for a uroporphyrinogen III synthase gene mutation.** *Br J Dermatol.* 175(6):1346-1350. IF: 4.317

8. Nomdedeu M, Calvo X, Pereira A, Carrió A, Solé F, Luño E, Cervera J, Vallespí T, Muñoz C, Gómez C, Arias A, Such E, Sanz G, Grau J, Insunza A, Calasanz Mj, Ardanaz Mt, Hernández-Rivas Jm, Azaceta G, Álvarez S, Sánchez J, Martín MI, Bargay J, Gómez V, Cervero Cj, Allegue Mj, Collado R, Campo E, Esteve J, Nomdedeu B, Costa D; Spanish Group Of Myelodysplastic Syndromes. **Prognostic Impact Of Chromosomal Translocations In Myelodysplastic Syndromes And Chronic Myelomonocytic Leukemia Patients. A Study By The Spanish Group Of Myelodysplastic Syndromes**. *Gene Chromosomes Cancer.* 55(4):322-7. IF: 3.960

9. Guañabens N, Filella X, Monegal A, Gómez-Vaquero C, Bonet M, Buquet D, Casado E, Cerdá D, Erra A, Martinez S, Montalá N, Pitarch C, Kanterewicz E, Sala M, Surís X, Torres F; Laboscat Study Group. **Reference intervals for bone turnover markers in Spanish premenopausal women.** *Clin Chem Lab Med.* 54(2):293-303. IF: 3.017

10. Alvarez-Mora Mi, Rodriguez-Revenga L, Feliu A, Badenas C, Madrigal I, Milà M. **Skewed X Inactivation in Women Carrying the FMR1 Premutation and Its Relation with Fragile-X-Associated Tremor/Ataxia Syndrome.** *Neurodegener Dis.* 16(3-4):290-292. IF: 2.937

11. Borrell A, Grande M, Meler E, Sabrià J, Mazarico E, Muñoz A, Rodriguez-Revenga L, Badenas C, Figueras F. **Genomic Microarray in Fetuses with Early Growth Restriction: A Multicenter Study.** *Fetal Diagn Ther.* IF: 2.700

12. Tristan-Noguero A, Diez H, Jou C, Pineda M, Ormazabal A, Sanchez A, Artuch R, Garcia-Cazorla A. **Study of a fetal brain affected by a severe form of tyrosine hydroxylase deficiency, a rare cause of early parkinsonism.** *Metab Brain Dis.* 31(3):705-709. IF: 2.603

13. Alvarez-Mora MI, Calvo Escalona R, Puig Navarro O, Madrigal I, Quintela I, Amigo J, Martinez-Elurbe D, Linder-Lucht M, Aznar Lain G, Carracedo A, Mila M; Rodriguez-Revenga L. **Comprehensive molecular testing in patients with high functioning autism spectrum disorder.** *Mutat Res-Fundam Mol Mech Mutagen.* 784-785():46-52. IF: 2.581

14. Rodriguez-Revenga L, Pagonabarraga J, Gomez-Anson B, Lopez-Mourelo O, Izquierdo S, Alvarez-Mora MI, Granell E, Madrigal I, Mila M. **Carriage of One or Two FMR1 Premutation Alleles Seems to Have No Effect on Illness Severity in a FXTAS Female with an Autozygous FMR1 Premutation Allele.** *Cerebellum.* 15(5):570-577. IF: 2.429

15. Ramos A, Raposo M, Mila M, Bettencourt C, Houlden H, Cisneros B, Magana JJ, Bettencourt BF, Bruges-Armas J, Santos C, Lima M. **Verification of Inter-laboratorial Genotyping Consistency in the Molecular Diagnosis of Polyglutamine Spinocerebellar Ataxias.** *J Mol Neurosci.* 58(1):83-87. IF: 2.352

16. Magnano L, Fernández De Larrea C, Elena M, Cibeira Mt, Tovar N, Aróstegui Ji, Pedrosa F, Rosiñol L, Filella X, Yagüe J, Bladé J. **Prognostic Impact of Serum Heavy/Light Chain Pairs in Patients With Monoclonal Gammopathy of Undetermined Significance and Smoldering Myeloma: Long-Term Results From a Single Institution.** *Clin Lymphoma Myeloma Leuk.* 16(6):e71-7. IF: 2.316

17. Aguilera P, Laguno M, To-Figueras J. **Human immunodeficiency virus and risk of porphyria cutanea tarda: a possible association examined in a large hospital.** *Photodermatol Photoimmunol Photomed.* 32(2):93-7. IF: 1.897

18. Soler A, Badenas C, Margarit E, Madrigal I, Muñoz M, Borobio V, Sánchez A. **A 92,XXXY Miscarriage Consecutive to a Digynic Triploid Pregnancy.** *Cytogenet Genome Res.* 149(4):258-261. IF: 1.638

19. Del Rey J, Santos M, González-Meneses A, Milà M, Fuster C. **Heterogeneity of a Constitutional Complex Chromosomal Rearrangement in 2q.** *Cytogenet Genome Res.* 148(2-3):156-164. IF: 1.638

20. Parra M, Foj L, Filella X. **Automated measurement of 25-OH Vitamin D on the LUMIPULSE® G1200: analytical verification and method comparison.** *Br J Biomed Sci.* 73(3):104-109. IF: 1.245

21. Costa D, Muñoz C, Carrió A, Arias A, Gómez C, Solé F, Espinet B, Azaceta G, Calasanz Mj, Nomdedeu M, Calvo X, Campo E, Nomdedeu B. **Refining The Breakpoints Of Three New Translocations Identified In Myelodysplastic Syndromes.** *Acta Haematol.* 135(2):94-100. IF: 1.053

Reviews / I.F.: 5.686

1. Filella X, Foj L. **Prostate Cancer Detection And Prognosis: From Prostate Specific Antigen (PSA) To Exosomal Biomarkers.** *Int J Mol Sci.* 17(11). IF: 3.257

2. Hall DA, Robertson E, Shelton AL, Losh MC, Mila M, Moreno EG, Gomez-Anson B, Martinez-Cerdeno V, Grigsby J, Lozano R, Hagerman R, Maria LS, Berry-Kravis E, O'Keefe JA. **Update on the Clinical Radiographic, and Neurobehavioral Manifestations in FXTAS and FMR1 Premutation Carriers.** *Cerebellum.* 15(5):578-586. IF: 2.429

Letters / I.F.: 18.276

1. Tell-Marti G, Puig-Butille JA, Potrony M, Badenas C, Mila M, Malvehy J, Marti MJ, Ezquerra M, Fernandez-Santiago R, Puig S. **Is the MC1R Variant p. R160W Associated With Parkinson's?** *Reply. Ann Neurol.* 79(1):161-163. IF: 9.638

2. Tell-Marti G, Anton Puig-Butille J, Potrony M, Badenas C, Mila M, Malvehy J, Jose Marti M, Ezquerra M, Fernandez-Santiago R, Puig S. **Reply to Letter to Editor ANA-16-0021 'Lack of association between MC1R variants and Parkinson's disease in European descent' by Jiang Q and Liu G.** *Ann Neurol.* 79(5):868-. IF: 9.638

Editorials / I.F.: 2.429

1. Milà M, Rodriguez-Revenga L, Matilla-Dueñas A. **FMR1 Premutation: Basic Mechanisms and Clinical Involvement.** *Cerebellum.* 15(5):543-5. IF: 2.429

GRANTS FOR RESEARCH IN PROGRESS

Sanchez A. **Alcance diagnóstico y fiabilidad de las técnicas de array-CGH en muestras de vellosidad corial. Detección de anomalías cromosómicas crípticas de posibles discrepancias feto-placentarias.**
Sponsored by: Instituto de Salud Carlos III (ISCIII) PI11/01841
Duration: 01/01/2012-30/06/2016

Madrigal I. **Identificación de genes modificadores de penetrancia en enfermedades raras hereditatias mediante secuenciación masiva.**
Sponsored by: Instituto de Salud Carlos III (ISCIII). PI15/00483
Duration: 01/01/2016-31/12/2018

DOCTORAL THESES

Milà M, Rodríguez-Revenga Bodi, L. **Patologías asociadas a la premutación del gen FMR1.**
PhD student: Maria Isabel Alvarez Mora

5.5

Melanoma: imaging, genetics and immunology

LOCATION
CEK building

KEYWORDS
1. **Melanoma**
2. **Genetics**
3. **Dermoscopy**
4. **Confocal Microscopy**
5. **Susceptibility**

Original publications from 2014 to 2016

YEAR	I.F.	TOTAL	Q1	Q2
2014	118.39	23	18	3
2015	117.27	22	21	1
2016	60.68	14	11	1

AWARDS
First Award Miguel Armijo
Institution: Spanish Academy of Dermatology
Awardee/s: Malvehy J, Puig S



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STRATEGIC OBJECTIVES

1. Development of non-invasive imaging, biophotonics and physic techniques for the diagnosis of melanoma and non-melanoma skin cancer.
2. Study of the genetic bases implicated in susceptibility to melanoma, photocarcinogenesis and melanoma prognosis.



TEAM Susana Puig

3. Development of treatment strategies in melanoma and skin cancer: specific molecular target, immunological and photo-protection therapies.

MAIN LINES OF RESEARCH

1. Dermoscopy, digital dermoscopy, Confocal microscopy & new photonic and physic technologies. Description of new algorithms, study of the evolution of lesions, new classifications and the use of telemedicine.
2. Giant congenital nevi, global research approach including clinical, genetics and psychological aspects.
3. Genetic epidemiology in melanoma and non melanoma skin cancer.
4. Study of the mechanisms involved in carcinogenesis and photocarcinogenesis in melanoma and non melanoma skin cancer.
5. Development of new treatment strategies for melanoma and other skin tumours.
6. Evaluation of immune response in melanoma.
7. Identification of genetic prognostic profiles in melanoma.
8. Analysis of the influence of the microbiota in skin cancer.
9. Identification of biomarkers for melanoma : study of circulating free DNA (cfDNA) or isolation of circulating melanoma cells (CMC) and single cell sequencing.

PUBLICATIONS

Originals / I.F.: 60.678

1. Puig S, Potrony M, Cuellar F, Puig-Butille J A, Carrera C, Aguilera P, Nagore E, Garcia-Casado Z, Requena C, Kumar R, Landman G, Costa Soares De Sa B, Gargantini Rezze G, Facure L, De Avila A L, Achatz M I, Carraro D M, Duprat Neto J P, Grazziotin T C, Bonamigo R R, Rey M C, Balestrini C, Morales E, Molgo M, Bakos R M, Ashton-Prolla P, Giugliani R, Larre Borges A, Barquet V, Perez J, Martinez M, Cabo H, Cohen Sabban E, Latorre C, Carlos-Ortega B, Salas-Alanis J C, Gonzalez R, Olazaran Z, Malvehy J, Badenas C. **Characterization of individuals at high risk of developing melanoma in Latin America: bases for genetic counseling in melanoma.** *Genet Med.* 18(7):727-736. IF: 7.710

2. Tagliabue E, Gandini S, García-Borrón JC, Maisonneuve P, Newton-Bishop J, Polsky D, Lazovich D, Kumar R, Ghiorzo P, Ferrucci L, Gruis NA, Puig S, Kanetsky PA, Motokawa T, Ribas G, Landi MT, Fargnoli MC, Wong TH, Stratigos A, Helsing P, Guida G, Autier P, Han J, Little J, Sera F, Raimondi S; M-SKIP Study group. **Association of Melanocortin-1 Receptor Variants with Pigmentary Traits in Humans: A Pooled Analysis from the M-Skip Project.** *J Invest Dermatol.* 136(9):1914-7. IF: 6.915

3. Podlipnik S, Carrera C, Sanchez M, Arguis P, Olondo ML, Vilana R, Rull R, Vidal-Sicart S, Vilalta A, Conill C, Malvehy J, Puig S. **Performance of diagnostic tests in an intensive follow-up protocol for patients with American Joint Committee on Cancer (AJCC) stage IIB, IIC, and III localized primary melanoma: A prospective cohort study.** *J Am Acad Dermatol.* 75(3):516-524. IF: 5.621

4. Potrony M, Carreras E, Aranda F, Zimmer L, Puig-Butille JA, Tell-Marti G, Armiger N, Sucker A, Gimenez-Xavier P, Martínez-Florensa M, Carrera C, Malvehy J, Schadendorf D, Puig S, Lozano F. **Inherited functional variants of the lymphocyte receptor CD5 influence melanoma survival.** *Int J Cancer.* 139(6):1297-1302. IF: 5.531

5. Grazziotin TC, Alarcon I, Bonamigo RR, Carrera C, Potrony M, Aguilera P, Puig-Butille JA, Brito J, Badenas C, Alos L, Malvehy J, Puig S. **Association Between Confocal Morphologic Classification and Clinical Phenotypes of Multiple Primary and Familial Melanomas.** *JAMA Dermatol.* 152(10):1099-1105. IF: 5.097

6. Potrony M, Puig-Butille JA, Aguilera P, Badenas C, Tell-Marti G, Carrera C, del Pozo LJ, Conejo-Mir J, Malvehy J, Puig S. **Prevalence of MITF p.E318K in Patients With Melanoma Independent of the Presence of CDKN2A Causative Mutations.** *JAMA Dermatol.* 152(4):405-412. IF: 5.097

7. Carrera C, Marchetti MA, Dusza SW, Argenziano G, Braun RP, Halpern AC, Jaimes N, Kittler HJ, Malvehy J, Menzies SW, Pellacani G, Puig S, Rabinovitz HS, Scope A, Soyer HP, Stolz W, Hofmann-Wellenhof R, Zalaudek I, Marghoob AA. **Validity and Reliability of Dermoscopic Criteria Used to Differentiate Nevi From Melanoma: A Web-Based International Dermoscopy Society Study.** *JAMA Dermatol.* 152(7):798-806. IF: 5.097

8. Mangas C, Potrony M, Mainetti C, Bianchi E, Carrozza Merlani P, Mancarella Eberhardt A, Maspoli-Postizzi E, Marazza G, Marcollo-Pini A, Pelloni F, Sessa C, Simona B, Puig-Butille JA, Badenas C, Puig S. **Genetic susceptibility to cutaneous melanoma in southern Switzerland: Role of CDKN2A, MC1R and MITF.** *Br J Dermatol.* 175(5):1030-1037. IF: 4.317

9. Imbernon-Moya A, Sidro M, Malvehy J, Puig S. **Negative maple-leaf like areas: a new clue for basal cell carcinoma margin recognition.** *Br J Dermatol.* 175(4):818-820. IF: 4.317

10. Malvehy J, Alarcon I, Montoya J, Rodriguez-Azeredo R, Puig S. **Treatment monitoring of 0.5% 5-fluorouracil and 10% salicylic acid in clinical and subclinical actinic keratoses with the combination of optical coherence tomography and reflectance confocal microscopy.** *J Eur Acad Dermatol Venereol.* 30(2):258-265. IF: 3.029

11. Potrony M, Badenas C, Naerhuyzen B, Aguilera P, Puig-Butille JA, Tell-Marti G, Díaz A, Carrera C, Alos L, Delahaye N, Malvehy J, Puig S. **Time and tumor type (primary or metastatic) do not influence the detection of BRAF/NRAS mutations in formalin fixed paraffin embedded**

samples from melanomas. *Clin Chem Lab Med.* 54(11):1733-1738. IF: 3.017

12. Espinosa E, Soriano V, Malvehy J, Berrocal A, Martínez de Prado P, Quindós M, Soria A, Márquez-Rodas I, Palacio I, Cerezuela P, López-Vivanco G, Alonso L, Samaniego E, Ballesteros A, Puértolas T, Díaz-Beveridge R, de la Cruz-Merino L, López Castro R, López López R, Stevinson K, Del Barrio P, Tornamira MV, Guillém V, Martín-Algarra S. **Treatment patterns of adjuvant interferon-α2b for high-risk melanoma: a retrospective study of the Grupo Español Multidisciplinar de Melanoma - Prima study.** *Melanoma Res.* 26(3):278-83. IF: 2.219

13. Cabrera R, Puig S, Larrondo J, Castro A, Valenzuela K, Sabatini N. **Eruptive Facial Postinflammatory Lentigo: Clinical and Dermatoscopic Features.** *Am J Dermatopathol.* 38(11):813-819. IF: 1.396

14. Llambrich A, Zaballos P, Taberner R, Terrasa F, Bañuls J, Pizarro A, Malvehy J, Puig S. **Dermoscopy of inverted follicular keratosis: study of 12 cases.** *Clin Exp Dermatol.* 41(5):468-73. IF: 1.315

Reviews / I.F.: 26.687

1. Harries M, Malvehy J, Lebbe C, Heron L, Amelio J, Szabo Z, Schadendorf D. **Treatment patterns of advanced malignant melanoma (stage III-IV) - A review of current standards in Europe.** *Eur J Cancer.* 60:179-89. IF: 6.163

2. Kittler H, Marghoob AA, Argenziano G, Carrera C, Curiel-Lewandrowski C, Hofmann-Wellenhof R, Malvehy J, Menzies S, Puig S, Rabinovitz H, Stolz W, Saida T, Soyer HP, Siegel E, Stoecker WV, Scope A, Tanaka M, Thomas L, Tschandl P, Zalaudek I, Halpern A. **Standardization of terminology in dermoscopy/dermatoscopy: Results of the third consensus conference of the International Society of Dermoscopy.** *J Am Acad Dermatol.* 74(6):1093-1106. IF: 5.621

3. Lacouture ME, Dreno B, Ascierto PA, Dummer R, Basset-Seguin N, Fife K, Ernst S, Licitra L, Neves RI, Peris K, Puig S, Sokolof J, Sekulic A, Hauschild A, Kunstfeld R. **Characterization and Management of Hedgehog Pathway Inhibitor-Related Adverse Events in Patients With Advanced Basal Cell Carcinoma.** *Oncologist.* 21(10):1218-1229. IF: 4.789

4. Carrera C, Marghoob AA. **Discriminating Nevi from Melanomas: Clues and Pitfalls.** *Dermatol Clin.* 34(4):395-409. IF: 1.875

5. Longo C, Ragazzi M, Rajadhyaksha M, Nehal K, Bennassar A, Pellacani G, Malvehy Guilera J. **In Vivo and Ex Vivo Confocal Microscopy for Dermatologic and Mohs Surgeons.** *Dermatol Clin.* 34(4):497-504. IF: 1.875

6. Marino ML, Carrera C, Marchetti MA, Marghoob AA. **Practice Gaps in Dermatology: Melanocytic Lesions and Melanoma.** *Dermatol Clin.* 34(3):353-62. IF: 1.875

7. Guilera JM, Barreiro Capurro A, Carrera Alvárez C, Puig Sardá S. **The Role of Reflectance Confocal Microscopy in Clinical Trials for Tumor Monitoring.** *Dermatol Clin.* 34(4):519-526. IF: 1.875

8. Giavedoni P, Puig S, Carrera C . **Noninvasive imaging for nonmelanoma skin cancer.** *Semin Cutan Med Surg.* 35(1):31-41. IF: 1.600

9. Del Busto-Wilhelm I, Malvehy J, Puig S. **Dermoscopic criteria of basal cell carcinoma.** *G Ital Dermatol Venereol.* 151(6):642-648. IF: 1.014

Letters / I.F.: 28.690

1. Tell-Marti G, Puig-Butille JA, Potrony M, Badenas C, Mila M, Malvehy J, Marti MJ, Ezquerra M, Fernandez-Santiago R, Puig S. **Is the MC1R Variant p. R160W Associated With Parkinson's? Reply.** *Ann Neurol.* 79(1):161-163. IF: 9.638

2. Tell-Marti G, Anton Puig-Butille J, Potrony M, Badenas C, Mila M, Malvehy J, Jose Marti M, Ezquerra M, Fernandez-Santiago R, Puig S. **Reply to Letter to Editor ANA-16-0021 'Lack of association between MC1R variants and Parkinson's disease in European descent' by Jiang Q and Liu G.** *Ann Neurol.* IF: 9.638

3. Puig S, Sampogna F, Tejera-Vaquerizo A. **Study on the Risk of Cutaneous Squamous Cell Carcinoma After Vismodegib Therapy for Basal Cell Carcinoma: Not a Case-Control Study.** *JAMA Dermatol.* 152(10):1172-1173. IF: 5.097

4. Shitara D, Tell-Marti G, Badenas C, Enokihara MM, Alos L, Larque AB, Michalany N, Puig-Butille JA, Carrera C, Malvehy J, Puig S, Bagatin E. **Discrepant mutational status between naevi and melanomas in naevus-associated melanomas: about mutation-specific immunohistochemistry: reply from the authors.** *Br J Dermatol.* 175(2):435. IF: 4.317

Editorials / I.F.: 4.317

1. Bahadoran P, Malvehy J. **Dermoscopy in Europe: coming of age.** *Br J Dermatol.* 175(6):1132-1133. IF: 4.317

Case reports / I.F.: 10.324

1. Brugues A, Gamboa M, Alos L, Carrera C, Malvehy J, Puig S. **The challenging diagnosis of eccrine poromas.** *J Am Acad Dermatol.* 74(6):e113-e115. IF: 5.621

2. Aya F, Fernández-Martínez A, Gaba L, Victoria I, Tosca M, Carrera C, Prat A, Arance A. **Pembrolizumab in a BRAF-mutant metastatic melanoma patient following a severe immune-related adverse event with ipilimumab.** *Immunotherapy.* 8(6):687-92. IF: 2.083

3. Collgros H, Vicente A, Díaz AM, Rodriguez-Carunchio L, Malvehy J, Puig S. **Agminated cellular blue naevi of the penis: Dermoscopic, confocal and**

histopathological correlation of two cases. *Clin Exp Dermatol.* 41(5):490-494. IF: 1.315

4. Oliveira A, Arzberger E, Massone C, Carrera C, Zalaudek I. **Verrucous melanoma simulating melanoacanthoma: Dermoscopic, reflectance confocal microscopic and high-definition optical coherence tomography presentation of a rare melanoma variant.** *Australas J Dermatol.* 57(1):72-3. IF: 1.305

Clinical guidelines / I.F.: 10.089

1. Garbe C, Peris K, Hauschild A, Saiag P, Middleton M, Bastholt L, Grob JJ, Malvehy J, Newton-Bishop J, Stratigos AJ, Pehamberger H, Eggermont AM; European Dermatology Forum (EDF).; European Association of Dermato-Oncology (EADO).; European Organisation for Research and Treatment of Cancer (EORTC). **Diagnosis and treatment of melanoma. European consensus-based interdisciplinary guideline - Update 2016.** *Eur J Cancer.* 63():201-217. IF: 6.163

2. Berrocal A, Espinosa E, Marín S, Malvehy J, Moreno D, Lozano MD, Martin-Algarra S, Lopez JA, Conill C, Rodriguez-Peralto JL. **Spanish Multidisciplinary Melanoma Group (GEM) guidelines for the management of patients with advanced melanoma.** *Eur J Dermatol.* 10.1684/ejd.2015.2594. IF: 2.069

3. Dirschka T, Gupta G, Micali G, Stockfleth E, Basset-Séguin N, Del Marmol V, Dummer R, Jemec GB, Malvehy J, Peris K, Puig S, Stratigos AJ, Zalaudek I, Pellacani G. **Real-world approach to actinic keratosis management: practical treatment algorithm for office-based dermatology.** *J Dermatol Treat.* 28(5):431-442. IF: 1.857

Consortium publications / I.F.: 6.915

1. Taylor NJ, Handorf EA, Mitra N, Avril MF, Azizi E, Bergman W, Bianchi-Scarrà G, Bishop DT, Bressac-de Paillerets B, Calista D, Cannon-Albright LA, Cuellar F, Cust AE, Demenais F, Elder DE, Friedman E, Gerdes AM, Ghiorzo P, Goldstein AM, Grazziotin TC, Hansson J, Hayward NK, Hocevar M, Höiom V, Holland EA, Ingvar C, Landi MT, Landman G, Larre-Borges A, Leachman SA, Mann GJ, Nagore E, Olsson H, Palmer J, Perić B, Pjanova D, Puig S, Schmid H, van der Stoep N, Tucker MA, Wadt KA, Whitaker L, Yang XR, Newton Bishop JA, Gruis NA, Kanetsky PA; GenoMEL Consortium. **Phenotypic and Histopathological Tumor Characteristics According to CDKN2A Mutation Status among Affected Members of Melanoma Families.** *J Invest Dermatol.* 136(5):1066-9. IF: 6.915

GRANTS FOR RESEARCH IN PROGRESS

Puig S. **IMmune MOdulating strategies for treatment of MErkel cell Carcinoma.**
Sponsored by: European Comission.
277775
Duration: 01/01/2012-31/12/2016

Puig S. **Utilización de las regiones homozigotas del genoma para la identificación de genes pronósticos en melanoma y el desarrollo de un panel molecular de pronóstico.**
Sponsored by: Instituto de Salud Carlos III (ISCIII). PI12/00840
Duration: 11/01/2013-30/06/2017

Puig S. **Diagnosis of skin cancer using optics.**
Sponsored by: European Comission.
621066
Duration: 01/12/2013-30/11/2016

Puig S. **Implementation of personalized medicine in cutaneous melanoma based on genomic susceptibility and tumor signatures: Identification of new targets for melanoma treatment.**
Sponsored by: Fundació La Marató de TV3.
20133130
Duration: 07/05/2014-06/05/2017

Puig S. **Vías de diseminación metastásica en distintos subtipos del melanoma malign: nuevos biomarcadores tumorales y dianas terapéuticas.**
Sponsored by: Fundación Científica Asociación Española Contra El Cancer.
GCB1515297850EN
Duration: 01/07/2015-30/06/2020

Malvehy J. **Identificación de factores genéticos en individuos con nevus melanocíticos y su influencia en la determinacón de la mutación BRAF (V600E) en plasma.**
Sponsored by: Instituto de Salud Carlos III (ISCIII). PI15/00956
Duration: 01/01/2016-31/12/2018.

Puig S. **Evaluación de las alteraciones inmunológicas subyacentes en el desarrollo, progresión y respuesta a las terapias inmunológicas en melanoma. Implicaión de la microbiota en la inducción de tolerancia y efectos secundarios de las terapias inmunológicas.**
Sponsored by: Instituto de Salud Carlos III.
PI15/00716
Duration: 01/01/2016-31/12/2018

5.6 Hematopoietic progenitor cell transplantation

LOCATION
CEK building

KEYWORDS
1. **Allogeneic transplantation**
2. **Immunotherapy**
3. **Veno-oclussive disease**
4. **Graft versus host disease**
5. **Infectious diseases**

Original publications from 2014 to 2016

YEAR	I.F.	TOTAL	Q1	Q2
2014	77.83	18	9	8
2015	43.26	10	3	6
2016	41.58	6	4	2

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Maribel Díaz-Ricart (HCB)
Gonzalo Gutiérrez (HCB)

STRATEGIC OBJECTIVES

We have started research lines in antitumor cell therapy (NK and CARTs), and cell immune modulation. Lastly, we plan to develop a line of research in the field of the pharmacokinetics, pharmacodynamics and pharmacogenomics of immune modulators, as well as in the development of in vitro predictive models of graft-versus-host disease.

MAIN LINES OF RESEARCH

Clinical research lines

1. Assessment of new hematopoietic precursor transplantation (HPT) indications.
2. Evaluation of new transplant modalities, specially:
   - Domiciliary autogenic HPT and allogenic HPT.
   - Haploidentical transplantation with unmanipulated bone marrow.
3. Studies addressing the prevention and treatment of the main complications of HPT.
   - Prevention and treatment of graft-versus-host disease with new agents and participation in different multicenter studies.

Basic and translational research lines

1. Study of the post-HPT complications originating from endothelial dysfunction. Our project aims to characterize such dysfunction and the early diagnosis of infections then to seek effective preventive in HPT.
2. Study of new techniques for the early diagnosis of infections in HPT
3. Development of CARTs using autologous T cells and also from NK cells expanded from umbilical cord blood

PUBLICATIONS

Originals / I.F.: 41.583

1. Jauregui-Amezaga A, Rovira M, Marin P, Salas A, Pino-Donnay S, Feu F, Elizalde J I, Fernandez-Aviles F, Martinez C, Gutierrez G, Rosinol L, Carreras E, Urbano A, Lozano M, Cid J, Suarez-Lledo M, Mensa J, Rimola J, Rodriguez S, Masamunt M C, Comas D, Ruiz I, Ramirez-Morros A, Gallego M, Ordas I, Panes J, Ricart E. **Improving safety of autologous haematopoietic stem cell transplantation in patients with Crohn's disease.** *Gut.* 65(9):1456-1462. IF: 14.921

2. Palomo M, Mir E, Rovira M, Escolar G, Carreras E, Diaz-Ricart M. **What is going on between defibrotide and endothelial cells? Snapshots reveal the hot spots of their romance.** *Blood.* 127(13):1719-1727. IF: 11.847

3. Cordeiro A, Navarro A, Gaya A, Diaz-Beya M, Gonzalez-Farre B, Castellano JJ, Fuster D, Martinez C, Martinez A, Monzo M. **PiwiRNA-651 as marker of treatment response and survival in classical Hodgkin lymphoma.** *Oncotarget.* 7(29):46002-46013. IF: 5.008

4. Martinez-Cibrian N, Magnano L, Gutierrez-Garcia G, Andrade X, Correa JG, Suarez-Lledo M, Martinez C, Rovira M, Carreras E, Rosinol L, de Larrea CF, Cibeira MT, Gaya A, Gallego C, Hernando A, Creus N, Blade J, Urbano-Ispizua A, Fernandez-Aviles F. **At-home autologous stem cell transplantation in multiple myeloma with and without G-CSF administration: a comparative study.** *Bone Marrow Transplant*. 51(4):593-595. IF: 3.636

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6. Font C, Fernandez-Aviles F, Calderon C, Garcia-Fernandez T, Arab N, Pineda E, Buxo E, Ayora P, Carreno M, Pereira V, Viladot M, Moreno C, Gallego C, Hernando A, Creus N, Barrera C, Alcaraz R, Sanchez J, Prat A, Tuca A. **Home management of acute medical complications in cancer patients: a prospective pilot study.** *Support Care Cancer.* 24(5):2129-2137. IF: 2.535

Reviews / I.F.: 3.029

1. Sarukhan A, Martínez-Florensa M, Escoda-Ferran C, Carrasco E, Carreras E, Lozano F. **Pattern Recognition by CD6: A Scavenger-Like Lymphocyte Receptor.** *Curr Drug Targets.* 17(6):640-650. IF: 3.029

Case reports / I.F.: 9.607

1. Jauregui-Amezaga A, Rovira M, Lopez A, Marin P, Rodriguez S, Rimola J, Ordas I, Alfaro I, Panes J, Ricart E. **Long lasting remission induced by syngeneic hematopoietic stem cell transplantation in a patient with refractory Crohn's disease.** *J Crohns Colitis.* 10(9):1122-1124. IF: 6.585

2. Rodríguez-Lobato LG, Martinez-Cibrian N, Fernández-Avilés F, Gaya A, Pineda-Losada E, Esteve J. **Romiplostim for the treatment of glioblastoma-related paraneoplastic autoimmune thrombocytopenia refractory to conventional therapy.** *Ann Hematol.* 95(4):665-6. IF: 3.022

GRANTS FOR RESEARCH IN PROGRESS

Urbano A. **Actividad antitumoral de células NK mediada por intercambio de lípidos. Potencial uso terapéutico postrasplante hemopoyético en mieloma múltiple.**
Sponsored by: Instituto de Salud Carlos III (ISCIII). PI14/00798.
Duration: 01/01/2015 - 31/12/2017

5.7 Hematological oncology

LOCATION
HCB building

KEYWORDS
1. **Lymphoid neoplasms**
2. **Genomic Profile**
3. **Multiple myeloma**
4. **Myeloproliferative neoplasms**
5. **Acute myeloid leukemia**

Original publications from 2014 to 2016

YEAR	I.F.	TOTAL	Q1	Q2
2014	319.39	40	30	4
2015	355.42	40	26	10
2016	434.00	47	39	7

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STRATEGIC OBJECTIVES

The main strategic objectives of our team are clinical, applied and basic research in haematological oncology. The team is structured into three study groups of three major disease categories

MAIN LINES OF RESEARCH

1. **Lymphoid neoplasms**
- Mechanisms of progression
- Genomic profile of diffuse large cell lymphoma
- New prognostic models in T cell lymphomas
- Mechanisms of progression of chronic lymphoid leukemia (CLL)
- Cellular microenvironment in CLL.
- Cellular proliferation in CLL.
- Project for the Chronic Lymphocytic Leukemia (CLL) Genome.

2. **Multiple myeloma and other monoclonal gammopathies**
- Molecular cytogenetics, gene-expression profile of cytokines related to angiogenesis
- Immune reconstitution after autologous transplant or chemotherapy

- Impact of microRNA
- Cardiac involvement in AL
- Phase I, II and III clinical trials

3. Myeloid neoplasms
- Chronic myeloid leukemia (CML): European Registry of CML
- Philadelphia-negative myeloproliferative neoplasms: Mechanisms of thrombosis; mutational status and prognosis of myelofibrosis.
- Acute myeloid leukemia (AML): Biological prognostic factors; expression of non-coding RNA; treatment protocols for the CETLAM group; impact of molecular markers in transplantation.
- Myelodysplastic syndromes (MDS): cytogenetic and molecular abnormalities and prognosis.
- Phase I, II and III clinical trials for CML, myelofibrosis, AML, ALL and MDS.

RESEARCH GROUP
MYELOMA AND OTHER MONOCLONAL GAMMAPATHIES

GROUP LEADER
Joan Bladé (HCB)

Multiple Myeloma and systemic AL amyloidosis. Minimal residual disease and mechanisms of disease progression studies, extramedullary involvement in myeloma, cardiac involvement in amyloidosis, and multicentric clinical trials with novel drugs.

RESEARCH GROUP
MYELOID NEOPLASMAS



GROUP LEADER
Francisco Cervantes (HCB)

Natural history and prognosis of chronic myeloid leukemia, myeloproliferative neoplasms, acute myeloid leukemia and myelodysplastic syndromes; prognostic importance of newer molecular markers in these diseases; clinical trials with new drugs.

RESEARCH GROUP
LYMPHOID NEOPLASMS

GROUP LEADER
Armando López Guillermo (HCB)

Lymphomas, chronic lymphocytic leukemia and the other lymphoproliferative disorders: Study of progression mechanisms of the disease, genome of CLL and lymphoma, minimum residual disease and biological prognostic models.

50/50 PROGRAM
MECHANISMS OF PROGRESSION IN MONOCLONAL GAMMOPATHIES



GROUP LEADER
Carlos Fernández de Larrea (HCB-IDIBAPS)

Our group is focused on a comprehensive study on patients with multiple myeloma in complete remission, in order to investigate whether or not immune restoration



GROUP Carlos Fernández de Larrea



GROUP Francisco Cervantes

is associated with the emergence of oligoclonal bands and to a continued response, and to search common features that these patients can share with those with long-lasting stable monoclonal gammopaties of undetermined significance (MGUS). For this purpose, a wide spectrum of biological studies in peripheral blood and bone marrow are performed in patients after transplantation or induction chemotherapy only, in comparison with patients with active myeloma.

PUBLICATIONS

Originals / I.F.: 433.997

1. Lonial S, Weiss BM, Usmani SZ, Singhal S, Chari A, Bahlis NJ, Belch A, Krishnan A, Vescio RA, Mateos MV, Mazumder A, Orlowski RZ, Sutherland HJ, Blade J, Scott EC, Oriol A, Berdeja J, Gharibo M, Stevens DA, LeBlanc R, Sebag M, Callander N, Jakubowiak A, White D, de la Rubia J, Richardson PG, Lisby S, Feng HB, Uhlar CM, Khan I, Ahmadi T, Voorhees PM. **Daratumumab monotherapy in patients with treatment-refractory multiple myeloma (SIRIUS): an open-label, randomised, phase 2 trial.** *Lancet.* 387(10027):1551-1560. IF: 44.002

2. Dimopoulos MA, Moreau P, Palumbo A, Joshua D, Pour L, Hajek R, Facon T, Ludwig H, Oriol A, Goldschmidt H, Rosinol L, Straub J, Suvorov A, Araujo C, Rimashevskaya E, Pika T, Gaidano G, Weisel K, Goranova-Marinova V, Schwarer A, Minuk L, Masszi T, Karamanesht I, Offidani M, Hungria V, Spencer A, Orlowski RZ, Gillenwater HH, Mohamed N, Feng S, Chng W-J. **Carfilzomib and dexamethasone versus bortezomib and dexamethasone for patients with relapsed or refractory multiple myeloma (ENDEAVOR): A randomised, phase 3, open-label, multicentre study.** *Lancet Oncol.* 17(1):27-38. IF: 26.509

3. Mateos MV, Hernandez MT, Giraldo P, de la Rubia J, de Arriba F, Corral LL, Rosinol L, Paiva B, Palomera L, Bargay J, Oriol A, Prosper F, Lopez J, Arguinano JM, Quintana N, Garcia JL, Blade J, Lahuerta JJ, Miguel JS. **Lenalidomide plus dexamethasone versus observation in patients with high-risk smouldering multiple myeloma (QuiRedex): long-term follow-up a randomised, controlled, phase 3 trial.** *Lancet Oncol.* 17(8):1127-1136. IF: 26.509

4. Queirós AC, Beekman R, Vilarrasa-Blasi R, Duran-Ferrer M, Clot G, Merkel A, Raineri E, Russiñol N, Castellano G, Bea S, Navarro A, Kulis M, Verdaguer-Dot N, Jares P, Enjuanes A, Calasanz MJ, Bergmann A, Vater I, Salaverria I, van de Werken HJG, Wilson WH, Datta A, Flicek P, Royo R, Martens J, Gine E, Lopez-Guillermo A, Stunnenberg HG, Klapper W, Pott C, Heath S, Gut IG, Siebert R, Campo E, Martin-Subero JI. **Decoding the DNA Methylome of Mantle Cell Lymphoma in the Light of the Entire B Cell Lineage.** *Cancer Cell.* 30(5):806-821. IF: 23.214

5. Geyer H, Scherber R, Kosiorek H, Dueck AC, Kiladjian JJ, Xiao Z, Slot S, Zweegman S, Sackmann F, Fuentes AK, Hernández-Maraver D, Döhner K, Harrison CN, Radia D, Muxi P, Besses C, Cervantes F, Johansson PL, Andreasson B, Rambaldi A, Barbui T, Bonatz K, Reiter A, Boyer F, Etienne G, Ianotto JC, Ranta D, Roy L, Cahn JY, Maldonado N, Barosi G, Ferrari ML, Gale RP, Birgegard G, Xu Z, Zhang Y, Sun X, Xu J, Zhang P, te Boekhorst PA, Commandeur S, Schouten H, Pahl HL, Griesshammer M, Stegelmann F, Lehmann T, Senyak Z, Vannucchi AM, Passamonti F, Samuelsson J, Mesa RA. **Symptomatic Profiles of Patients With Polycythemia Vera: Implications of Inadequately Controlled Disease.** *J Clin Oncol.* 34(2):151-9. IF: 20.982

6. Jauregui-Amezaga A, Rovira M, Marin P, Salas A, Pino-Donnay S, Feu F, Elizalde J I, Fernandez-Aviles F, Martinez C, Gutierrez G, Rosinol L, Carreras E, Urbano A, Lozano M, Cid J, Suarez-Lledo M, Mensa J, Rimola J, Rodriguez S, Masamunt M C, Comas D, Ruiz I, Ramirez-Morros A, Gallego M, Ordas I, Panes J, Ricart E. **Improving safety of autologous haematopoietic stem cell transplantation in patients with Crohn's disease.** *Gut.* 65(9):1456-1462. IF: 14.921

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9. Harrison CN, Vannucchi AM, Kiladjian JJ, Al-Ali HK, Gisslinger H, Knoops L, Cervantes F, Jones MM, Sun K, McQuitty M, Stalbovskaya V, Gopalakrishna P, Barbui T. **Long-term findings from COMFORT-II a phase 3 study of ruxolitinib vs best available therapy for myelofibrosis.** *Leukemia.* 30(8):1701-7. IF: 12.104

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Hehlmann R, Simonsson B. **Prognosis of long-term survival considering disease-specific death in patients with chronic myeloid leukemia patients.** *Leukemia.* 30(1):48-56. IF: 12.104

11. Nadeu F, Delgado J, Royo C, Baumann T, Stankovic T, Pinyol M, Jares P, Navarro A, Martín-García D, Beà S, Salaverria I, Oldreive C, Aymerich M, Suárez-Cisneros H, Rozman M, Villamor N, Colomer D, López-Guillermo A, González M, Alcoceba M, Terol MJ, Colado E, Puente XS, López-Otín C, Enjuanes A, Campo E. **Clinical impact of clonal and subclonal TP53, SF3B1, BIRC3, NOTCH1 and ATM mutations in chronic lymphocytic leukemia.** *Blood.* (17):2122-30. IF: 11.847

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13. Paiva B, Mateos MV, Sanchez-Abarca LI2, Puig N, Vidriales MB, López-Corral L, Corchete LA, Hernandez MT, Bargay J, de Arriba F5, De La Rubia J, Teruel AI, Giraldo P, Rosiñol L, Prosper F, Oriol A, Hernández J, Esteves G, Lahuerta JJ1, Bladé J, Perez-Simon JA, San Miguel JF. **Immune status of high-risk smoldering multiple myeloma patients and its therapeutic modulation under LenDex: a longitudinal analysis.** *Blood.* 127(9):1151-62. IF: 11.847

14. Paiva B, Cedena MT, Puig N, Arana P, Vidriales MB, Cordon L, Flores-Montero J,Gutierrez NC, Martín-Ramos ML, Martinez-Lopez J, Ocio EM, Hernandez MT, Teruel AI, Rosiñol L, Echeveste MA, Martinez R, Gironella M, Oriol A, Cabrera C, Martin J, Bargay J, Encinas C, Gonzalez Y, Van Dongen JJ, Orfao A, Bladé J, Mateos MV, Lahuerta JJ, San Miguel JF. **Minimal residual disease monitoring and immune profiling in multiple myeloma in elderly patients.** *Blood.* 127(25):3165-74. IF: 11.847

15. Paiva B, Corchete LA, Vidriales MB, Puig N, Maiso P, Rodriguez I, Alignani D, Burgos L, Sanchez ML, Barcena P, Echeveste MA, Hernandez MT, García-Sanz R, Ocio EM, Oriol A, Gironella M, Palomera L, De Arriba F, Gonzalez Y, Johnson SK, Epstein J, Barlogie B, Lahuerta JJ, Blade J, Orfao A, Mateos MV, San Miguel JF; Spanish Myeloma Group / Program for the Study of Malignant Blood Diseases Therapeutics (GEM / PETHEMA) Cooperative Study Groups. **Phenotypic and genomic analysis of multiple myeloma minimal residual disease tumor cells: a new model to understand chemoresistance.** *Blood.* 127(15):1896-906. IF: 11.847

16. Mateos MV, Martinez-Lopez J, Hernandez MT, Ocio EM, Rosinol L, Martinez R, Teruel AI, Gutierrez NC, Ramos Mlm, Oriol A, Bargay J, Bengoechea E, Gonzalez Y, de Oteyza JP, Gironella M, Encinas C, Martin J, Cabrera C, Paiva B, Cedena MT, Puig N, Blade J, Lahuerta JJ, San-Miguel J. **Sequential vs alternating administration of VMP and Rd in elderly patients with newly diagnosed MM.** *Blood.* 127(4):420-425. IF: 11.847

17. Rovira J, Karube K, Valera A, Colomer D, Enjuanes A, Colomo L, Martinez-Trillos A, Gine E, Dlouhy I, Magnano L, Delgado J, Martinez A, Villamor N, Campo E, Lopez-Guillermo A. **MYD88 L265P Mutations, But No Other Variants, Identify a Subpopulation of DLBCL Patients of Activated B-cell Origin, Extranodal Involvement, and Poor Outcome.** *Clin Cancer Res.* 22(11):2755-2764. IF: 8.738

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19. Bazarbachi A, Labopin M, Kharfan-Dabaja MA, Schwerdtfeger R, Volin L, Bourhis JH, Socié G, Daguindau E, Gedde-Dahl T, Rambaldi A, Karas M, Schlimok G, Blaise D, Chevallier P, Malard F, Schmid C, Esteve J, Nagler A, Mohty M. **Allogeneic hematopoietic cell transplantation in acute myeloid leukemia with normal karyotype and isolated Nucleophosmin-1 (NPM1) mutation: outcome strongly correlates with disease status.** *Haematologica.* 101(1):e34-7. IF: 6.671

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GRANTS FOR RESEARCH IN PROGRESS

Cervantes F. Red **Temática de Investigación Cooperativa en Cáncer.**
Sponsored by: Instituto de Salud Carlos III (ISCIII). RD12/0036/0010.
Duration: 01/01/2013-30/12/2017

Cervantes. **Grup per l'estudi de les neoplàsies mieloides.**
Sponsored by: Agència de Gestió d'Ajuts Universitaris i de Recerca (AGAUR). 2014_SGR_1072.
Duration: 01/01/2014-30/04/2017

Esteve J. **Ultrasecuenciación de genes candidatos en pacientes con leucemia mieloide aguda mediante "next generation sequencing": pronóstico, biomarcadores, análisis de long non-coding RNA.**
Sponsored by: Instituto de Salud Carlos III (ISCIII). PI13/00999.
Duration: 01/01/2014-31/12/2017

Blade. **Unitat d'Amiloïdosis i Mieloma (UDAM)**
Sponsored by: Agència de Gestió d'Ajuts Universitaris i de Recerca (AGAUR). 2014 SGR 552
Duration: 01/01/2014-30/04/2017

Blade J. **Red Temática de Investigación Cooperativa en Cáncer.**
Sponsored by: Instituto de Salud Carlos III (ISCIII). RD12/0036/0046.
Duration: 01/01/2013-30/06/2017

Cibeira MT. **Afección cardíaca en la amiloidosis primaria: estudio de biomarcadores séricos, resonancia magnética Tesla y caracterización genómica de las cadenas ligeras amiloidogénicas.**
Sponsored by: Instituto de Salud Carlos III (ISCIII). PI12/01290.
Duration: 01/01/2013-30/06/2017

Delgado J. **Estudio piloto de la infusión de linfocitos T autólogos modificados genéticamente para expresar anti-CD19 en pacientes con leucemia o linfoma CD19+ resistente o refractario a tratamiento.**
Sponsored by: Instituto de Salud Carlos III (ISCIII) ICI 14/00122.
Duration: 01/01/2015-31/12/2017

Lopez A. **Estudio de las alteraciones de la vía inflamatoria de "toll-like receptors" (TLR-MYD88-NFkB). Significado biológico y clínica en el linfoma difuso de células grandes B.**
Sponsored by Instituto de Salud Carlos III (ISCIII). PI12/01536.
Duration: 01/01/2013-30/06/2016

Lopez A. **Red Temática de Investigación Cooperativa en Cáncer.**
Sponsored by: Instituto de Salud Carlos III (ISCIII). RD12/0036/0023.
Duration: 01/01/2013-01/12/2017

López A. **Microenvironment Interactions in the Pathogenesis of Lymphoid Neoplasms and Chronic Inflammatory Disorders. Identification of Biomarkers and Design of New Therapeutic Strategies.**
Sponsored by: Instituto de Salud Carlos III (ISCIII). PIE13/00033.
Duration: 01/01/2014-31/12/2017

Rosiñol L. **Afección medular versus extramedular en el mieloma múltiple: estudio del perfil genético y de la expresión de citocinas/quemocinas relacionadas con angiogénesis y microambiente medular.**
Sponsored by: Instituto de Salud Carlos III (ISCIII). PI12/01093.
Duration: 01/01/2013-30/06/2017

5.8

Physiopathology and molecular bases in hematology

LOCATION
CEK building

KEYWORDS
1. **Lymphoid malignancies**
2. **Targeted therapies**
3. **Clinico-biological studies**
4. **Rare anemias**

Original publications from 2014 to 2016

YEAR	I.F.	TOTAL	Q1	Q2
2014	131.55	21	17	1
2015	185.97	23	17	2
2016	102.06	15	13	2

TEAM INVOLVED IN
RTICC
AGAUR_SGR14: 346, 1220
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STRATEGIC OBJECTIVES

- Identification of potential points of intervention and development of new therapeutic strategies and combination approaches in lymphoid malignancies.



TEAM Dolors Colomer

- To improve the diagnosis of lymphoid malignancies using histopathological, immunophenotypic and molecular biology technologies.
- To increase the efficacy of diagnosis, treatment and follow up of patients with rare anemias.

MAIN LINES OF RESEARCH

1. New targeted therapies against recurrent alterations in lymphoid malignancies.
2. Characterization of molecular pathways activated by microenvironment in lymphoid malignancies.
3. New targeted therapies against oncogenes, microenvironment and epigenetic regulators in lymphoid malignancies.
4. Cytological, immunophenotypic and molecular study of malignant hematological diseases. Development of new technologies for the diagnosis and analysis of minimal residual disease (MRD).
5. Promotion of cooperative strategies in the molecular diagnostic setting of leukemias and lymphomas. Design and implementation of internal and external quality control programs.
6. Cutaneous T and B cell lymphomas. Clinical, histopathological and immunophenotypic study. Prognostic factors and epidemiology.
7. Molecular study of the congenital defects of erythrocytes and erythropoiesis, rare anemias, and physiopathological mechanisms intervening in the production and senescence of red blood cells (RBC) as a cause of anemia or erythrocytosis. Analysis of rare anemias with unknown aetiology by New Generation Sequencing (NGS).
8. Genetic and epidemiological study of hemoglobinopathies and thalassemias. Development of technologies for the newborn screening of sickle-cell disease (SCD).
9. Investigation of (RBC) membrane structure and function.

PUBLICATIONS

Originals / I.F.: 102.060

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14. Montesinos P, Cabrero M, Valcarcel D, Rovira M, Garcia-Marco JA, Loscertales J, Moreno C, Duarte R, Terol MJ, Villamor N, Abrisqueta P, Caballero D, Sanz J, Delgado J. **The addition of ofatumumab to the conditioning regimen does not improve the outcome of patients with high-risk CLL undergoing reduced intensity allogeneic haematopoietic cell transplantation: a pilot trial from the GETH and GELLC (CLL4 trial).** *Bone Marrow Transplant.* 51(10):1404-1407. IF: 3.636

15. Koralkova P, Mojzikova R, van Oirschot B, Macartney C, Timr P, Vives Corrons JL, Striezencova Laluhova Z, Lejhancova K, Divoky V, van Wijk R. **Molecular characterization of six new cases of red blood cell hexokinase deficiency yields four novel mutations in HK1.** *Blood Cells Mol Dis.* 59:71-6. IF: 2.731

Reviews / I.F.: 2.740

1. Delgado J, Villamor N, López-Guillermo A, Campo E. **Genetic evolution in chronic lymphocytic leukaemia.** *Best Pract Res Clin Haematol.* 29(1):67-78. IF: 2.740

Letters / I.F.: 11.847

1. Martinez-Trillos A, Navarro A, Aymerich M, Delgado J, Lopez-Guillermo A, Campo E, Villamor N. **Clinical impact of MYD88 mutations in chronic lymphocytic leukemia.** *Blood.* 127(12):1611-1613. IF: 11.847

Case reports / I.F.: 7.079

1. Rivas-Delgado A, Matutes E, Rozman M. **Recurrent pure red cell aplasia in a hepatorenal transplant recipient with chronic parvovirus B19 infection.** *Br J Haematol.* 172(4):495. IF: 5.812

2. Rodríguez-Lobato LG, Gómez-Galván JB, Martínez Hernández D, Rozman M. **Leptomeningeal gliomatosis.** *Med Clin.* 147(6):279. IF: 1.267

Clinical guidelines / I.F.: 9.108

1. Klionsky DJ, Abdelmohsen K, Abe A, et al. **Guidelines for the use and interpretation of assays for monitoring autophagy (3rd edition).** *Autophagy.* 12(1):1-222. IF: 9.108

GRANTS FOR RESEARCH IN PROGRESS

Colomer D. **Dianes Terapèutiques i noves tècniques diagnostiques en neoplàsies limfoides.**
Sponsored by: Agència de Gestiód'AjutsUniversitaris i de Recerca (AGAUR).
2014_SGR_346.
Duration: 01/01/2014-30/04/2017

Colomer D. **Red Temática de Investigación Cooperativa en Cáncer.**
Sponsored by: Instituto de Salud Carlos III (ISCIII). RD12/0036/0004.
Duration: 01/01/2013-30/07/2017

Colomer D. **Identificación de nuevas estrategias terapéuticas a partir de las alteraciones genéticas derivadas de la secuenciación masiva de la leucemia linfática crónica.**
Sponsored by: Ministerio de Economía y Competitividad. SAF2012-31242.
Duration: 01/01/2013-31/12/2016

Colomer D. **Estrategias terapéuticas dirigidas contra la heterogeneidad molecular y la resistencia en leucemia linfática crónica y linfoma de células del manto.**
Sponsored by: Ministerio de Economía y Competitividad. SAF2015-67633-R
Duration: 01/01/2016-31/12/2018

Colomer D. **Identificació de noves estratègies terapéutiques en la leucèmia limfàtica crònica (LLC).**
Sponsored by: Universitat de Barcelona.
2015-DI-075
Duration: 01/04/2016-31/03/2019

Pérez-Galán P. **Targeting proliferation and tumor-microenvironment interactions**

using bifunctional compounds against cannabinoid and chemokine receptors.
Sponsored by: Fundació la Marató de TV3. 308/C/2013.
Duration: 27/05/2014-26/05/2017.

Perez-Galán P. **Crosstalk between lymphocytes and their microenvironment in chronic inflammatory diseases and lymphoproliferative disorders as a target for new therapeutic intervention.**
Sponsored by: Ministerio de Economía y Competitividad. SAF2014-57708-R.
Duration: 01/01/2015-31/12/2017

Pérez-Galán P. **Microenvironment Interactions in the Pathogenesis of Lymphoid Neoplasms and Chronic Inflammatory Disorders.Identification of Biomarkers and Design of New Therapeutic Strategies.**
Sponsored by: Instituto de Salud Carlos III (ISCIII). PIE13/00033.
Duration: 01/01/2014-31/12/2016

Roué G. **El eje de señalización MYC-EZH2 como nueva diana terapéutica en los linfomas B de origen centrogerminal.**
Sponsored by: Instituto de Salud Carlos III (ISCIII). PI15/00102
Duration: 01/01/2016-31/12/2018

Vives-Corrons J.L. **Caracterización genética e identificación de nuevos genes diana en el diagnóstico de las anemias congénitas no filiadas.**
Sponsored by: Instituto de Salud Carlos III (ISCIII). PI14/00772
Duration: 01/01/2015- 31/12/2017

Vives-Corrons J.L. **Combined Molecular Microscopy for Therapy and Personalized Medication in Rare Anaemias Treatments.**
Sponsored by: European Commission. 602121-1.
Duration: 01/10/2013-30/09/2018

Vives-Corrons J.L. **New e-Health services for the european reference network on rare anaemias.**
Sponsored by: European Commission. 295882.
Duration: 01/09/2013-31/08/2016

DOCTORAL THESES

Pérez Galán P. **Innovative therapies targeting tumor-microenvironment crosstalk in indolent B-cell non-Hodgkin lymphomas.**
PhD student: Alba Matas Céspedes

5.9

Hemotherapy - hemostasis

LOCATION
HCB building

KEYWORDS
1. **Platelets**
2. **Coagulation**
3. **Thrombosis**
4. **Transfusion**
5. **Aphaeresis**

Original publications from 2014 to 2016

YEAR	I.F.	TOTAL	Q1	Q2
2014	76.21	19	7	6
2015	75.80	22	9	9
2016	116.91	25	14	5

TEAM INVOLVED IN
Red HERACLES
AGAUR_SGR14
Proyectos Integrados de Excelencia 2015
BET



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STRATEGIC OBJECTIVES

1. Mechanisms regulating blood cell function and their interactions with the vascular wall.
2. Characterization of bleeding and thrombotic phenotypes and genotypes. Evaluation of pharmacological/ transfusional therapies.
3. Analysis of the efficacy and safety of new strategies for sparing blood component transfusions.



TEAM Ginés Ecobar

4. Laboratory and animal models of hemostasis.

MAIN LINES OF RESEARCH

1. Study of the mechanisms involved in the development of bleeding and thrombotic disorders. Proteomic study for determining the changes in the vascular system and in the different blood cells in thrombotic and bleeding disorders.
2. Characterization of endothelial dysfunction in association with stem cell transplantation and development of early complications. Search for biomarkers of graft-versus-host disease (GVHD).
3. Evaluation of the physiological and pathological implications of circulating and/or platelet associated procoagulant microparticles in atherothrombosis.
4. New strategies for the treatment of combined humoral immunity in therapeutic apheresis.
5. Evaluation of the participation of serotoninergic and purinergic mechanisms in platelet function. Study of the antithrombotic potential of pharmacological inhibitors.
6. Role of the phenotype/genotype of fibrinolysis and its repercussions upon global or specific functional tests in hemorrhagic and thrombotic pathology.
7. Study of the GAS6 vitamin K-dependent protein in hemostasis and the vascular wall, using knockout mice for this gene.
8. Evaluation of antidotes to reverse the anticoagulant action of the new oral antithrombotic agents.

PUBLICATIONS

Originals / I.F.: 116.909

1. Jauregui-Amezaga A, Rovira M, Marin P, Salas A, Pino-Donnay S, Feu F, Elizalde J I, Fernandez-Aviles F, Martinez C, Gutierrez G, Rosinol L, Carreras E, Urbano A, Lozano M, Cid J, Suarez-Lledo M, Mensa J, Rimola J, Rodriguez S, Masamunt M C, Comas D, Ruiz I, Ramirez-Morros A, Gallego M, Ordas I, Panes J, Ricart E. **Improving safety of autologous haematopoietic stem cell transplantation in patients with Crohn's disease.** *Gut.* 65(9):1456-1462. IF: 14.921

2. Palomo M, Mir E, Rovira M, Escolar G, Carreras E, Diaz-Ricart M. **What is going on between defibrotide and endothelial cells? Snapshots reveal the hot spots of their romance.** *Blood.* 127(13):1719-1727. IF: 11.847

3. Cerini F, Vilaseca M, Lafoz E, García-Irigoyen O, García-Calderó H, Tripathi DM, Avila M, Reverter JC, Bosch J, Gracia-Sancho J, García-Pagán JC. **Enoxaparin reduces hepatic vascular resistance and portal pressure in cirrhotic rats.** *J Hepatol.* 64(4):834-42. IF: 10.59

4. Alvarez-Larran A; Pereira A; Guglielmelli P; Hernandez-Boluda JC; Arellano-Rodrigo E; Ferrer-Marín F; Samah A; Griesshammer M; Kerguelen A; Andreasson B; Burgaleta C; Schwarz J; Garcia-Gutierrez V; Ayala R; Barba P; Gómez-Casares MT; Paoli C; Drexler B; Zweegman S; McMullin MF; Samuelsson J; Harrison C; Cervantes F; Vannucchi AM; Besses C. **Antiplatelet therapy versus observation in low-risk essential thrombocythemia with a CALR mutation.** *Haematologica.* 101(8):926-931. IF: 6.671

5. Caballero-Baños M, Benitez-Ribas D, Tabera J, Varea S, Vilana R, Bianchi L, Ayuso JR, Pages M, Carrera G, Cuatrecasas M, Martin-Richard M, Cid J, Lozano M, Castells A, Garcia-Albeniz X, Maurel J, Vilella R. **Phase II randomised trial of autologous tumour lysate dendritic cell plus best supportive care compared with best supportive care in pre-treated advanced colorectal cancer patients.** *Eur J Cancer.* 64():167-174. IF: 6.163

6. Blasi A, Hessheimer AJ, Beltran J, Pereira A, Fernandez J, Balust J, Martinez-Palli G, Fuster J, Navasa M, Garcia-Valdecasas JC, Taura P, Fondevila C. **Liver Transplant From Unexpected Donation After Circulatory Determination of Death Donors: A Challenge in Perioperative Management.** *Am J Transplant.* 16(6):1901-1908. IF: 5.669

7. Lopez-Vilchez I, Diaz-Ricart M, Navarro V, Torramade S, Zamorano-Leon J, Lopez-Farre A, Galan AM, Gasto C, Escolar G. **Endothelial damage in major depression patients is modulated by SSRI treatment as demonstrated by circulating biomarkers and an in vitro cell model.** *Transl Psychiatr.* 6(9): e886. IF: 5.538

8. Sarroca S, Molina-Martínez P, Areste C, Etzrodt M, Garcia de Frutos P, Gasa R, Antonell A, Molinuevo JL, Sanchez-Valle R, Saura CA, Llado A, Sanfeliu C. **Preservation of cell-survival mechanisms by the presenilin-1 K239N mutation may cause its milder clinical phenotype.** *Neurobiol Aging.* 46():169-179. IF: 5.153

9. Batlle M, Campos B, Farrero M, Cardona M, González B, Castel MA, Ortiz J, Roig E, Pulgarín MJ, Ramírez J, Bedini JL, Sabate M, Garcia de Frutos P, Perez-Villa F. **Use of serum levels of high sensitivity troponin T, galectin-3 and C-terminal propeptide of type I procollagen at long term follow-up in heart failure patients with reduced ejection fraction: Comparison with soluble AXL and BNP.** *Int J Cardiol.* 225():113-119. IF: 4.638

10. Martínez-Zamora MA, Tassies D, Creus M, Reverter JC, Puerto B, Monteagudo J, Carmona F, Balasch J. **Higher levels of procoagulant microparticles in women with recurrent miscarriage are not associated with antiphospholipid antibodies.** *Hum Reprod.* 31(1):46-52. IF: 4.621

11. Nomdedeu M, Calvo X, Pereira A, Carrió A, Solé F, Luño E, Cervera J, Vallespí T, Muñoz C, Gómez C, Arias A, Such E, Sanz G, Grau J, Insunza A, Calasanz MJ, Ardanaz MT, Hernández-Rivas JM, Azaceta G, Álvarez S, Sánchez J, Martín ML, Bargay J, Gómez V, Cervero CJ, Allegue MJ, Collado R, Campo E, Esteve J, Nomdedeu B, Costa D; Spanish Group of Myelodysplastic Syndromes. **Prognostic impact of chromosomal translocations**

in myelodysplastic syndromes and chronic myelomonocytic leukemia patients. A study by the spanish group of myelodysplastic syndromes. *Gene Chromosomes Cancer.* 55(4):322-7. IF: 3.960

12. Pinazo MJ, Posada Ede J, Izquierdo L, Tassies D, Marques AF, de Lazzari E, Aldasoro E, Muñoz J, Abras A, Tebar S, Gallego M, de Almeida IC, Reverter JC, Gascon J. **Altered Hypercoagulability Factors in Patients with Chronic Chagas Disease: Potential Biomarkers of Therapeutic Response.** *Plos Neglect Trop Dis.* 10(1):e0004269. IF: 3.948

13. Lopez-Vilchez I, Diaz-Ricart M, Galan A M, Roque M, Caballo C, Molina P, White J G, Escolar G. **Internalization of Tissue Factor-Rich Microvesicles by Platelets Occurs Independently of GPIIb-IIIa, and Involves CD36 Receptor, Serotonin Transporter and Cytoskeletal Assembly.** *J Cell Biochem.* 117(2):448-457. IF: 3.446

14. Calvo-Cano A, Gomez-Junyent J, Lozano M, Castro P, Cid J, Nicolas JM, Quinto L, Martin M, Munoz J, Gascon, J. **The role of red blood cell exchange for severe imported malaria in the artesunate era: a retrospective cohort study in a referral centre.** *Malar J.* 15(1):216. IF: 3.079

15. Cid J, Escolar G, Galan A, Lopez-Vilchez I, Molina P, Diaz-Ricart M, Lozano M, Dumont L J. **In vitro evaluation of the hemostatic effectiveness of cryopreserved platelets.** *Transfusion.* 56(3):580-586. IF: 3.042

16. Dzik WS, Ziman A, Cohen C, Pai M, Lozano M, Kaufman RM, Delaney M, Selleng K, Murphy MF, Hervig T, Yazer M; Biomedical Excellence for Safer Transfusion Collaborative. **Survival after ultramassive transfusion: a review of 1360 cases.** *Transfusion.* 56(3):558-63. IF: 3.042

17. Cid J, Villegas V, Carbasse G, Alba C, Perea D, Lozano M. **Transfusion of irradiated red blood cell units with a potassium adsorption filter: a randomized controlled trial.** *Transfusion.* 56(5):1046-1051. IF: 3.042

18. Martínez-Zamora MA, Tassies D, Reverter JC, Creus M, Casals G, Cívico S, Carmona F, Balasch J. **Increased circulating cell-derived microparticle count is associated with recurrent implantation failure after IVF and embryo transfer.** *Reprod Biomed Online.* 33(2):168-73. IF: 2.796

19. Blasi A, Cid J, Beltran J, Taura P, Balust J, Lozano M. **Coagulation profile after plasma exchange using albumin as a replacement solution measured by thromboelastometry.** *Vox Sang.* 110(2):159-165. IF: 2.656

20. Montes R, Guruceaga E, González-Porras JR, Reverter JC, Marco P, Pina E, Páramo JA, Hermida J, Lecumberri R; Grupo de Trabajo de Patología Trombótica de la Sociedad Española de Trombosis y Hemostasia (SETH). **Identification of new markers of recurrence in patients with unprovoked deep vein thrombosis by gene expression profiling: the retro study.** *Eur J Haematol.* 97(2):128-36. IF: 2.544

21. Gómez M, Guillem V, Pereira A, Ferrer-Marín F, Álvarez-Larrán A, Kerguelen A, Estrada N, Martínez-López J, Angona A, Amat P, Navarro B, Besses C, Hernández-Boluda JC. **Risk factors for non-melanoma skin cancer in patients with essential thrombocythemia and polycythemia vera.** *Eur J Haematol.* 96(3):285-90. IF: 2.544

22. Mejía JC, Ortiz T, Tassies D, Solanich X, Vidaller A, Cervera R, Reverter JC, Espinosa G. **Procoagulant microparticles are increased in patients with Behçet's disease but do not define a specific subset of clinical manifestations.** *Clin Rheumatol.* 35(3):695-9. IF: 2.042

23. Sanchez-Escuredo A, Oppenheimer F, Sole M, Revuelta I, Cid J, Lozano M, Blasco M, Esforzado N, Ricart MJ, F C, Torregrosa JV, Paredes D, Musquera M, Ercilla G, Campistol JM, Diekmann F. **Borderline rejection in ABO-Incompatible Kidney Transplantation.** *Clin Transplant.* 30(8):872-879. IF: 1.844

24. De Sousa-Amorim E, Revuelta I, Diekmann F, Cofan F, Lozano M, Cid J, Palou E, Sole M, Campistol JM, Oppenheimer F. **Bortezomib for refractory acute antibody-mediated rejection in kidney transplant recipients: A single-centre case series.** *Nephrology.* 21(8):700-4. IF: 1.796

25. Zamorano-Leon JJ, Hernandez-Fisac I, Guerrero S, Tamarit-Rodriguez J, Santos-Sancho JM, Sopeña B, Escolar G, Lopez-Vilchez I, Duarte J, Barrientos A, López-Farré AJ. **New strategy of tacrolimus administration in animal model based on tacrolimus-loaded microspheres.** *Transpl Immunol.* 36:9-13. IF: 1.317

Reviews / I.F.: 49.187

1. Delaney M, Wendel S, Bercovitz RS, Cid J, Cohn C, Dunbar NM, Apelseth TO, Popovsky M, Stanworth SJ, Tinmouth A, Van De Watering L, Waters JH, Yazer M, Ziman A; Biomedical Excellence for Safer Transfusion (BEST) Collaborative. **Transfusion reactions: prevention, diagnosis, and treatment.** *Lancet.* 388(10061):2825-2836. IF: 44.002

2. Petrik J, Lozano M, Seed CR, Faddy HM, Keller AJ, Prado Scuracchio PS, Wendel S, Andonov A, Fearon M, Delage G, Zhang J, Shih JW, Gallian P, Djoudi R, Tiberghien P, Izopet J, Dreier J, Vollmer T, Knabbe C, Aggarwal R, Goel A, Ciccaglione AR, Matsubayashi K, Satake M, Tadokoro K, Jeong SH, Zaaijer HL, Zhiburt E, Chay J, Teo D, Chua SS, Piron M, Sauleda S, Echevarría JM, Dalton H, Stramer SL. **Hepatitis E.** *Vox Sang.* 110(1):93-130. IF: 2.656

3. Garraud O, Cognasse F, Tissot JD, Chavarin P, Laperche S, Morel P, Lefrère

JJ, Pozzetto B, Lozano M, Blumberg N, Osselaer JC. **Improving platelet transfusion safety: biomedical and technical considerations.** *Blood Transf.* 14(2):109-22. IF: 1.514

4. Lozano M, Cid J. **Platelet concentrates: Balancing between efficacy and safety?** *Presse Med.* 45(7-8):e289-e298. IF: 1.015

Letters / I.F.: 42.128

1. Blasi A, Hernandez-Gea V, Reverter JC, Garcia-Pagán JC. **Reply.** *Hepatology.* 64(1):321-2. IF: 11.711

2. Marí M, Tutusaus A, García de Frutos P, Morales A. **Genetic and clinical data reinforce the role of GAS6 and TAM receptors in liver fibrosis.** *J Hepatol.* 64(4):983-4. IF: 10.59

3. Escolar G. **James G White (28 August 1929 - 8 July 2016).** *J Thromb Haemost.* 14(10):2085-2086. IF: 5.565

4. García de Frutos P, Martínez-González J . **New genetic association for the kinin system: the L-arginine connection. Insight: association of L-arginine levels and two loci in genes of the kallikrein-kinin system.** *Thromb Haemost.* 116(6):1011. IF: 5.255

5. Blasi A, Pereira A, Beltran J. **Regarding: Advances in hepatectomy technique: Toward zero transfusions in the modern era of liver surgery.** *Surgery.* 160(1):247-8. IF: 3.309

6. Lozano M, Cid J. **Donor card.** *Transfusion.* 56(12):2916-2917. IF: 3.042

7. Goldman M, Magnussen K, Gorlin J, Lozano M, Speedy J, Keller A, Pink J, Leung JN, Chu CC, Lee CK, Faed J, Chay J, Tan HH, Teo D, Djoudi R, Woimant G, Fillet AM, Castrén J, Miflin G, Vandewalle GC, Compernolle V, Cardenas JM, Infanti L, Holbro A, Buser A, van den Hurk K, Yahalom VJ, Gendelman V, Shinar E, Eder AF, Steele WR, O'Neill EM, Kamel H, Vassallo R, Delage G, Lebrun A, Robillard P, Germain M, Gandhi M, West KA, Klein HG. **International Forum regarding practices related to donor haemoglobin and iron.** *Vox Sang.* 111(4):449-455. IF: 2.656

Editorials / I.F.: 3.042

1. Cid J. **Autologous cryopreserved platelets to overcome immune platelet refractoriness.** *Transfusion.* 56(10):2403-2404.. IF: 3.042

Case reports / I.F.: 1.207

1. De Sousa-Amorim E, Revuelta I, Diekmann F, Cid J, Lozano M, Oppenheimer F. **Failed ABO incompatible high titers kidney transplant using bortezomib. Case report.** *Nefrologia.* 36(6):701-704. IF: 1.207

GRANTS FOR RESEARCH IN PROGRESS

Escolar G. **REdes Temáticas de Investigación Cooperativa en Salud). Cardiovascular Research Network (RIC). Research programme on Genetic and environmental determinants of vascular dysfunction. HEMATO-IDIBAPS group (RD12-0042-0016).**
Sponsored by: Instituto de Salud Carlos III (ISCIII). RD12/0042/0016.
Duration: 01/01/2013-31/12/2016

Escolar G. **El sistema serotoninergico en el desarrollo de un fenotipo protrombótico plaquetario: terapias antitrombóticas basadas en la modulación farmacológica de la recaptación serotonina y sus receptores.**
Sponsored by: Instituto de Salud Carlos III (ISCIII). PI13/00517.
Duration: 01/01/2014-31/12/2016.

García Pagán JC (IP Hemostasis Group: Escolar G). **Targeting endothelial dysfunction in highly prevalent diseases: characterization and validation of prognostic biomarkers and identification of potential therapeutic strategies. Proyectos Integrados de Excelencia 2015. PIE15/00027.**
Sponsored by: MINECO- Instituto de Salud Carlos III (ISCIII)
Duration: 01/01/2016-31/12/2018

Maribel Diaz-Ricart. **Effects of apixaban beyond anticoagulation: potential protective role on endothelial dysfunction.**
Sponsored by: Bristol Myers Squibb (International convocatory ERISTA-ISR)
Duration: 01/01/2016-31/12/2018

IPs: García de Frutos, Pablo; Morales, Albert. **Regulación terapéutica de la transición EMT/MET y la quimioresistencia en la enfermedad hepática crónica (SAF2015-66515-R).**
Sponsored by: Ministerio de Economía y Competitividad
Duration: 01/01/2016-31/12/2018

IPs: García de Frutos, Pablo; Hidalgo Alonso, Andrés; Ortíz, José Tomás (coordinador). **Role of resident macrophages and fibroblasts on heart remodeling and healing after myocardial infarction: the contribution of the GAS6-TAM system.**
Sponsored by: Fundació La Marató de TV3. 201530 30 31 32
Duration: 01/01/2016-31/12/2018

5.10 Molecular and translational oncology

LOCATION
CELLEX building

KEYWORDS
1. **Inflammation and Neuropeptides**
2. **Tumor Microenvironment**
3. **Cell Dormancy**
4. **Chemotherapy Resistance**
5. **Tumor Heterogeneity**
6. **Epigenetic Plasticity**

Original publications from 2014 to 2016

YEAR	I.F.	TOTAL	Q1	Q2
2014	39.79	9	6	3
2015	34.39	6	6	-
2016	69.47	14	1	-

TEAM INVOLVED IN
AGAUR_SGR14

AWARDS
Scholar-in-Training Award
Institution: AACR-Pezcoller Foundation
Awardee/s: Patricia Fernandez Nogueira

Premis Pioner 2016
Institution: Centres de Recerca de Catalunya (CERCA)
Awardee/s: Patricia Fernandez Nogueira



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STRATEGIC OBJECTIVES

The overall objective of our team is to understand how the microenvironment, in particular the nervous system, interacts with and influences tumour cells metabolism, proliferation or survival and how these mechanisms contribute to breast cancer progression and therapy resistance. We want to identify new biomarkers and therapeutic targets that could be transfer to the clinical practice.

MAIN LINES OF RESEARCH

1. **Stress and microenvironment influence in breast cancer.**

1.1 Study the role of neuropeptides and neurotransmitters in the control of breast cancer progression.

1.2 Evaluate the potential of different components of the microenvironment such as fibroblasts or bone marrow mesenchymal stem cells on the generation of breast cancer heterogeneity.



TEAM Pere Gascón

1.3 Analyse the role of several stress factors, such as cathecolamines, glucocorticoids, hormones and neural related system factors in the transition of carcinoma ductal in situ to invasive.

2. Microenvironment and mechanisms of tumour dormancy and metastasis.

2.1 Determine the role of the TAC1 gene in the metastatic process in breast cancer

2.2 Study the role of the microenvironment on disseminated tumour cells dormancy, survival and progression to metastasis

2.3 Metastasis pathogenesis

3. Tumor chemoresistance mechanisms:

3.1 Characterization of the mechanisms of epigenetic adaptation and cellular plasticity during the adquisition of chemoresistance

3.2 Study the mechanisms of tumour progression in breast cancer HER2+ induced by the acquisition of resistance to Trastuzumab and Lapatinib. Role of fibroblasts on anti-HEr2 therapies resistance

PUBLICATIONS

Originals / I.F.: 69,470

1. Aapro M, Ludwig H, Bokemeyer C, Gascón P, Boccadoro M, Denhaerynck K, Krendyukov A, Gorray M, MacDonald K, Abraham I. **Predictive modeling of the outcomes of chemotherapy-induced (febrile) neutropenia prophylaxis with biosimilar filgrastim (MONITOR-GCSF study).** *Ann Oncol.* 27(11):2039-2045. IF: 9.269

2. Clement PM, Gauler T, Machiels JP, Haddad RI, Fayette J, Licitra LF, Tahara M, Cohen EE, Cupissol D, Grau JJ, Guigay J, Caponigro F, de Castro G Jr, de Souza Viana L, Keilholz U, Del Campo JM, Cong XJ, Ehrnrooth E, Vermorken JB; LUX-H&N 1 investigators. **Afatinib versus methotrexate in older patients with second-line recurrent and/or metastatic head and neck squamous cell carcinoma: subgroup analysis of the LUX-Head & Neck 1 trial.** *Ann Oncol.* 27(8):1585-93. IF: 9.269

3. Erazo T, Lorente M, Lopez-Plana A, Munoz-Guardiola P, Fernandez-Nogueira P, Garcia-Martinez JA, Bragado P, Fuster G, Salazar M, Espadaler J, Hernandez-Losa J, Bayascas JR, Cortal M, Vidal L, Gascon P, Gomez-Ferreria M, Alfon J, Velasco G, Domenech C, Lizcano JM. **The New Antitumor Drug ABTL0812 Inhibits the Akt/mTORC1 Axis by Upregulating Tribbles-3 Pseudokinase.** *Clin Cancer Res.* 22(10):2508-2519. IF: 8.738

4. Bertino G, Sersa G, De Terlizzi F, Occhini A, Plaschke CC, Groselj A, Langdon C, Grau JJ, McCaul JA, Heuveling D, Cemazar M, Strojan P, de Bree R, Leemans CR, Wessel I, Gehl J, Benazzo M. **European Research on Electrochemotherapy in Head and Neck Cancer (EURECA) project: Results of the treatment of skin cancer.** *Eur J Cancer.* 63:41-52. IF: 6.163

5. Priego N, Arechederra M, Sequera C, Bragado P, Vázquez-Carballo A, Gutiérrez-Uzquiza Á, Martín-Granado V, Ventura JJ, Kazanietz MG, Guerrero C, Porras A. **C3G knock-down enhances migration and invasion by increasing Rap1-mediated p38α activation, while it impairs tumor growth through p38α-independent mechanisms.** Oncotarget. 7(29):45060-45078. IF: 5.008

6. Fernandez-Nogueira P, Bragado P, Almendro V, Ametller E, Rios J, Choudhury S, Mancino M, Gascon P. **Differential expression of neurogenes among breast cancer subtypes identifies high risk patients.** *Oncotarget.* 7(5):5313-5326. IF: 5.008

7. Lugo R, Gabasa M, Andriani F, Puig M, Facchinetti F, Ramírez J, Gómez-Caro A, Pastorino U, Fuster G, Almendros I, Gascon P, Davalos A, Reguart N, Roz L, Alcaraz J. **Heterotypic paracrine signaling drives fibroblast senescence and tumor progression of large cell carcinoma of the lung.** *Oncotarget.* 7(50):82324-82337. IF: 5.008

8. Blackwell K, Donskih R, Michael Jones C, Nixon A, Vidal MJ, Nakov R, Singh P, Schaffar G, Gascon P, Harbeck N. **A comparison of proposed biosimilar LA-EP2006 and reference pegfilgrastim for the prevention of neutropenia in patients with early-stage breast cancer receiving myelosuppressive adjuvant or neoadjuvant chemotherapy: Pegfilgrastim randomized oncology (supportive care) trial to evaluate comparative treatment (PROTECT-2), a phase III, randomized, double-blind trial.** *Oncologist.* 21(7):789-794. IF: 4.789

9. Mesía R, Vázquez S, Grau JJ, García-Sáenz JA, Lozano A, García C, Carles J, Irigoyen A, Mañós M, García-Paredes B, del Barco E, Taberna M, Escobar Y, Cruz JJ; Spanish Head and Neck Cancer Cooperative Group (TTCC). **A Phase 2 Open Label, Single-Arm Trial to Evaluate the Combination of Cetuximab Plus Taxotere, Cisplatin, and 5-Flurouracil as an Induction Regimen in Patients With Unresectable Squamous Cell Carcinoma of the Head and Neck.** *Int J Radiat Oncol Biol Phys.* 94(2):289-96. IF: 4.495

10. Vilaseca I, Blanch JL, Berenguer J, Grau JJ, Verger E, Muxí Á, Bernal-Sprekelsen M. **Transoral laser microsurgery for locally advanced (T3-T4a) supraglottic squamous cell carcinoma: Sixteen years of experience.** *Head Neck.* 38(7):1050-7. IF: 2.760

11. Molassiotis A, Lee PH, Burke TA, Dicato M, Gascon P, Roila F, Aapro M. **Anticipatory Nausea Risk Factors and Its Impact on Chemotherapy-Induced Nausea and Vomiting: Results from the Pan European Emesis Registry Study.** *J Pain Symptom Manage.* 51(6):987-993. IF: 2.649

12. Gascon P, Aapro M, Ludwig H, Bokemeyer C, Boccadoro M, Turner M, Denhaerynck K, MacDonald K, Abraham I. **Treatment patterns and outcomes in the**

prophylaxis of chemotherapy-induced (febrile) neutropenia with biosimilar filgrastim (the MONITOR-GCSF study). *Support Care Cancer.* 24(2):911-925. IF: 2.535

13. Grau JJ, Mesía R, de la Iglesia-Vicente M, Williams ES, Taberna M, Caballero M, Larque AB, de la Oliva J, Cordón-Cardo C, Domingo-Domenech J. **Enrichment of Cells with Cancer Stem Cell-Like Markers in Relapses of Chemoresistant Patients with Locally Advanced Head and Neck Squamous Cell Carcinoma.** *Oncology.* 90(5):267-72. IF: 2.152

14. Muñoz C, Caballero M, Hakim S, Verger E, Grau JJ. **Influence of allelic Variations of hypoxia-related and DNA repair genes on patient outcome and toxicity in head and neck cancer treated with radiotherapy plus cetuximab.** *Eur Arch Otorhinolaryngol.* 273(8):2193-9. IF: 1.627

GRANTS FOR RESEARCH IN PROGRESS

Gascon P. **Role of neuropeptides and neurotransmitters in the regulation of tumorigenesis, disseminated tumour cells biology and metastasis in breast cancer.**
Sponsored by: Instituto de Salud Carlos III (ISCIII). PI15/00661
Duration: 01/01/2016-31/12/2018

Gascón P. **Descubrimiento y desarollo biomarcadores innovadores para medicina personalizada y terapias para el tratamiento eficaz del cáncer de pulmón.**
Sponsored by: Ministerio de Economía y Competitividad. RTC-2014-1532-1
Duration: 01/02/2014-31/12/2017.

Bragado P. **Role of the neuroendocrine system in the regulation of disseminated tumour cell dormancy.**
Sponsored by: Asociación Española contra el cáncer (AECC). AECC_CAT_14_001
Duration: 30/01/2015-01/03/2017

Gascon P. **Red Temática de Investigación Cooperativa en Cáncer.**
Sponsored by: Instituto de Salud Carlos III (ISCIII). RD12/0036/0055
Duration: 01/01/2013-31/12/2016

Gascon P. **Nuevas aproximaciones terapéuticas basadas en derivados de ácidos grasos esenciales dirigidos a enfermedades oncológicas y neurológicas no cubiertas.**
Sponsored by: Ministerio de Economía y Competitividad. IPT-2012-0614-010000
Duration: 01/01/2013-30/06/2016

DOCTORAL THESES

Gascón P, Almendro V. **Fibroblast role in the acquisition and maintenance of breast cancer resistance to anti-HER2 therapies. Identification of novel compensatory tyrosine kinase receptors.**
PhD student: Patricia Fernández Nogueira

5.11

Cell proliferation and signaling

LOCATION
UB School of Medicine

KEYWORDS
1. **Cell cycle**
2. **Signalling**
3. **Oncogenesis**

Original publications from 2014 to 2016

YEAR	I.F.	TOTAL	Q1	Q2
2014	12.79	2	1	1
2015	18.70	3	3	-
2016	16.18	2	2	-

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STRATEGIC OBJECTIVES

The aim of the group is to study the mechanisms involved in cell cycle regulation and in the cellular responses to different types of stresses. We also aim to analyse the alterations of these mechanisms in different types of cancers as for instance colorectal cancer and leukemias. The knowledge of these mechanisms will allow improving cancer therapy.

MAIN LINES OF RESEARCH

Involvement of p27 (Kip1) in cancer progression: p27 (Kip1), a classical inhibitor of cyclin dependent kinases, is also a transcriptional regulator. We are analysing the mechanisms by which p27 regulates transcription and which are the transcriptional programs regulated by this protein. p27 is decreased in many different types of human tumours and this reduction is associated with a worse outcome. Thus, the identification of the transcriptional programs regulated by p27 helps to understand how p27 participates in the progression of malignancy.



TEAM Oriol Bachs

Protein kinases in cancer: Our research focuses on identifying the molecular mechanism by which the CaMK family regulate cell cycle control and stress response. We are actually focused in dissecting the role of the CaMKK2 in cancer development and metabolic stress. Preliminary results have indicated that, CaMKK2 has a role in glucosae uptake and nutrient homeostasis. The identification of Ckk2 substrates through the analysis of phospho-peptides indicates that there is a crosstalk between Ckk2 and TOR pathway.

PUBLICATIONS

Originals / I.F.: 16.183

1. Gekas C, D'Altri T, Aligué R, González J, Espinosa L, Bigas A. **β-Catenin is required for T-cell leukemia initiation and MYC transcription downstream of Notch1.** *Leukemia.* 30(10):2002-2010. IF: 12.104

2. Macias-Vidal J, Guerrero M, Estanyol J M, Aguado C, Knecht E, Coll M J, Bachs O. **Identification of lysosomal Npc1-Binding Proteins: Cathepsin D activity is regulated by NPC1.** *Proteomics.* 16(1):150-158. IF: 4.079

GRANTS FOR RESEARCH IN PROGRESS

Bachs O. **Red Temática de Investigación Cooperativa en Cáncer.**
Sponsored by: Instituto de Salud Carlos III (ISCIII). RD12/0036/0054.
Duration: 01/01/2013-31/12/2016

Bachs O. **Carlos III Networked Proteomics Plattform (ProteoRed).**
Sponsored by Instituto de Salud Carlos III (ISCIII). PT13/0001/0036.
Duration: 01/01/2013-31/12/2016

5.12 Cell compartments and signaling

LOCATION
CELLEX building
UB School of Medicine

KEYWORDS
1. **Cell biology**
2. **Endocytosis and exocytosis**
3. **Lipids transport and storage**
4. **Signal transduction**
5. **Cell cycle**

Original publications from 2014 to 2016

YEAR	I.F.	TOTAL	Q1	Q2
2014	47.09	5	5	-
2015	28.10	4	4	-
2016	41.75	7	7	-



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TECHNICIANS
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STRATEGIC OBJECTIVES

Our objective is to understand how the signals originated in the cell surface are transduced to trigger reactions that lead metabolic changes, proliferation, or survival and how these mechanisms are affected during disease. We are currently studying the endocytic compartment, lipid droplets and the endoplasmic reticulum, and the signalling pathways that regulate the cell cycle and apoptosis.

MAIN LINES OF RESEARCH

Endocytosis and intracellular trafficking of proteins and cholesterol:
Our objective is the study of the mechanisms that regulate the endocytosis and exocytosis of proteins and cholesterol and the signalling pathways associated with these processes. We focus on determining the role of annexin A6 in signalling, membrane trafficking and liver regeneration.

Lipid trafficking and disease:
Our objective is to characterize the intracellular transport and storage of lipids and the implication of these mechanisms in disease progression (lipotoxicity). We are Interested in lipid droplet biogenesis/ metabolism and the intracellular trafficking of cholesterol mediated by caveolins,

Signal transduction and cell cycle:
Our objective is to analyse the signal transduction mechanisms that regulate cell cycle progression and their alterations in oncogenesis. Specifically we are studying the function and regulation of the Ras and Rho family of GTPases and the signal transduction pathways regulating replication stress in normal and tumour cells.

RESEARCH GROUP
SIGNAL TRANSDUCTION AND CELL CYCLE



GROUP LEADER
Neus Agell (UB)

Our group is interested in studying signal transduction pathways activated upon proliferative signals or upon replication stress and their alteration in tumorigenesis. Specifically we analyse the regulation of GTPases proteins of the Rho and Ras family signalling from different plasma membrane and endocytic platforms, and implications of this signalling compartmentalization in various cellular processes such as proliferation, cell migration and mobility, and also in oncogenesis. We are also analysing signalling from arrested replication forks that lead to cell cycle arrest and senescence.



GROUP Neus Agell

RESEARCH GROUP
ENDOCYTOSIS AND INTRACELLULAR TRAFFICKING OF PROTEINS AND CHOLESTEROL



GROUP LEADER
Carles Enrich (UB)

Our group is interested on the molecular mechanisms of membrane traffic in mammalian cells. This basic research is important for understanding a number of diseases including cancer, diabetes, and heart disease or liver disorders. We study the regulation of a variety of aspects of protein and cholesterol trafficking and signal transduction in the endocytic compartment; a sorting and processing station for proteins internalized by cells as well as of the secretory pathway. We are focus in the study of Annexin A6. Annexins are an evolutionarily conserved multigene family with roles in vesicle trafficking, phospholipid metabolism, actin dynamics, apoptosis and cell transformation.



GROUP Carles Enrich

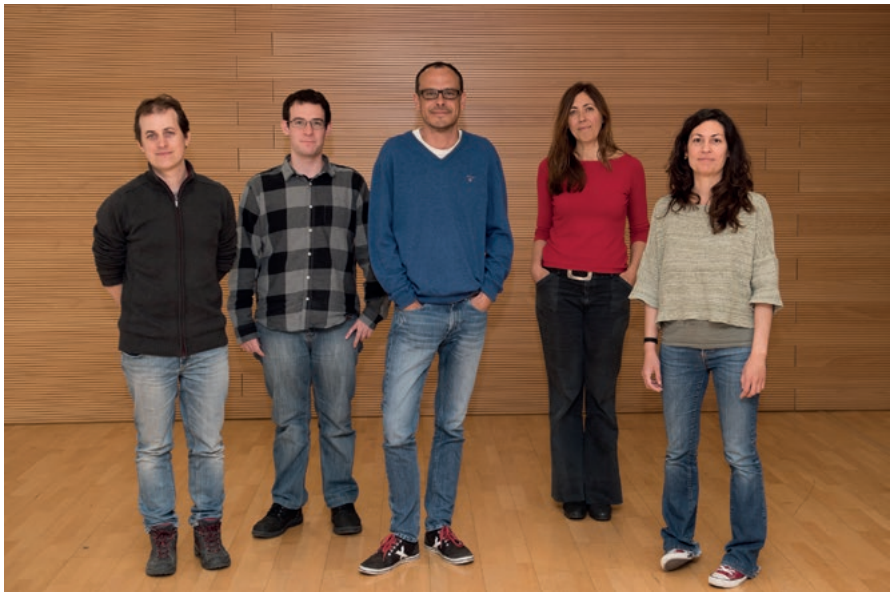
RESEARCH GROUP
TRAFFICKING AND DISEASE



GROUP LEADER
Albert Pol (ICREA-IDIBAPS)

Lipid droplets are organelles that collect, store and supply lipids in all eukaryotic cells. These organelles are also cellular hallmarks of prevalent diseases ranging from obesity to cancer. The cell biology of lipid droplets and its role in pathogenesis are still unclear. Our group is interested in the mechanisms of lipid droplet biogenesis and consumption.

Cholesterol accumulation promotes mitochondrial dysfunction and oxidative damage underlying in the pathogenesis of steatohepatitis, neurodegeneration and atherosclerosis. In this context, we are especially interested in how caveolin-1 regulates cholesterol trafficking and storage.



GROUP Albert Pol

PUBLICATIONS

Originals / I.F.: 41.753

1. Villarroya-Beltri C, Baixauli F, Mittelbrunn M, Fernández-Delgado I, Torralba D, Moreno-Gonzalo O, Baldanta S, Enrich C, Guerra S, Sánchez-Madrid F. **ISGylation controls exosome secretion by promoting lysosomal degradation of MVB proteins.** Nat Commun. 7:13588. IF: 11.329

2. Ercilla A, Llopis A, Feu S, Aranda S, Ernfors P, Freire R, Agell N. **New origin firing is inhibited by APC/CCdh1 activation in S-phase after severe replication stress.** Nucleic Acids Res. 44(10):4745-62. IF: 9.202

3. Sala-Vila A, Navarro-Lérida I, Bosch M, Calvo C, López JA, Calvo E, Ferguson C, Balsinde J, Enríquez JA, Giacomello M, Scorrano L, Parton RG, Vázquez J, Pol A, del Pozo MA. **Interplay between hepatic mitochondria-associated membranes, lipid metabolism and caveolin-1 in mice.** *Sci Rep.* 6:27351. IF: 5.228

4. Cornely R, Pollock AH, Rentero C, Norris SE, Alvarez-Guaita A, Grewal T, Mitchell T, Enrich C, Moss SE, Parton RG, Rossy J, Gaus K. **Annexin A6 regulates interleukin-2-mediated T-cell proliferation.** *Immunol Cell Biol.* 94(6):543-53. IF: 4.473

5. García-Melero A, Reverter M, Hoque M, Meneses-Salas E, Koese M, Conway J R, Johnsen C H, Alvarez-Guaita A, Morales-Paytuvi F, Elmaghrabi Y A, Pol A, Tebar F, Murray R Z, Timpson P, Enrich C, Grewal T, Rentero C. **Annexin A6 and late endosomal cholesterol modulates integrin recycling and cell migration.** *J Biol Chem.* 291(3):1320-1335. IF: 4.258

6. Bosch M, Fajardo A, Alcalá-Vida R, Fernández-Vidal A, Tebar F, Enrich C, Cardellach F, Pérez E, Pol A. **Hepatic Primary and Secondary Cholesterol Deposition and Damage in Niemann-Pick Disease.** *Am J Pathol.* 186(3):517-23. IF: 4.206

7. Tran J, Magenau A, Rodriguez M, Rentero C, Royo T, Enrich C, Thomas SR, Grewal T, Gaus K. **Activation of Endothelial Nitric Oxide (eNOS) Occurs through Different Membrane Domains in Endothelial Cells.** *PLoS One.* 11(3):e0151556. IF: 3.057

Reviews / I.F.: 2.710

1. Grewal T, Wason SJ, Enrich C, Rentero C. **Annexins - insights from knockout mice.** *Biol Chem.* 397(10):1031-53. IF: 2.710

GRANTS FOR RESEARCH IN PROGRESS

Agell N. **Nuevas estrategias para inhibir K-Ras oncogénico y análisis de los mecanismos inductores de senescencia después del estrés replicative.**
Sponsored by Ministerio de Economia y Competitividad. SAF2013-42742-R
Duration: 01/01/2013-31/12/2016

Enrich C. **Annexin A6 is necessary for liver regeneration.**
Sponsored by: Fundació la Marató de TV3. 120710
Duration: 11/01/2013-10/01/2016

Pol A. **Mammalian lipid droplets: a central role in the organismal antibacterial response?**
Sponsored by: Human Frontier Science Program (HFSP). RGP0020/2015
Duration: 01/06/2015-31/05/2018

Pol A. **Nuevas funciones de ACSL3, CAV1 y colesterol en el retículo endoplásmico: sensores homeostáticos que determinan la supervivencia o la muerte de las células.**
Sponsored by: Ministerio de Economia y Competitividad. BFU2015-66401-R
Duration: 01/01/2016-31/12/2018

DOCTORAL THESES

Agell N. **New mechanisms involved in the DNA replication stress response of non-transformed human cells.**
PhD student: Amaia Ercilla Eguiarte

Agell N, Jaumot M. **Fosforilación de KRAS y localización en microdominios de membrana. Relevancia en la oncogénesis.**
PhD student: Noelia Paco Zamora

Enrich C, Rentero C. **Anexina A6 regula el transporte intracelular del colesterol a través de Rab7 y TBC1D15.**
PhD student: Ana García Melero

Tebar F. **RAC1 y calmodulina regulan la dinámica de membrana durante la endocitosis independiente de clatrina.**
PhD student: David Soriano Castell

5.13 Translational genomics and targeted therapeutics in solid tumors

LOCATION
CEK building
CELLEX building

FOR FURTHER INFORMATION
http://www.idibaps.org/recerca/310/genomica-translacional-i-terapies-dirigides-en-tumors-solids

KEYWORDS
1. **Breast cancer**
2. **Intrinsic subtypes**
3. **Biomarkers**
4. **Genomics**
5. **Solid tumors**
6. **Immunotherapy**

Original publications from 2014 to 2016

YEAR	I.F.	TOTAL	Q1	Q2
2014	-	-	-	-
2015	99.21	14	14	-
2016	124.54	16	15	1



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STRATEGIC OBJECTIVES

Use genomic or molecular data to guide clinical trial design and biomarker development and study molecular mechanisms of drug sensitivity in order to identify optimal treatment regimens for patients with solid tumors.



TEAM Aleix Prat

MAIN LINES OF RESEARCH

Breast cancer

1. To evaluate the impact of the identification of the intrinsic molecular subtypes of breast cancer in the clinical setting.
2. To study the mechanisms of drug resistance and tumor progression in Luminal A and B breast cancer.
3. To identify genomic biomarkers predictive of response to anti-HER2 drugs in HER2-positive breast cancer.

Melanoma

1. To evaluate the impact of the immune system in the response to immune checkpoint inhibitors and BRAF inhibitors.
2. To study the mechanisms of drug resistance and tumor progression.
3. To identify genomic biomarkers predictive of response to anti-PD1 and anti-CTLA4 drugs.

Colorectal cancer

1. To evaluate intrinsic and acquired mechanisms of resistance to chemotherapy and targeted agents in metastatic colorectal cancer, in the three genotypes (KRAS/NRAS mutant, BRAF mutant and triple-WT).
2. To characterize epithelial and mesenchymal phenotypes in resectable and metastatic pancreatic carcinoma and it's correlation with drug resistance.

Urologic cancer

1. To study the molecular mechanisms of resistance to taxanes and novel hormone-therapies in preclinical models, circulating tumor cells and patients with castration resistant prostate cancer.
2. To investigate the role of the androgen receptor variants in epithelial to mesenchymal transition and progression and therapy resistance in castration resistant prostate cancer.
3. To investigate mechanisms of resistance to anti-angiogenic therapy and identification of new therapeutic targets in renal cell carcinoma.

Lung cancer

1. Validate novel molecular technologies to streamline the screening of targetable biomarkers in non-small cell lung cancer (NSCLC).
2. Identification of novel fusion gene variants in NSCLC: phenotypic characterization of targeted population and prospective clinical validation of their predictive value to targeted treatments.
3. Characterize the "stroma-tumor cell" crosstalk in NSCLC and the role of tumor fibroblasts in the tumorigenesis of both major NSCLC subtypes: adenocarcinoma (ADC) and squamous cell carcinoma (SQC). This project is being done in collaboration with Dr. Alcaraz at the UB, Hospital Clinic.

PUBLICATIONS

Originals / I.F.: 124.539

1. Martin-Broto J, Pousa AL, de Las Peñas R, García Del Muro X, Gutierrez A, Martinez-Trufero J, Cruz J, Alvarez R, Cubedo R, Redondo A, Maurel J, Carrasco JA, López-Martin JA, Sala Á, Meana JA, Ramos R, Martinez-Serra J, Lopez-Guerrero JA, Sevilla I, Balaña C, Vaz Á, De Juan A, Alemany R, Poveda A. **Randomized Phase II Study of Trabectedin and Doxorubicin Compared With Doxorubicin Alone as First-Line Treatment in Patients With Advanced Soft Tissue Sarcomas: A Spanish Group for Research on Sarcoma Study.** *J Clin Oncol.* 34(19):2294-2302. IF: 20.982

2. Aleix Prat, Maggie C. U. Cheang; Patricia Galván; Paolo Nuciforo; Laia Paré; Barbara Adamo; Montserrat Muñoz; Margarida Viladot; Michael F. Press, Robert Gagnon; Catherine Ellis, Stephen Johnston. **Prognostic Value of Intrinsic Subtypes in Hormone Receptor-Positive Metastatic Breast Cancer Treated With Letrozole With or Without Lapatinib.** *JAMA Oncol.* 2(10):1287-1294. IF: 16.559

3. Reig O, Marin-Aguilera M, Carrera G, Jimenez N, Pare L, Garcia-Recio S, Gaba L, Pereira MV, Fernandez P, Prat A, Mellado B. **TMPRSS2-ERG in Blood and Docetaxel Resistance in Metastatic Castration-resistant Prostate Cancer.** *Eur Urol.* 70(5):709-713. IF: 14.976

4. Dieci M V, Prat A, Tagliafico E, Paré L, Ficarra G, Bisagni G, Piacentini F, Generali D G, Conte P, Guarneri V. **Integrated evaluation of PAM50 subtypes and immune modulation of pCR in HER2-positive breast cancer patients treated with chemotherapy and HER2-targeted agents in the CherLOB trial.** *Ann Oncol.* 27(10):1867-1873. IF: 9.269

5. Prat A, Galván P, Jimenez B, Buckingham W, Jeiranian HA, Schaper C, Vidal M, Álvarez M, Díaz S, Ellis C, Nuciforo P, Ferree S, Ribelles N, Adamo B, Ramón Y Cajal S, Peg V, Alba E. **Prediction of Response to Neoadjuvant Chemotherapy Using Core Needle Biopsy Samples with the Prosigna Assay.** *Clin Cancer Res.* 22(3):560-566. IF: 8.738

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7. Caballero-Baños M, Benitez-Ribas D, Tabera J, Varea S, Vilana R, Bianchi L, Ayuso JR, Pages M, Carrera G, Cuatrecasas M, Martin-Richard M, Cid J, Lozano M, Castells A, Garcia-Albeniz X, Maurel J, Vilella R. **Phase II randomised trial of autologous tumour lysate dendritic cell plus best supportive care compared with best supportive care in pre-treated advanced colorectal cancer patients.** *Eur J Cancer.* 64():167-174. IF: 6.163

8. Gendoo DMA, Ratanasirigulchai N, Schroder MS, Pare L, Parker JS,

Prat A, Haibe-Kains B. **Genefu: an R/ Bioconductor package for computation of gene expression-based signatures in breast cancer.** *Bioinformatics.* 32(7):1097-1099. IF: 5.766

9. Castellano JJ, Navarro A, Viñolas N, Marrades RM, Moises J, Cordeiro A, Saco A, Muñoz C, Fuster D, Molins L, Ramirez J, Monzo M. **LincRNA-p21 impacts prognosis in resected non-small-cell lung cancer patients through angiogenesis regulation.** *J Thorac Oncol.* 11(12):2173-2182. IF: 5.040

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11. Morancho B, Zacarías-Fluck M, Esgueva A, Di Cosimo S, Prat A, Cortés J, Arribas J, Rubio IT. **Modeling anti-IL-6 therapy using breast cancer patient-derived xenografts.** *Oncotarget.* 7(42):67956-67965. IF: 5.008

12. Ruiz-Martinez M, Navarro A, Marrades RM, Viñolas N, Santasusagna S, Muñoz C, Ramírez J, Molins L, Monzo M. **YKT6 expression, exosome release, and survival in non-small cell lung cancer.** *Oncotarget.* 7(32):51515-51524. IF: 5.008

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14. Lainez N, Garcia-Donas J, Esteban E, Puente J, Sáez MI, Gallardo E, Pinto-Marín Á, Vazquez-Estevez S, León L, Garcia-Carbonero I, Suárez-Rodríguez C, Molins C, Climent-Duran MA, Lázaro-Quintela M, Gonzalez del Alba A, Méndez-Vidal MJ, Chirivella I, Afonso FJ, López-Brea M, Sala-González N, Domenech M, Basterretxea L, Santander-Lobera C, Gil-Arnaiz I, Fernandez O, Caballero-Díaz C, Mellado B, Marrupe D, García-Sánchez J, Sánchez-Escribano R, Fernández Parra E, Villa Guzmán JC, Martínez-Ortega E, Belén González M, Moran M, Suarez-Paniagua B, Lecumberri MJ, Castellano D. **Impact on clinical practice of the implementation of guidelines for the toxicity management of targeted therapies in kidney cancer. The protect-2 study.** *BMC Cancer.* 16():135. IF: 3.265

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16. Font C, Fernandez-Aviles F, Calderon C, Garcia-Fernandez T, Arab N, Pineda E, Buxo E, Ayora P, Carreno M, Pereira V, Viladot M, Moreno C, Gallego C, Hernando A, Creus N, Barrera C, Alcaraz R, Sanchez J, Prat A, Tuca A. **Home management of acute medical complications in cancer patients: a prospective pilot study.** *Support Care Cancer.* 24():2129-2137. IF: 2.535

Reviews / I.F.: 3.866

1. Mellado B, Jimenez N, Marin-Aguilera M, Reig O. **Diving Into Cabazitaxel's Mode of Action: More Than a Taxane for the Treatment of Castration-Resistant Prostate Cancer Patients.** *Clin Genitourin Cancer.* 14(4):265-270. IF: 2.599

2. Martin-Richard M, Gines A, Ayuso JR, Sabater L, Fabregat J, Méndez R, Fernández-Esparrach G, Molero X, Vaquero EC, Cuatrecasas M, Ferrández A, Maurel J. **Recommendations for the diagnosis staging and treatment of pre-malignant lesions and pancreatic adenocarcinoma.** *Med Clin.* 147():465.e1-465.e8. IF: 1.267

Case reports / I.F.: 2.083

1. Aya F, Fernandez-Martinez A, Gaba L, Victoria I, Tosca M, Carrera C, Prat A, Arance A. **Pembrolizumab in a BRAF-mutant metastatic melanoma patient following a severe immune-related adverse event with ipilimumab.** *Immunotherapy.* 8(6):687-692. IF: 2.083

Clinical guidelines / I.F.: 2.075

1. Manzano J, Salgado M, Maurel J, Martinez E, Macarulla T, Laquente B, Gonzalez E, Feliu J, Dotor E, Vera R. **SEOM Clinical Guideline for the treatment of pancreatic cancer (2016).** *Clin Transl Oncol.* 18(12):1172-1178. IF: 2.075

GRANTS FOR RESEARCH IN PROGRESS

Prat A. **Identificació d'alteracions moleculars accionables durant la progressió metastàsica del càncer de mama luminal.**
Sponsored by: Fundación SALUD 2000. (SEOM).
Duration: 01/04/2015-31/03/2017

Prat A. **Financial Support for the Breast Cancer Intergroup Correlative Science Studies.**
Sponsored by: BCRF. University of Michigan. INT_BCRF_2015_01.
Duration: 01/04/2014-30/09/2016

de la Iglesia N. **Perfil d'expressió gènica (gep) del glioblastoma, incloent lincrna (large intergènic non-coding rna), en una població homogènia: correlació amb l'immunofenotip, la radiologia, els resultats.**

Sponsored by: Fundació La Marató TV3. 20130331.
Duration: 07/05/2014-06/05/2017

Maurel J. **Estudio observacional para evaluar la estrategia de uso de las terapias dirigidas, en cáncer de colon metastásico.**
Sponsored by: Instituto de Salud Carlos III (ISCIII). P113/01728
Duration: 11/01/2014-31/12/2016

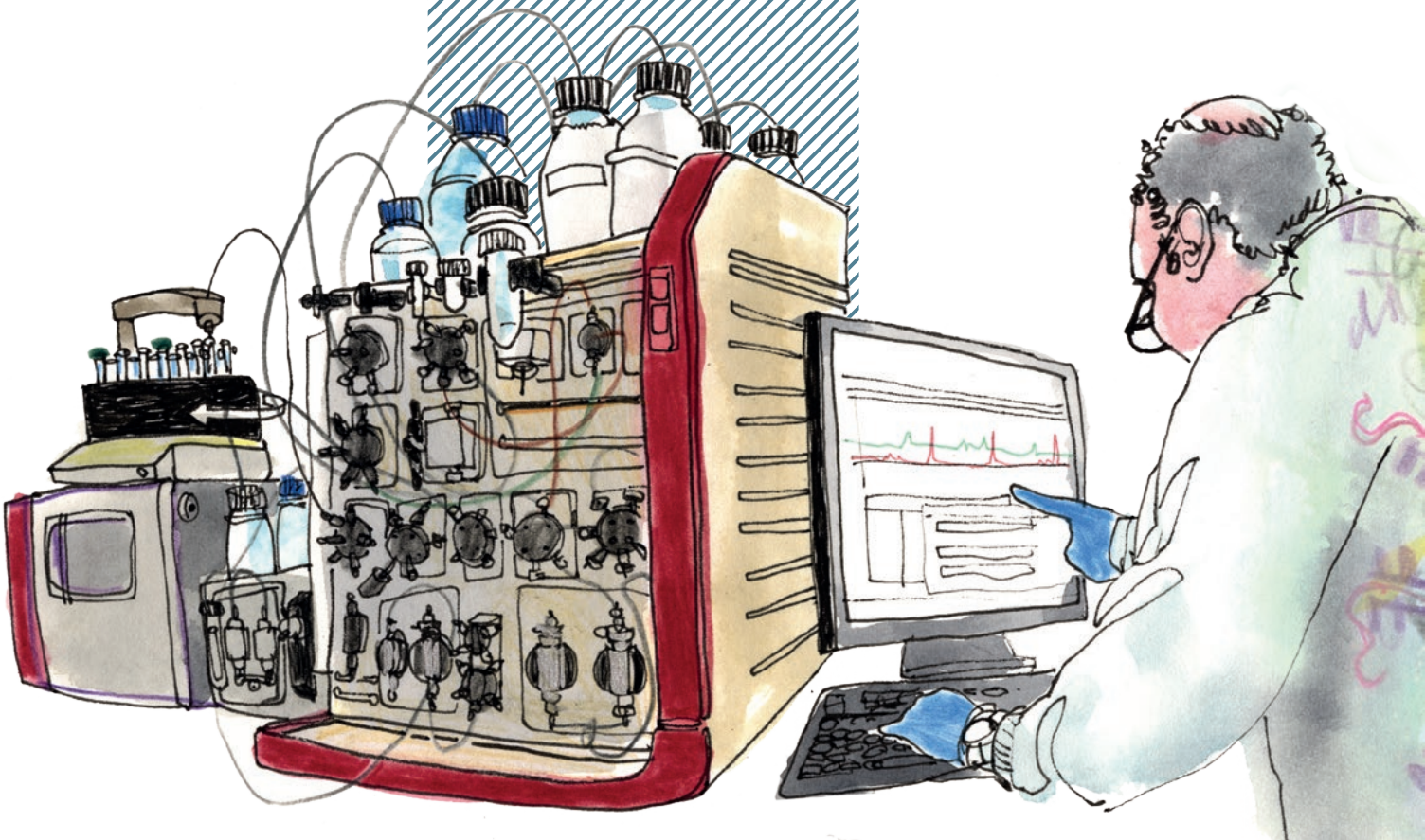
Prat A. **Construcción y evaluación de linfocitos T con un receptor quimérico antigénico (CART) anti-HER2 para el tratamiento de tumores.**
Sponsored by: Fundación Eugenio Rodríguez Pascual. FERP15-12
Duration: 22/12/2015-21/12/2017

Prat A. **Identificació d'alteracions moleculars accionables durant la progressió metastàsica del càncer de mama luminal.**
Sponsored by: Fundación SALUD 2000. (SEOM).
Duration: 01/04/2015-31/03/2017

Mellado B. **Caracterización molecular del cáncer de próstata en función de la expresión de TMPRSS2-ERG: implicaciones terapéuticas.**
Sponsored by: Instituto Carlos III. PI15/00676
Duration: 01/01/2016-31/12/2018

DOCTORAL THESIS

Prat A. **Caracterización Molecular de los Tumores Fibroepiteliales de la glándula mamaria.**
PhD student: Maria J. Vidal Losada



Transversal research groups

T.1 **Primary healthcare transversal research group** 342
Antoni Sisó

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Adelaida Zabalegui

T.3 **Clinical pharmacology** 347
Xavier Carné

T.1

Primary healthcare transversal research group

LOCATION

EAP Les Corts
EAP Comte Borrell
EAP Casanova

FOR FURTHER INFORMATION

www.idibaps.org/research/7001/primary-healthcare-transversal-research-group

KEYWORDS

1. **Primary Healthcare**
2. **Chronic diseases**
3. **Cardiovascular diseases & cardiovascular risk factors**
4. **Health technology assessment**
5. **Autoimmune & rheumatic diseases**

Original publications from 2014 to 2016

YEAR	I.F.	TOTAL	Q1	Q2
2014	26.93	10	5	3
2015	31.95	12	-	9
2016	56.83	18	7	4



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TEAM Antoni Sisó Almirall

STRATEGIC OBJECTIVES

Primary care is the point of patient entry to the healthcare system. In the research context, the multidisciplinary and transverse nature of the activities of the primary care professional favours a biological, psychological and social approach to the patients and their illnesses, in both the consulting office and in the home.

MAIN LINES OF RESEARCH

Main outcomes:

- Conduction of population-based studies (both descriptive and evaluating interventions and follow-up), in an accessible and well defined population of subjects, taking advantage of the computer-based filing of clinical data.
- Conduction of research into healthcare results or outcomes.
- Description of the natural history of the patient and disease from a biological, psychological and social perspective.
- Conduction of studies of risk factors and preventive medicine.
- Analysis of the morbidity and mortality of the most prevalent disorders.
- Development of collaborative studies with the administration and research entities or groups allowing the implementation of transversal research.

The main lines of research include:

- Healthcare continuity and management of chronic diseases.
- Use of healthcare services.
- The fragility – geriatrics – dependency – home care axis.
- Use of medicines.
- Primary care and autoimmunity.
- Atherogenesis, 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.
- 2.0. Health.

PUBLICATIONS

Originals / I.F.: 56.834

1. Brito-Zerón P, Kostov B, Solans R, Fraile G, Suárez-Cuervo C, Casanovas A, Rascón FJ, Qanneta R, Pérez-Alvarez R, Ripoll M, Akasbi M, Pinilla B, Bosch JA, Nava-Mateos J, Díaz-López B, Morera-Morales ML, Gheitasi H, Retamozo S, Ramos-Casals M; on behalf of the SS Study Group, Autoimmune Diseases Study Group (GEAS), Spanish Society of Internal Medicine (SEMI). **Systemic activity and mortality in primary Sjögren syndrome: predicting survival using the EULAR-SS Disease Activity Index (ESSDAI) in 1045 patients.** *Ann Rheum Dis.* 75(2):348-355. IF: 12.384

2. Morales-Espinoza EM, Kostov B, Salami DC, Perez ZH, Rosalen AP, Molina JO, Paz LG, Momblona JM, Areu JB, Brito-Zeron P, Ramos-Casals M, Siso-Almirall A. **Complexity comorbidity and health care costs associated with chronic widespread pain in primary care.** *Pain.* 157(4):818-826. IF: 5.557

3. Herreras Z, Cofán M, Catalan M, Calvo C, Pinyol M, Amor AJ, Gilabert R, Ros E, Sala-Vila A, Ortega E. **The proportion of total C18:1 trans-fatty acids in red blood cell membranes relates to carotid plaque prevalence.** *J Nutr Biochem.* 38:81-85. IF: 4.668

4. Retamozo S, Gheitasi H, Quartuccio L, Kostov B, Corazza L, Bove A, Siso-Almirall A, Gandia M, Ramos-Casals M, de Vita S, Brito-Zeron P. **Cryoglobulinaemic vasculitis at diagnosis predicts mortality in primary Sjogren syndrome: analysis of 515 patients.** *Rheumatology.* 55(8):1443-1451. IF: 4.524

5. Amor AJ, Catalan M, Perez A, Herreras Z, Pinyol M, Sala-Vila A, Cofan M, Gilabert R, Ros E, Ortega E. **Nuclear magnetic resonance lipoprotein abnormalities in newly-diagnosed type 2 diabetes and their association with preclinical carotid atherosclerosis.** *Atherosclerosis.* 247:161-169. IF: 3.942

6. Farré M, Haro JM, Kostov B, Alvira C, Risco E, Miguel S, Cabrera E, Zabalegui A. **Direct and indirect costs and resource use in dementia care: A cross-sectional study in patients living at home.** *Int J Nurs Stud.* 55:39-49. IF: 3.561

7. Martín-Sánchez JC, Clèries R, Lidón C, González-de Paz L, Lunet N, Martínez-Sánchez JM. **Bayesian prediction of lung and breast cancer mortality among women in Spain (2014-2020).** *Cancer Epidemiol.* 43:22-29. IF: 2.644

8. Brito-Zeron P, Sellares J, Bosch X, Hernandez F, Kostov B, Siso-Almirall A, Lopez Casany C, Santos JM, Paradela M, Sanchez M, Ramirez J, Xaubet A, Agusti C, Ramos-Casals M. **Epidemiologic patterns of disease expression in sarcoidosis: age gender and ethnicity-related differences.** *Clin Exp Rheumatol.* 34(3):380-388. IF: 2.495

9. Anglada-Martinez H, Martin-Conde M, Rovira-Illamola M, Sotoca-Momblona JM, Sequeira E, Aragunde V, Moreno MA, Catalan M, Codina-Jané C. **Feasibility and Preliminary Outcomes of a Web and Smartphone-Based Medication Self-Management Platform for Chronically Ill Patients.** *J Med Syst.* 40(4):99. IF: 2.213

10. Balfego M, Canivell S, Hanzu FA, Sala-Vila A, Martinez-Medina M, Murillo S, Mur T, Ruano EG, Linares F, Porras N, Valladares S, Fontalba M, Roura E, Novials A, Hernandez C, Aranda G, Siso-Almirall A, Rojo-Martínez G, Simó R, Gomis R. **Effects of sardine-enriched diet on metabolic control, inflammation and gut microbiota in drug-naive patients with type 2 diabetes: a pilot randomized trial.** *Lipids Health Dis.* 15(1):78. IF: 2.137

11. Martín-Sánchez JC, Cleries R, Lidon-Moyano C, Gonzalez-de Paz L, Martínez-Sánchez JM. **Differences between Men and Women in Time Trends in Lung Cancer Mortality in Spain (1980-2013).** *Arch Bronconeumol.* 52(6):316-320. IF: 1.771

12. González-de Paz L, Real J, Borrás-Santos A, Martínez-Sánchez JM, Rodrigo-Baños V, Dolores Navarro-Rubio M. **Associations between informal care, disease, and risk factors: A Spanish country-wide population-based study.** *J Public Health Policy.* 37(2):173-189. IF: 1.652

13. Risco E, Cabrera E, Farré M, Alvira C, Miguel S, Zabalegui A. **Perspectives About Health Care Provision in Dementia Care in Spain: A Qualitative Study Using Focus-Group Methodology.** *Am J Alzheimers Dis Other Demen.* 31(3):223-230. IF: 1.614

14. Jodar I Solà G, Gené I Badia J, Hito PD, Osaba MA, Del Val García JL. **Self-perception of leadership styles and behaviour in primary health care.** *BMC Health Serv Res.* 16(1):572. IF: 1.606

15. Gené-Badia J, Gallo P, Caïs J, Sánchez E, Carrion C, Arroyo L, Aymerich M. **The use of clinical practice guidelines in primary care: professional mindlines and control mechanisms.** *Gac Sanit.* 30(5):345-351. IF: 1.509

16. Miguel S, Alvira M, Farré M, Risco E, Cabrera E, Zabalegui A. **Quality of life and associated factors in older people with dementia living in long-term institutional care and home care.** *Eur Geriatr Med.* 7(4):346-351. IF: 1.326

17. Sitjar Martínez de Sas S, Aguilera de la Fuente MT, Combalía Romera J, Menacho Pascual I, González Martínez S, Altés Boronat A. **PERSIRIS study: observational study, postmarketing, prospective, to evaluate the persistence to treatment with monthly risedronate in women with osteoporosis.** *Aten Primaria.* 48(5):316-324. IF: 1.098

18. Brito-Zerón P, Kostov B, Bosch X, Acar-Denizli N, Ramos-Casals M, Stone JH. **Therapeutic approach to IgG4-related disease: A systematic review.** *Medicine (Baltimore).* 95(26):e4002. IF: 2.133

Reviews / I.F.: 1.098

1. Gené-Badia J, Ruiz-Sánchez M, Obiols-Masó N, Oliveras Puig L, Lagarda Jiménez E. **Aislamiento social y soledad: ¿qué podemos hacer los equipos de atención primaria?** *Aten Primaria.* 48(9):604-609. IF: 1.098

Letters / I.F.: 2.628

1. Cayuelas Redondo L, León A, García F. **En respuesta a: Cribado de VIH en atención primaria: ¿rutinario o dirigido?** *Enferm Infecc Microbiol Clin.* 34(9):614. IF: 1.530

2. Ruiz Sánchez M, Gené-Badia J, Sabidó Sánchez E. **Desatender la continuidad lleva a pan para hoy y hambre para mañana.** *Aten Primaria.* 48(5):337-338. IF: 1.098

GRANTS FOR RESEARCH IN PROGRESS

Navarro M. **Intervenció multifactorial per prevenir el desenvolupament de fragilitat en pre-fràgils d'edat avançada.**
Sponsored by: Consorci d'Atenció Primària de Salut Barcelona Esquerra (CAPSBE)
Duration: 01/06/2016-01/06/2017

González L. **Cuidadores informales de pacientes que requieren atención domiciliaria: estudio descriptivo transversal.**
Sponsored by: Consorci d'Atenció Primària de Salut Barcelona Esquerra (CAPSBE)
Duration: 01/06/2016-01/06/2017

Sequeira Aymar E. **Share Care Unit between hospital and Primary Care for chronic HIV patients.**
Sponsored by: Gilead Sciences Europe Ltd (the 2015 goSHAPE programme)
Duration: 01/06/2015-01/07/2016

Pinyol M. **Programa piloto de psicoterapia para deprescripción de benzodiacepinas en trastornos de ansiedad.**
Sponsored by: Consorci d'Atenció Primària de Salut Barcelona Esquerra (CAPSBE)
Duration: 01/06/2015-01/06/2016

Alvira MC. **Programa educativo para pacientes EPOC y familiares en Atención Primaria.**
Sponsored by: Consorci d'Atenció Primària de Salut Barcelona Esquerra (CAPSBE)
Duration: 01/06/2015-01/06/2016

DOCTORAL THESES

Coll-Vinent B. **Importancia de la atención primaria en el mejora de la calidad asistencial de los pacientes con fibrilación auricular**
PhD Student: Luisa Benito

T.2

Research in nursing

LOCATION
HCB building

KEYWORDS
1. **Older people**
2. **Chronic–care /Long-term care**
3. **Dementia**
4. **Best Practice**
5. **Advance Nursing Practice**

Original publications from 2014 to 2016

YEAR	I.F.	TOTAL	Q1	Q2
2014	18.91	8	5	-
2015	25.91	14	11	-
2016	16.96	9	1	3

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Marta García (HCB)
Miguel Ángel Giménez Lajara (HCB)
Sheila Baena (HCB)

STRATEGIC OBJECTIVES

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.

MAIN LINES OF RESEARCH

Empowerment: The main target is to increase the patient empowerment and develop assessment tools for educational interventions to improve their bio-physiological, functional and social wellbeing.
Chronic & aging care: Dementia care: The main target is to improve health service for people with dementia through careful development of best practice strategies using various data collection methods including extensive literature review, focus groups, clinical assessments and analysis of new interventions in different nursing settings (homecare, institutional long term and hospital.
Innovation: As an instrument to improve the efficiency and quality of care processes involving cardiac and respiratory diseases, as well as other areas of clinical practice. Implementation of Dedicated Educational Units.
Professional Competencies: To determine how hospital nurse staffing, skill mix, educational composition, and quality of the nurse work environment impact on different hospital outcomes such as mortality, failure to rescue, quality of care, and patient satisfaction. These findings will allow researchers to refine existing nurse workforce.
Advanced Practice: To describe and analyse including the development of a new instrument to measure the different dimentions at APNs, the advance practice role and competences in nursing.

Publications

Originals / I.F.: 16.959

1. Farré M, Haro JM, Kostov B, Alvira C, Risco E, Miguel S, Cabrera E, Zabalegui A. **Direct and indirect costs and resource use in dementia care: A cross-sectional study in patients living at home.** *Int J Nurs Stud.* 55:39-49. IF: 3.561

2. Lethin C, Leino-Kilpi H, Roe B, Soto MM, Saks K, Stephan A, Zwakhalen S, Zabalegui A, Karlsson S; RightTimePlaceCare Consortium. **Formal support for informal caregivers to older persons with dementia through the course of the disease: an exploratory, cross-sectional study.** *BMC Geriatr.* 16:32. IF: 2.371

3. Giebel C, Sutcliffe C, Verbeek H, Zabalegui A, Soto M, Hallberg IR, Saks K, Renom-Guiteras A, Suhonen R, Challis D. D**epressive symptomatology and associated factors in dementia in Europe: home care versus long-term care.** Int Psychogeriatr. 28(4):621-30. IF: 2.220

4. Lethin C, Renom-Guiteras A, Zwakhalen S, Soto-Martin M, Saks K, Zabalegui A, Challis DJ, Nilsson C, Karlsson S. **Psychological well-being over time among informal caregivers caring for persons with dementia living at home.** *Aging Ment Health.* 27:1-9. IF: 1.861

5. Risco E, Cabrera E, Farré M, Alvira C, Miguel S, Zabalegui A. **Perspectives About Health Care Provision in Dementia Care in Spain: A Qualitative Study Using Focus-Group Methodology.** *Am J Alzheimers Dis Other Demen.* 31(3):223-30. IF: 1.614

6. Risco E, Zabalegui A, Miguel S, Farré M, Alvira C, Cabrera E. **Application of the Balance of Care model in decision-making regarding the best care for patients with dementia.** *Gac Sanit.* 9111(16)30164-9. IF: 1.509

7. Vaartio-Rajalin H, Huumonen T, Iire L, Jekunen A, Leino-Kilpi H, Minn H, Paloniemi J, Zabalegui A. **Development of an inter-professional screening instrument for cancer patients' education process.** *Appl Nurs Res.* 29:248-53. IF: 1.430

8. Johansson Stark Å, Charalambous A, Istomina N, Salanterä S, Sigurdardottir AK, Sourtzi P, Valkeapää K, Zabalegui A, Bachrach-Lindström M. **The quality of recovery on discharge from hospital, a comparison between patients undergoing hip and knee replacement - a European study.** *J Clin Nurs.* 25(17-18):2489-501. IF: 1.384

9. Zabalegui A, Galisteo M, Navarro MM, Cabrera E. **INFOSA intervention for caregivers of the elderly, an experimental study.** *Geriatr Nurs.* 37(6):426-433. IF: 1.009

Consortium publications / I.F.: 6.616

1. Tucker S, Brand C, Sutcliffe C, Challis D, Saks K, Verbeek H, Cabrera E, Karlsson S, Leino-Kilpi H, Stephan A, Soto ME; RightTimePlaceCare Consortium. **What Makes Institutional Long-Term Care the Most Appropriate Setting for People With Dementia? Exploring the Influence of Client Characteristics, Decision-Maker Attributes, and Country in 8 European Nations.** *J Am Med Dir Assoc.* 17(5):465.e9-465.e15. IF: 6.616

GRANTS FOR RESEARCH IN PROGRESS

Zabalegui A. **Avaluació d'una intervenció innovadora informàtica, formativa i de suport social (INFOSA-DEM) als cuidadors informals de persones amb demència al domicili.**
Sponsored: Marató de TV3
Duration: 12/05/2015-11/05/2018

Zabalegui A. **Implementation and evaluation of dedicated Education Units in Europe.**
Sponsored: University College Leuven-Limburg. 2015-BE02-KA202-012329.
Duration: 01/01/2015-31/12/2018

Jean E, Sevilla S, Zabalegui A, Risco E, Galisteo M, Picas JM, Hernández C, García R, López E, López M, González L, Kilpatrick K, Cossette G, Sylvain H, Contandriopoulos D, Lessard L. **Understanding the elements of context that inter-influence the development and implementation of innovations, such as advanced practice nursing (APN) roles, in two countries.**
Sponsored: Universitat de Quebec a Rimiouski (UQAR)
Duration: 01/01/2016-31/12/2017

T.3

Clinical pharmacology

LOCATION
HCB building

KEYWORDS
1. **Clinical trials, design and methodology**
2. **Ethics in clinical research**
3. **Drug regulation**
4. **Pharmacoepidemiology**

Original publications from 2014 to 2016

YEAR	I.F.	TOTAL	Q1	Q2
2014	50.34	6	5	-
2015	19.80	6	3	2
2016	35.37	5	4	1

TEAM INVOLVED IN
SCReN
ECRIN
AGAUR_SGR14: 436



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STRATEGIC OBJECTIVES

1. We provide support of all technical and administrative aspects related to randomized clinical trials carried out in the Institution.
2. We provide support for the conduction of academic-driven clinical trials .
3. We also offer support activities in pharmacovigilance and pharmacoepidemiology.
4. Collaboration with the Pharmacology Unit of the UB in pharmacogenetic studies.

MAIN LINES OF RESEARCH

- **Ethics in clinical research:** Ethics methodological aspects of clinical research currently are of increasing importance; based on the main ethical principals; respect for persons, beneficence, non-maleficence and justice.
- **Clinical trials, design and methodology:** Our aim is to give support



TEAM Xavier Carné

to the investigators of our institution in designing and performing academic clinical trials.
- **Statistical support of clinical research:** Statistics and data management are basic aspects of clinical research. We provide these tools to the investigators of our institution.
- **Pharmacovigilance and pharmacoepidemiology:** We also provide support to observational studies with the aim to improve the safety of drug use in our institution.
- **Pharmacogenetics and pharmacogenomics:** These are important tools to improve the efficient use of drugs in the context of the personalized medicine.

PUBLICATIONS

Originals / I.F.: 35.373

1. Vargas-Castrillón E, Suárez-Gea M, Calvo-Rojas G, Terleira-Fernández A, Lagunar-Ruíz J, Gómez-Outes A. **Causes of Death in Anticoagulated Patients With Atrial Fibrillation.** *J Am Coll Cardiol.* 68(23):2508-2521. IF: 17.759

2. Espinosa G, Soriano A, Morata L, De La Calle C, Cobos N, Sanclemente G, Pericas J, del Río A, Cervera C, Miro J, Martinez E, Blanco J, Garcia F, Gatell J, Arnaiz J, Pich J, Rojas J, Manzardo C, Gonzalez-Cordon A, Martínez-Rebollar M, Laguno M, Mallolas J, Lucero C, Inciarte A, Torres B, Leon A, Leal L. **A randomized clinical trial comparing ritonavir-boosted lopinavir versus maraviroc each with tenofovir plus emtricitabine for post-exposure prophylaxis for HIV infection.** *J Antimicrob Chemother.* 71(7):1982-1986. IF: 4.919

3. Leal L, Leon A, Torres B, Inciarte A, Lucero C, Mallolas J, Laguno M, Martinez-Rebollar M, Gonzalez-Cordon A, Manzardo C, Rojas J, Pich J, Arnaiz JA, Gatell JM, Garcia F. **A randomized clinical trial comparing ritonavir-boosted lopinavir versus raltegravir each with tenofovir plus emtricitabine for post-exposure prophylaxis for HIV infection.** *J Antimicrob Chemother.* 71(7):1987-1993. IF: 4.919

4. Ulldemolins, M, Martin-Loeches, I, Llauradó-Serra, M, Fernandez, J, Vaquer, S, Rodriguez, A, Pontes, C, Calvo, G, Torres, A, Soy, D. **Piperacillin population pharmacokinetics in critically ill patients with multiple organ dysfunction syndrome receiving continuous venovenous haemodiafiltration: effect of type of dialysis membrane on dosing requirements.** *J Antimicrob Chemother.* 71(6):1651-1659. IF: 4.919

5. Mas S, Blazquez A, Rodriguez N, Boloc D, Lafuente A, Arnaiz JA, Lazaro L, Gasso P. **Pharmacogenetic study focused on fluoxetine pharmacodynamics in children and adolescent patients: impact of the serotonin pathway.** *Pharmacogenet Genomics.* 26(11):487-496. IF: 2.857

Clinical guidelines / I.F.: 27.939

1. Sharma, A; Bhatt, DL; Calvo, G; Brown, NJ; Zannad, F; Mentz, RJ. **Heart failure event definitions in drug trials in patients with type 2 diabetes.** *Lancet Diabetes Endocrinol.* 4(4):294-296. IF: 16.320

2. Molinuevo, JL; Cami, J; Carne, X; Carrillo, MC; Georges, J; Isaac, MB; Khachaturian, Z; Kim, SY; Morris, JC; Pasquier, F; Ritchie, C; Sperling, R; Karlawish, J. **Ethical challenges in preclinical Alzheimer's disease observational studies and trials: Results of the Barcelona summit.** *Alzheimers Dement.* 12(5):614-622. IF: 11.619

Consortium publications / I.F.: 18.187

1. Abraldes JG, Villanueva C, Aracil C, Turnes J, Hernandez-Guerra M, Genesca J, Rodriguez M, Castellote J, García-Pagán JC, Torres F, Calleja JL, Albillos A, Bosch J; BLEPS Study Group. **Addition of Simvastatin to Standard Therapy for the Prevention of Variceal Rebleeding Does Not Reduce Rebleeding but Increases Survival in Patients With Cirrhosis.** *Gastroenterology.* 150(5):1160-1170. IF: 18.187

GRANTS FOR RESEARCH IN PROGRESS

Carné X. **European Clinical Research Infrastrucute Network – Integrating Activity. (ECRIN-IA)**
Sponsored by: European Commission.
284395
Duration: 01/01/2012-31/01/2016

Sindreu C, Carné X. **Disección genética de circuitos mnemónicos: el caso de la via quinasa Erk1/2.**
Sponsored by: Ministerio de Economia y Competitividad. SAF2015-69767-P
Duration: 01/01/2016-31/12/2018

Calvo G. **Plataforma de unidades de investigación clínica y ensayos clínicos.**
Sponsored by: Instituto de Salud Carlos III.
PT13/0002/0009
Duration: 01/01/2014-31/12/2017

Calvo G. **Coste-efectividad y coste utilidad de una estrategia de transfusión de hematíes "liberal" vs. otra "restrictiva" en pacientes con infarto agudo de miocardio y anemia. Estudio REALITY.**
Sponsored by: Instituto de Salud Carlos III.
PI15/00915
Duration: 01/01/2016-31/12/2019

Calvo G. **European Correspondants Spain ECRIN -ERIC.**
Sponsored by: European Clinical Research Infrastructrure Network.
Duration: 01/01/2016-31/12/2016

Calvo G. **Servicio de Monitorización para el ensayo clínico SECURE.**
Sponsored by: Centro Nacional de Investigaciones Cardiovasculares (CNIC).
2016/UE/07
Duration: 01/11/2016-31/12/2019

Calvo G. **Coste-efectividad y coste utilidad de una estrategia de transfusión de hematíes "liberal" vs. otra "restrictiva" en pacientes con infarto agudo de**

miocardio y anemia. Estudio REALITY.
Sponsored by: Instituto de Salud Carlos III.
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