

IMIM 2018

HOSPITAL DEL MAR MEDICAL RESEARCH INSTITUTE

Innovative and quality biomedical research



Institut Hospital del Mar
d'Investigacions Mèdiques

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Coordination content

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Introduction



Joaquim Bellmunt

Director IMIM

In 2018, IMIM passed the audit for reaccreditation as a health care research institute of the Carlos III Institute of Health (ISCIII). On 29 January 2019, the Secretary General of Scientific Policy Coordination of the Spanish Ministry of Science, Education and Universities approved the renewal of the accreditation of IMIM as a health care research institute (HCRI), effective from 17 February 2019 to 17 February 2024.

The HR Excellence in Research accreditation was renewed. This accreditation is granted by the European Commission to institutions that work to include the European Charter for Researchers and the code of conduct for the recruitment of researchers in internal human-resource policies and procedures, thus contributing to the development of a European Research Space that is attractive for researchers.

In June, the Board of Governors of the IMIM Foundation approved the new constitution of the IMIM Scientific Advisory Board (SAB), which is made up of a group of prestigious national and international scientists, who are experts in the different areas corresponding to the IMIM research programs. The new SAB met in late October to issue a favorable assessment of the IMIM programs, together with additional recommendations.

An evaluation of adherence to the 2016-2020 Strategic Plan was also carried out by the Board of Governors and the Management Committee, which has shown that, thanks to the good dynamics in place, it will be possible to meet the goals established for 2020.

Scientific production was good in this period, even though, in line with the tendency of the previous year, the total number of publications appears to have stabilized, which represents a turning point compared to the continued growth of recent years.

In 2018 the good results of previous years have been maintained, with nearly 90% of articles published in impact journals and more than 60% in publications in the first quartile.

Nearly 40% of the original articles and reviews are in the 10% of most highly cited papers in the world in their category. Furthermore, 43% of articles are open-access.

This year, Jordi Alonso, codirector of the Epidemiology and Public Health Program, and Montse Fitó, coordinator of the research group on cardiovascular risk and nutrition, are on the list of the world's most highly cited scientists, published by Clarivate Analytics.

The list, which consists of 6000 researchers, includes a total of 34 scientists from Catalan institutions. The scientists on the list have been chosen from among the 1% most cited in 21 fields of research. They are, therefore, those with the greatest impact in their respective research areas.

With regard to research grants, a total of 389 applications were submitted, of which 79 are still awaiting a decision. Thanks to the consistency of the researchers in applying for grants at the international level, more than 10 grants were obtained in recent months, including 4 European projects and 2 projects awarded by American institutions.

In 2018, the Department of Health of the Catalan government has ruled on the second call for grant applications in health care as part of the Strategic Plan for Research and Innovation in Health Care (PERIS), and has awarded IMIM and Hospital del Mar almost one million euros. The grants obtained include 2 proposals for increasing nursing personnel, 4 for taking on technical and scientific staff, and 6 projects aimed at research in mental health (one of them coordinated by the center).

In terms of contracts with private companies, 104 agreements have been signed to carry out services or for sponsorship and 129 agreements have been signed for carrying out clinical trials for an overall sum of ten million euros. The spin-off Chemotargets held its first shareholders' meeting, with positive results for the 2017-2018 financial year.

A year of new hires and projects

In July, the new head of the IMIM Clinical Research Unit, Dr. Ana Aldea, was hired, with the goal of making the unit more dynamic and providing support for promoters and researchers who want to carry out clinical trials. Two new research groups were set up. The Girona Heart Register (REGICOR) research group was created within the Epidemiology and Public Health Program and is coordinated by Dr. Jaume Marrugat, and the Neuroimmunology group was created within the Inflammatory and Cardiovascular Processes Program, and is coordinated by Dr. José Enrique Martínez Rodríguez.

Furthermore, this year the management of PSMAR has created the Innovation and Digital Transformation Department, headed by Dr. Jordi Martínez.

The Committee on Integrity in Research and Good Scientific Practices (CIR-GSP) was presented. The committee is made up of IMIM management and is currently chaired by Roberto Elosua. The functions of the committee are to develop strategies that encourage IMIM research to adhere to the PRBB Code of Good Scientific Practice, ensure that researchers and research-support personnel at IMIM are properly trained in best scientific practices, implement the procedure for investigating potential cases of scientific malpractice, and investigate potential cases of scientific malpractice.

More recently, MARGenomics was presented. This is the new molecular and genomic analysis platform that has been created to serve IMIM and Hospital del Mar research projects and the scientific community in general. The platform integrates all the stages of the genomic analysis process, including the current services of the Biobank and

Microarrays. The new platform is managed by the current IMIM Scientific and Technical Services Department, in collaboration with the Anatomical Pathology Department of Hospital del Mar. A human computational biology node has also been created within the MARGenomics platform.

The second edition of the IMIM Retreat was held in July, providing an opportunity to provide visibility to the most important projects being carried out in each research program, with the goal of creating synergies and scientific exchanges between the different groups to improve our scientific competitiveness.

Finally, certification of MARBiobanc and the IMIM Scientific and Technical Services was renewed once again and the institution has made a concerted effort to adapt its website to the responsive format, an improvement that allows the website to adapt its design depending on whether it is being viewed via PC, tablet or mobile phone, with the aim of making browsing and viewing easier.

Corporate social responsibility

The cycle of conferences “Losing our fear of cancer”, which IMIM organized with the Barcelona Network of Libraries with the aim of bringing research closer to the citizens, was held in the last quarter of the year. A total of 700 people took part in the conferences, which shows the interest of the population in matters of health and research. The attendees highlighted the effort made to explain the different aspects surrounding the fight against cancer, the quality of the speakers, and the opportunity to interact in a different environment.

This activity supplements the other scientific outreach activities carried out each year, which include activities aimed at the general public (PRBB open days and visits by the Telethon), activities aimed at secondary-school students (ACCÉS project, visits by international students, scientific talks for students and YOMO) and, finally, activities for younger children, such as “Ask a scientist”.

An overview of 2018



58
Research
groups



16 M€
Income



683
Professionals



200
Research
projects

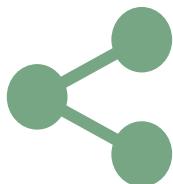


737
Original articles and reviews
with IF
(62% First quartile)

45 Doctoral Theses Read



22
Awards



1,872
Items Recorded in
the Media

Programmes 5



**Biomedical
Informatics**
4 Groups
2 Associated



Cancer
12 Groups



**Epidemiology and
Public Health**
9 Groups
3 Associated



**Inflammatory and
Cardiovascular Disorders**
15 Groups



Neurosciences
9 Groups
4 Associated

Personnel 683



Researchers
54%



PhD Students
6%



Technicians
30%

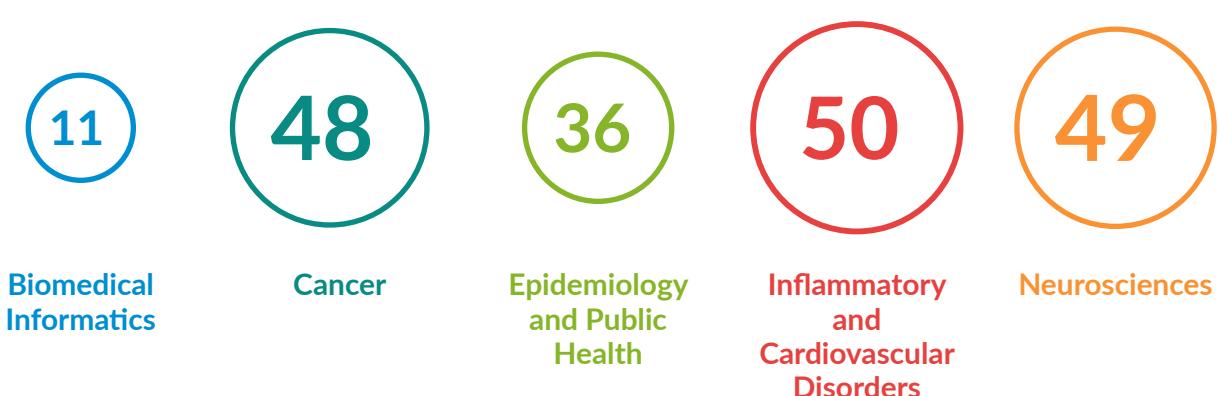


Support
11%

Current competitive projects by funding institution



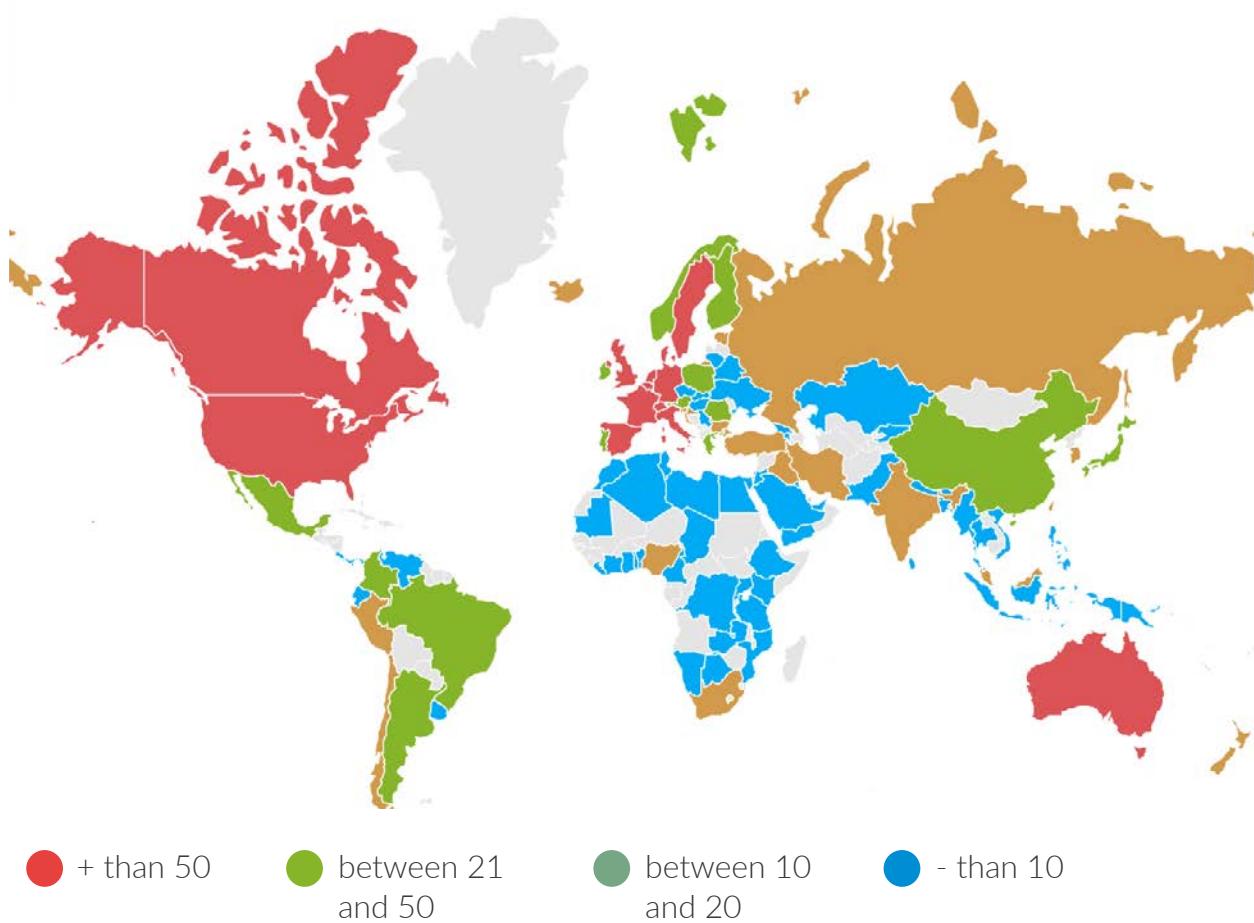
Projects by programme 200



Publications by programme **962**



Publications with international collaboration



Scientific Highlights

- > First proneural cells bank in Spain for the study of mental illnesses
- > High pollution levels and risk of suffering a stroke
- > First genetic study on the hibernation of primates in their natural environment
- > Obesity and overweight multiply the risk of suffering cancer or a cardiovascular disease
- > Galectin-1, one of the keys to treating pancreatic cancer
- > 1 out of 10 Spanish university students has experienced suicidal thoughts during the first year of their degree

First proneural cells bank in Spain for the study of mental illnesses



Proneural cells enable biochemical information to be obtained from the human brain without the need for physical access to it

Mental illnesses affect 25% of the population and in some cases, such as schizophrenia, bipolar disorder or depression, they can represent one of the main causes of disability worldwide. Researchers from the IMIM Neuroscience Research Programme have created the **first proneural cells bank in Spain** with the aim of facilitating research in mental illnesses. This resource is available to the scientific community and offers the possibility of obtaining biochemical and molecular information on what happens in the brain through the only accessible proneural cells – also called immature neurons) – which are located in the olfactory neuro-epithelium, found in the upper part of the nasal cavity.

The cells of the olfactory neuroepithelium have the characteristic of being proneuronal, in other words, they will be converted into sensory neurons and be responsible for taking information from the olfactory system to the brain. They are located very close to the brain and permit surrogate access to the brain's molecular and biochemical information.

One of the successes of this project is the development of a non-invasive technique for the extraction of proneural cells by this research team. The new technique developed at the IMIM extracts the cells with the aid of a small cell scraper designed for this purpose and does not require surgical measures, enabling these cells to be extracted periodically if prognostic monitoring is necessary.

Heteromers, a new molecular-level marker of mental disorders

The usefulness of this biobank of proneural cells has been confirmed with a recent study that analysed, for the first time in Spain, the formation of heteromers (units of two different receptors) in the proneurons of the olfactory epithelium as indicators of mental illness.

The researchers **studied the formation of heteromers in the CB1 cannabinoid and 5HT2A serotonergic receptors in chronic consumers of cannabis and found that their formation was directly related with the consumption of cannabis, and that the more**

cognitive problems the patient had, the larger the quantity of heteromers found in the proneurons of their olfactory neuroepithelium.

This study enables affirmation that the formation of heteromers in the olfactory cells is a good model for monitoring mental illnesses that involve cognitive alterations. They enable us to see the level of neuronal involvement in patients and their prognosis, and therefore allow us a new diagnostic and prognostic tool for mental illnesses with cognitive deficiencies, these being disorders for which, to date, it has been very difficult to obtain information on a molecular and biochemical level.

Reference article

Galindo L, Moreno E, López F, Guinart D, Cuenca A, Izquierdo-Serra M, Xicoté L, Menoyo E, Fernández-Fernández JM, Benítez-King G, Canela EI, Casadó V, Pérez V, de la Torre R, Robledo P. Cannabis Users Show Enhanced Expression of CB1-5HT2A Receptor Heteromers in Olfactory Neuroepithelium Cells. Mol Neurobiol 2018 . <https://doi.org/10.1007/s12035-017-0833-7>

High pollution levels and risk of suffering a stroke



High pollution levels increase the risk of suffering an atherothrombotic stroke

On days with the highest concentration of soot in the atmosphere, there is a 20% increase in the risk of suffering an atherothrombotic stroke, according to a study by IMIM, the Hospital del Mar and the Barcelona Institute for Global Health (ISGlobal). Researchers have found a direct relationship between this contaminant, originating from the poor combustion of diesel engines, and the increase in cases.

Strokes, or cerebrovascular accidents, are the leading cause of death among women and the third largest among men in Spain and it is calculated that 1 in every 6 people will be affected over the course of their lives. In Catalonia, every year 13,000 new cases and 3,800 deaths from this condition are recorded. Atherothrombotic stroke is the third most frequent type and is associated with high levels of cholesterol, smoking and diabetes. In general, some 90% of strokes are related with risk factors such as these.

The study has analysed data from nearly 3,000 patients seen at the Hospital del Mar for a stroke between the years 2005 and 2014, and it has been possible to confirm how the presence in the air that we breathe of this element, originating from poor combustion of diesel engines, acts in the short term as a trigger of a specific type of ictus, the atherothrombotic type, caused by the detachment of atheromatous plaques which are formed by cholesterol, calcium and other substances that accumulate in the arteries and cause occlusion in a blood vessel. The researchers wanted to highlight that this shows “**that the harmful effects of environmental contaminants for people's health goes beyond their impact on respiratory systems and cancer. We have shown that the increase in black carbon in the environment also affects the brain's circulatory system and increases the risk of suffering a stroke**”.

A 20% increase in risk

In the case of black carbon, or soot, the analysis of data indicates a clear relationship between its levels in the air and the risk of suffering an atherothrombotic strike. Thus, **for each increase of 1.7 µg/m³** (micrograms per cubic metre) of its concentration in the air, the risk of suffering a stroke during the following 24-72 hours **grows by 20%**.

This is due to the fact that exposure to soot causes an increase in the inflammatory particles in our body: “**a pro-thrombotic state**”, the researchers explain. These are cases of “**people who already suffer an underlying atherosclerotic disease process and in whom air pollution acts as a trigger, in other words, the pollution triggers a series of inflammatory reactions in the body that may end up causing the detachment of the atheromatous plaque which leads to the occlusion of a blood vessel and, therefore, the risk of suffering a stroke**”.

In fact, according to data from Barcelona City Council, by reducing levels of pollutants in the air in the city to those recommended by the WHO, 659 premature deaths would be prevented each year.

Reference article

Rosa Maria Vivanco-Hidalgo, Gregory A. Wollenius, Xavier Basagaña, Marta Cirach, Alejandra Gómez González, Pablo de Ceballos, Ana Zabalza, Jordi Jiménez-Conde, Carolina Soriano-Tárraga, Eva Giralt-Steinhauer, Andrés Alastuey, Xavier Querol, Jordi Sunyer, Jaume Roquer. “Short-term exposure to traffic-related air pollution and ischemic stroke onset in Barcelona, Spain” Environmental Research <https://doi.org/10.1016/j.envres.2017.12.024>

First genetic study on the hibernation of primates in their natural environment



Dwarf lemur of the study. Image from MUSINGS OF A JUNGLE QUEEN blog of Dr. Sheena (Faherty) Scruggs

The genes that participate in hibernation are present in nearly all mammals, including human beings. Knowing about how they function could be important for the field of Medicine

The IMIM's research group on Evolutionary Genomics **has identified which genes participate (change their expression) in the state of hibernation of hairy-eared dwarf lemurs, which belong to the only group of primates that has the capacity to hibernate.** It is precisely in their tails that these small mammals store the fat that enables them to survive through the months of scarcity and that they will use as fuel during hibernation. Hibernation is a response to a lack of resources that we normally associate with winter, but it may occur in other conditions of scarcity such as desert areas or, for example, during the dry period in Madagascar.

According to the researchers: "**The genes that participate in hibernation are present in nearly all mammals, including human beings. It is a question of when and how they are expressed that makes the phenomenon of hibernation possible. Since the lemur is a primate, its genes are relatively similar to the human version".**

Hibernation can be conceived as a series of modules of genes that work as a group. There is one module that makes it possible to survive based on fats instead of carbohydrates, another that ensures that the muscles do not atrophy during these months and even a group of genes in charge of "reviving" individuals and returning them to a normal state. **The study of hibernation could have important applications in medicine, for example, controlled hypothermia could be used in surgical operations, or to try to understand how to regenerate lost neuronal connections, a natural process in hibernating animals after each hibernation cycle.** Looking still a little further, induced hibernation could even make long-term space travel possible, with barely any need to eat food.

Dwarf lemurs have been the subject of few studies and their genome has not yet been sequenced. The first step of the researchers was to reconstruct the transcriptome, which is the set of sequences of all the genes that are expressed in any of the cells

studied. The pieces that they had were millions of small bits of these sequences. **"It was as if we wanted to reconstruct a copy of our favourite book from millions of words or short phrases originating from hundreds of copies of the same book cut up into small pieces. This is a difficult task and it requires powerful computers, which search for the phrases that are superimposed on each other until the whole book has been reconstructed. Once this was achieved, we were capable of identifying several hundred genes that change their expression in adipose tissue during hibernation and analysing them in greater detail"** the researchers explain.

This type of study raises the visibility of unique species such as this one and serve to underline how necessary it is to preserve our biodiversity.

Reference article

Faherty SL, Villanueva-Cañas JL, Blanco MB, Albà MM, Yoder AD. Transcriptomics in the wild: hibernation physiology in free-ranging dwarf lemurs. Mol Ecol 2018.

Obesity and overweight multiply the risk of suffering cancer or a cardiovascular disease



Obese women have a 5 times higher risk of suffering a cardiovascular disease and 12 times higher risk of developing cancer

The World Health Organisation estimates that obesity now affects over 650 million people worldwide. Being overweight or suffering from obesity **exponentially increases** the risk of suffering a cardiovascular disease or cancer. This is the conclusion of the FRESCO (Spanish Risk Function of Coronary and Other Events) Study, led by researchers from the IMIM and doctors from the Hospital del Mar, which has analysed the monitoring over 10 years of **54,446 people** from 7 autonomous communities.

The obesity epidemic hits women harder. Thus, obese women have a 5 times higher risk of suffering a cardiovascular disease and 12 times more possibilities of developing cancer than those who have a normal weight. If they are overweight, even if they do not reach obesity, an increase in the risk is maintained that is double the possibilities in the case of cardiovascular disorders and four times higher in the case of oncological conditions.

The influence of weight on male health is maintained on a lower scale. Thus, obesity multiples by two the possibilities of developing some type of cancer but does not have a significant influence in the case of cardiovascular diseases.

Only 26% of the population are at a normal weight

Of over 54,000 people who took part in the study, men and women aged from 35 to 79 years, over 25,000 were overweight and 15,000 obese. Therefore, only 26% were of a weight considered normal (below 25 points on the Body Mass Index (MBC). It is the first time in Spain that a group of this size has been analysed, ruling out the possible effects of other disorders related to weight, such as high blood pressure, diabetes or high cholesterol.

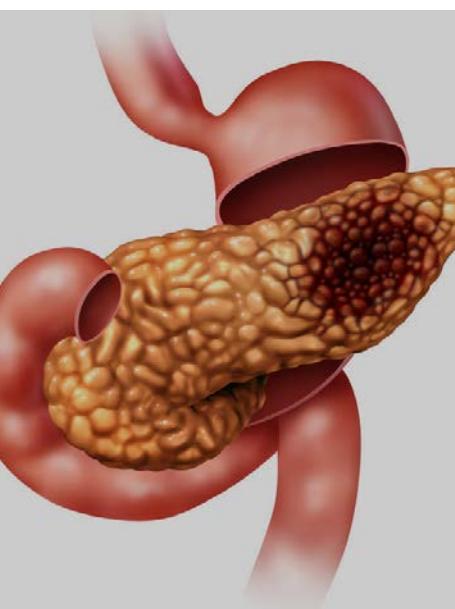
Researchers consider that the results of the study are very worrying. It is necessary to seek strategies for the development of activities that promote a healthy diet, physical activity, disease screening and establish prevention policies that affect the whole of the population, to help reduce the prevalence of obesity

Obesity is a potentially serious medical condition that causes, in apparently healthy people, an increase in the risk of death due to diverse reasons. This situation "goes beyond an aesthetic problem and obliges us to adopt preventive and treatment measures that are not always easy to follow". To achieve this, improving lifestyle habits is the basis of treatment, changing dietary habits and increasing physical activity. Small reductions in weight produce major benefits for health. In this sense, in the case of a country with an average life expectancy of 80 years, people with some type of overweight who at the age of 40 lose 5 kg of weight and do not recover them will reduce their risk of suffering cardiovascular diseases by 20%. Among women, this level of weight reduction will also mean another 20% reduction in the risk of dying from cancer.

Reference article

Barroso M, Goday A, Ramos R, Marín-Ibáñez A, Guembe MJ, Rigo F, Tormo-Díaz MJ, Moreno-Iribas C, Cabré JJ, Segura A, Baena-Díez JM, Gómez de la Cámara A, Lapetra J, Quesada M, Medrano MJ, Berjón J, Frontera G, Gavrilà D, Barricarte A, Basora J, García JM, García-Lareo M, Lora-Pablos D, Mayoral E, Grau M*, Marrugat J*, FRESCO Investigators. Interaction between cardiovascular risk factors and body mass index and 10-year incidence of cardiovascular disease, cancer death, and overall mortality. Prev Med 2017

Galectin-1, one of the keys to treating pancreatic cancer



Inhibiting this protein lengthens lifespan in animals; their tumours progress more slowly, are less aggressive and have lower metastasis rates

Inhibiting the protein Galectin-1 (Gal1) could become the first effective treatment for slowing the progression of the most common type of pancreas cancer, **pancreatic ductal adenocarcinoma**, for which, at present, there is no type of curative treatment available.

This type represents 85% of the pancreatic cancer cases diagnosed and, despite its prevalence being only 3%, it is fourth in the number of deaths related with this disease. The low survival rates are caused by the fact that there is no way of diagnosing it early, because symptoms are mild and, when they are detected, the cancer is often at advanced stages, combined with the fact that it does not respond to conventional treatments.

Four routes of approach

Ductal tumours of the pancreas develop within a particular tumoral micro-environment, which is considered one of the keys for understanding their development and their **resistance** to conventional chemotherapies, as well as the lack of success of new treatments, such as immunotherapy. Within this environment, which is favourable to tumour cells and which isolates them from the immune system and from treatments, there are some cells called fibroblasts which are responsible for the production of large quantities of Galectin-1. This protein plays a vital role in the entire process of the tumour's growth. It increases its proliferation, migration and invasion, in other words, it makes it more aggressive. It also plays a key role in the creation of an environment favourable to its growth and, at the same time, it keeps the immune system depressed, which enables the tumour to remain invisible.

Faced with the complexity of tackling these kinds of tumour, researchers have worked with four different approaches to try to reconstruct the final puzzle presented by the role of Gal1 in pancreatic cancer. Studies have been conducted *in vivo*, with a transgenic model in mice to see how the inhibition of this protein affects tumour

development, and also three other strategies with human cells: in vitro, in vivo, with mouse models, and large-scale molecular genomic studies.

Inhibiting Gal1, a pathway for treating pancreatic cancer

The results obtained indicate that inhibition of Gal1 slows down tumour growth and re-establishes the vigilance of our immune system to recognise and reject tumour cells, which makes it difficult for the tumour to continue progressing. In this sense, the researchers indicate that “**when Gal1 is eliminated from the tumours, the animals live for a longer time because the tumours progress more slowly, are less aggressive and have lower metastasis rates**”. However, this is a pre-clinical study with animals and new studies need to be carried out to validate the inhibition of Gal1 as a therapeutic alternative in humans.

Reference article

Targeting galectin-1 inhibits pancreatic cancer progression by modulating tumor–stroma crosstalk. Carlos A. Orozco, Neus Martínez-Bosch, Pedro E. Guerrero, Judith Vinaixa, Tomás Dalotto-Moreno, Mar Iglesias, Mireia Moreno, Magdolna Djurec, Françoise Poirier, Hans-Joachim Gabius, Martin E. Fernández-Zapico, Rosa F. Hwang, Carmen Guerra, Gabriel A. Rabinovich and Pilar Navarro. PNAS April 3, 2018. 201722434; published ahead of print April 3, 2018. <https://doi.org/10.1073/pnas.1722434115>

1 out of 10 Spanish university students has experienced suicidal thoughts during the first year of their degree

The study shows that positive relations with peers and a positive family environment during childhood act as protective factors against suicidal thoughts



Around 10% of Spanish university students say that they have experienced suicidal thoughts, and just under 1% that they have attempted suicide, in the last 12 months, with no differences detected in relation to the gender of those questioned. These data are extracted from the UNIVERSAL (University and Mental Health) Study, a Spanish multi-centre project, coordinated by the IMIM, which has examined the factors associated with mental health among young people commencing their university careers, in addition to identifying those factors that promote mental health or that place it at risk. According to the World Health Organisation (WHO), suicide is the second leading cause of death in the world among the population aged between 15 and 29 years old.

The study was conducted through surveys of **2,118 students from 5 universities** in Spain: Pompeu Fabra University (UPF), Balearic Islands University (UIB), University of the Basque Country (UPV-EHU), University of Cadiz (UCA) and Miguel Hernández University (UMH). This is the first study of these characteristics undertaken in Spain.

According to the researchers, “**the main risk factors for suicidal ideation include family aspects, recent stressful events, as well as current mental health. These risk factors can be: parental psychopathology, sexual aggression or rape in the previous year, and suffering or having suffered a mood or anxiety disorder**”. The study also identifies protective factors against suicidal ideation, such as positive relations with peers and with the family during childhood.

The UNIVERSAL study includes monitoring of the students over several years, which will enable identification of individualised risk profiles. These first results highlight the need to pro-actively detect at an early stage the risk of suicidal ideation and conduct among university students in order to be able to offer effective care.

Reference article

Blasco MJ, Vilagut G, Almenara J, Roca M, Piqueras JA, Gabilondo A, Lagares C, Soto-Sanz V, Alayo I, Forero CG, Echeburúa I, Gili M, Cebrià AI, Bruffaerts R, Auerbach RP, Nock MK, Kessler RC, Alonso J on behalf of the UNIVERSAL study group. (2018) Suicidal Thoughts and Behaviors: Prevalence and Association with Distal and Proximal Factors in Spanish University Students. Suicide and Life-Threatening Behavior. <https://onlinelibrary.wiley.com/doi/abs/10.1111/sltb.12491>

Programmes

- > Scientific Advisory Board
- > Biomedical Informatics
- > Cancer
- > Epidemiology and Public Health
- > Inflammatory and Cardiovascular Disorders
- > Neurosciences

Scientific Advisory Board

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Joaquín Arribas, PhD

Vall d'Hebron Institute of Oncology (VHIO) (Barcelona, Spain)

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Centro de Biología Molecular Severo Ochoa. Universidad Autónoma de Madrid (Madrid, Spain)

Marina Pollán, MD

National Center for Epidemiology. Instituto de Salud Carlos III (Madrid, Spain)

Biomedical Informatics



6
Research groups



Professionals



11
Research projects



28
Publications



Programme Director

Ferran Sanz

RESEARCH GROUPS

Evolutionary Genomics
Maria del Mar Albà

GPCR Drug Discovery
Jana Selent

Integrative Biomedical Informatics
Laura Inés Furlong and Ferran Sanz

Systems Pharmacology
Jordi Mestres

ASSOCIATED GROUPS

Computational Biology of RNA Processing
Roderic Guigó

Pharmacoinformatics
Manuel Pastor

The Research Programme on Biomedical Informatics (GRIB) is a joint research unit of the Hospital del Mar Medical Research Institute (IMIM) and the Department of Experimental and Health Sciences of the Pompeu Fabra University (UPF).

The mission of GRIB is to develop and apply computational methods and information technologies for a better understanding and prediction of biological phenomena, placing special emphasis on those related to human diseases, their diagnosis and pharmacological treatment.

GRIB is recognized and funded by the Catalan government. It is the node for Biomedical Informatics of the Spanish Institute of Bioinformatics (INB) and, jointly with Farmaindustria, GRIB coordinates the Spanish Technological Platform for Innovative Medicines (PTEMI). GRIB also participates in the Bioinformatics Barcelona Association (BIB), which aims to promote training, research, and technology transfer in bioinformatics. Ferran Sanz, the director of GRIB, is the co-coordinator of PTEMI and vice-president of BIB.

GRIB staff is involved in pre- and postgraduate teaching at UPF, where they coordinate the Master's Program in Bioinformatics for Health Sciences. This master degree aims to provide professionals and researchers with expertise and skills geared towards developing new computational strategies and IT systems that are useful in biomedical research.

People and research areas

GRIB is currently composed of more than 60 members, with a highly multidisciplinary background, including biologists, chemists, computer scientists, physicists, mathematicians, medical doctors, etc. More than 30% of the members are senior scientists or postdocs. The programme includes six IMIM research groups:

- The **Evolutionary Genomics group** led by M. Mar Albà (ICREA) uses comparative genomics and transcriptomics methods to discover new genes and characterize their functions.
- The **Pharmacoinformatics group** led by Manuel Pastor (UPF) is devoted to the development and application of computational methods and tools in pharmaceutical research, with a particular focus on computational toxicology.
- The **Systems Pharmacology group** led by Jordi Mestres performs research at the interface between chemistry, biology, and informatics to develop novel computational approaches to designing safer, more efficacious, personalized drugs. Some of the results of the group have been commercialized via the spin-off biotech company Chemotargets.
- The **GPCR Drug Discovery group** led by Jana Selent (Miguel Servet) focuses on the functionality of G-protein-coupled receptors (GPCRs) within the context of CNS-related disorders, taking into account receptor plasticity, activation mechanism, signalling bias, ligand binding and the effect of the membrane and other interaction partners.

- The **Integrative Biomedical Informatics group** led by Laura I. Furlong (Miguel Servet) and Ferran Sanz, works on new methods and tools for knowledge extraction and linkage from biomedical literature and other publicly available sources, and develops strategies for the research reuse of clinical data.
- The **Computational Biology of RNA Processing group** is devoted to the development and application of methods to identify functional domains in genomic sequences. The main researcher in this group is Roderic Guigó (CRG).

Most relevant issues in 2018

The GRIB has wide experience in participating and coordinating research projects funded by the European Commission and other research funding agencies. It also has a long tradition of collaboration with the pharmaceutical and biotechnological industry within the framework of R&D projects and providing services, especially in the development of computational methods for drug discovery and toxicity assessment.

During the year 2018, the Programme coordinated two large scale scientific initiatives:

- The Innovative Medicines Initiative (IMI) project eTRANSAFE (Enhancing Translational Safety Assessment through Integrative Knowledge Management), which aims to develop an advanced data integration infrastructure together with innovative computational methods to improve safety in drug development processes. (2017-2022)
- The H2020 project MedBioinformatics, focused on the translational and clinical application of bioinformatics. (2015-2018)

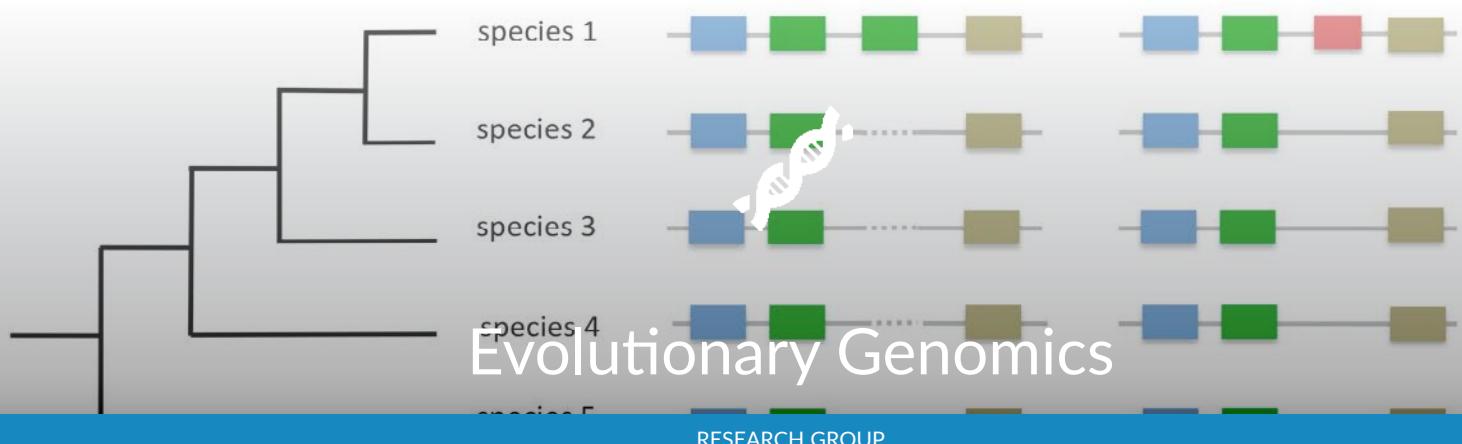
The GRIB was also a partner in other EU-funded projects, such as the following IMI projects:

- TransQST (Translational Quantitative Systems Toxicology), which aims to develop novel computational approaches using the best available data from the public and private domains to address the problems of drug safety.
- EMIF (European Medical Information Network), which aims to develop a common information framework of patient-level data that will link up and facilitate access to diverse medical and research data sources, opening up new avenues of research for scientists.
- iPiE (Intelligence Led Assessment of Pharmaceuticals in the Environment), which aims to develop a predictive framework for the environmental impact of drugs.

The GRIB was also partner of the following H2020 projects:

- EU-ToxRisk, which aims to achieve a paradigm shift in toxicology towards a more efficient and animal-free chemical safety assessment.
- ESCAPE-NET (European Sudden Cardiac Arrest Network), focused on the prevention, education and new treatment of this disease.
- ELIXIR-EXCELERATE, which aims to accelerate the implementation of Europe's life-science data infrastructure.

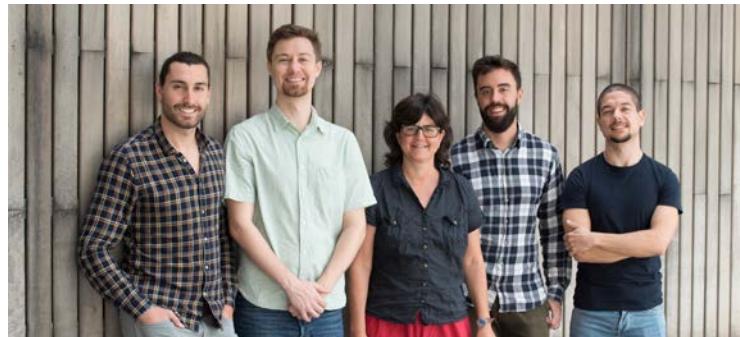
The research activities of GRIB have led to the creation of several spin-off companies such as BioCloud (2015), Acellera (2007), Chemotargets (2006) and Pharmatools (2002), and the development of commercial and open-source scientific software, such as the DisGeNET resource on gene-disease associations. For further details, see <http://grib.imim.es/software-services/software/>



Group Leader

Maria del Mar Albà Soler
(ICREA Professor)

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Members

Jorge Ruiz Orera (Researcher)
William Robert Blevins (PhD Student)
Simone Moro (Technician)

The Evolutionary Genomics group, led by Mar Albà, uses comparative genomics and large-scale data analysis to understand the complexity of gene regulation and evolutionary innovation. The group develops bioinformatics pipelines to analyze large amounts of genomics data. We use novel approaches to reconstruct and quantify the transcriptome using high-throughput RNA sequencing data, including long-read technologies such as Nanopore. We are also using techniques for sequencing ribosome-protected RNA fragments, also known as ribosome profiling. Using these techniques we have been able to discover many novel translated small ORFs (sORFs). Some of these sORFs correspond to highly conserved small proteins, or micropeptides, that can have important cellular functions. Others are intermediates in the process of generation of de novo genes, new types of gene that arise from previously non-coding parts of the genome. We are also interested in using transcriptomics data to study adaptation to extreme conditions, such as hibernation in mammals. In this regard, we have recently characterized the molecular mechanisms associated with the induction of torpor in hibernating species of lemurs, which may lead to future applications in human medicine.

Main Publications

- Faherty SL, Villanueva-Cañas JL, Blanco MB, Albà MM, Yoder AD. Transcriptomics in the wild: hibernation physiology in free-ranging dwarf lemurs. Mol Ecol 2018; 27(3): 709-722. IF 6.131. D1.

Ongoing Research Projects

- Mecanismos de formación de genes nuevos
 - Financing institution: Ministerio de Economía y Competitividad (BFU2015-65235-P)
 - Period: from 2016 to 2019
 - Principal investigator: Albà Soler, Maria del Mar



GPCR Drug Discovery

RESEARCH GROUP



Group Leader

Jana Selent

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Members

Tomasz Stepniewski Maciej (PhD Student)

The group is focused on the functionality of G-protein-coupled receptors (GPCRs) within the context of CNS-related disorders, taking into account: receptor plasticity, activation mechanism, signalling bias, ligand binding, the effect of the membrane and other interaction partners. The ultimate goal is to translate the molecular insights obtained into the design of drug candidates with improved therapeutic profiles.

The main research lines are:

- In-silico Multi-Receptor Profiling of Antipsychotic Drugs, focusing on deciphering the molecular mechanisms of this complex interplay of current antipsychotic drugs that are responsible for their clinical efficacies.
- GPCR Dimers as a Drug Target for the Treatment of Schizophrenia. Our group provides support for the design of bivalent ligands that selectively target a specific GPCR dimer. Once a target is validated, we apply diverse computational tools to obtain first small drug-like molecules towards this target.
- Membrane Lipid-Mediated Effects on GPCR signalling by studying direct and indirect membrane effects on receptor monomers and dimers using all-atom as well as coarse-grained simulation setups.
- Database for GPCR dynamics. The main mission of this project is to provide dynamic insights into crystallized receptors at a publicly accessible platform.

Main Publications

- Stepniewski T, Torrens M, Rodríguez-Espigares I, Giorgino T, Primdahl KG, Vik A, Stenstrøm Y, Selent J, Hansen TV. Synthesis, molecular modelling studies and biological evaluation of new oxoeicosanoid receptor 1 agonists. *Bioorgan Med Chem* 2018; 26(12): 3580-3587. IF 2.881. Q2.

Ongoing Research Projects

- La modulación alostérica del receptor D2 de la dopamina forma parte del mecanismo de acción del litio: de la evidencia molecular a la neuroimagen funcional
 - Financing institution: Fondo de Investigación Sanitaria. ISCIII (PI15/00460)
 - Period: from 2016 to 2019
 - Principal investigator: Selent, Jana

Theses

- Rodríguez-Espigares I. GPCRmd - A web platform for collection, visualization and analysis of molecular dynamics data for G protein-coupled receptors: Bridging the gap between receptor dynamics and receptor functionality.
 - Universitat Pompeu Fabra
 - Director: Selent, Jana; Sanz Carreras, Ferran
 - Date of defense: 04/04/2018

Other

Book Chapter

- Kaczor AA, Bartuzi D, Stepniewski TM, Matosiuk D, Selent J. Protein-Protein Docking in Drug Design and Discovery. *Methods Mol Biol*, 2018; 1762: 285-305.

comorbidity
package RSystems
medicine

Text mining



Integrative Biomedical Informatics

RESEARCH GROUP

**Group Leader**

Laura Inés Furlong Nespolo

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Group Leader

Ferran Sanz Carreras

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**Members**

- Alexia Giannoula (Researcher)
Miquel Àngel Mayer Pujadas (Researcher)
Janet Piñero González (Researcher)
Alejandro Speck (Researcher)
Emilio Centeno Ortiz (Technician)
Emre Güney (Technician)
Francesco Ronzano (Technician)
Josep Saüch Pitarch (Technician)
María Jesús Donlo Fernández (Research Assistant)
Alfons González Pauner (Research Assistant)
Carina Oliver Dutrem (Research Assistant)

The huge wealth of biomedical information that is currently available is underused because of the difficulties in seeking, integrating and analyzing the relevant information. There is also considerable great difficulty involved in identifying and using clinically actionable information. The goal of the Integrative Biomedical Informatics (IBI) group is to develop computational methods and tools to address these challenges, with the aim of better understanding human health and disease and contributing to the design of more effective and safer therapeutic interventions.

The ongoing research areas of the IBI group are the following:

- Text mining
- Knowledge management and linked data
- Real World Data (RWD) analytics in health
- Systems biology and network medicine for the study of human diseases and drug toxicity
- Integrative knowledge management and exploitation in drug discovery and development

Main Publications

- Piñero J, Furlong LI, Sanz F. In silico models in drug development: where we are. *Curr Opin Pharmacol*, 2018; 42: 111-121. IF 6.313. D1.
- Gutiérrez-Sacristán A, Bravo A, Giannoula A, Mayer MA, Sanz F, Furlong LI. comoRbidity: An R package for the systematic analysis of disease comorbidities. *Bioinformatics*, 2018; 34 (18): 3228-30. IF 5.481. D1.
- Piñero J, González-Pérez A, Guney E, Aguirre-Plans J, Sanz F, Oliva B, Furlong LI. Network, Transcriptomic and Genomic Features Differentiate Genes Relevant for Drug Response. *Front Genet*, 2018; 9: 412. IF 4.151. Q1.
- Souza T, Trairatphisan P, Piñero J, Furlong LI, Sáez-Rodríguez J, Kleinjans J, Jennen D. Embracing the Dark Side: Computational Approaches to Unveil the Functionality of Genes Lacking Biological Annotation in Drug-Induced Liver Injury. *Front Genet*, 2018; 9: 527. IF 4.151. Q1.
- Giannoula A, Gutiérrez Sacristán A, Bravo A, Sanz F, Furlong LI. Identifying temporal patterns in patient disease trajectories using dynamic time warping: A population-based study. *Sci Rep*, 2018; 8(1): 4216. IF 4.122. Q1.
- López-Massaguer O, Pinto-Gil K, Sanz F, Amberg A, Anger LT, Stolte M, Ravagli C, Marc P, Pastor M. Generating modelling data from repeat-dose toxicity reports. *Toxicol Sci*, 2018; 162(1): 287-300. IF 4.081. Q1.
- Pastor M, Quintana J, Sanz F. Development of an Infrastructure for the Prediction of Biological Endpoints in Industrial Environments. Lessons Learned at the eTOX Project. *Front Pharmacol*, 2018; 9: 1147. IF 3.831. Q1.

- Aguirre-Plans J, Piñero J, Menche J, Sanz F, Furlong LI, Schmidt HHHW, Oliva B, Guney E. Proximal Pathway Enrichment Analysis for Targeting Comorbid Diseases via Network Endopharmacology. *Pharmaceuticals* 2018; 11(3): E61. SJR:1,293. IF: -. Q1.

Ongoing Research Projects

- eTRANSAFE: Enhancing TRANslational SAFEtY Assessment through Integrative Knowledge Management
 - Financing institution: Innovative Medicines Initiative-IMI (777365)
 - Period: from 2017 to 2022
 - Principal investigator: Sanz Carreras, Ferran
- TransQST: Translational quantitative systems toxicology to improve the understanding of the safety of medicines
 - Financing institution: Innovative Medicines Initiative-IMI (116030)
 - Period: from 2017 to 2021
 - Principal investigator: Sanz Carreras, Ferran
- CliKA-MinE: Clinical Knowledge Aggregation by Mining medical rEports
 - Financing institution: Fondo de Investigación Sanitaria. ISCIII (PI17/00230)
 - Period: from 2018 to 2020
 - Principal investigator: Furlong Nespolo, Laura Inés
- EXCELLERATE: Fast-track ELIXIR implementation and drive early user exploitation across the life-sciences
 - Financing institution: European Comission H2020 (676559)
 - Period: from 2015 to 2019
 - Principal investigator: Sanz Carreras, Ferran
- iPiE: Intelligence Led Assessment of Pharmaceuticals in the Environment
 - Financing institution: Innovative Medicines Initiative-IMI (115735)
 - Period: from 2015 to 2019
 - Principal investigator: Sanz Carreras, Ferran
- MedBioinformatics: Creating medically-driven integrative bioinformatics applications focused on oncology, CNS disorders and their comorbidities
 - Financing institution: European Commission H2020 (634143)
 - Period: from 2015 to 2018
 - Principal investigator and coordinator of the consortium: Sanz Carreras, Ferran
- MedSisCom: Medicina de sistemas para el estudio de las comorbilidades
 - Financing institution: Fondo de Investigación Sanitaria. ISCIII (PI13/00082)
 - Period: from 2014 to 2018
 - Principal investigator: Furlong Nespolo, Laura Inés

Participation in Research Networks

- Ferran Sanz is the co-president of the Plataforma Tecnológica Española de Medicamentos Innovadores (PTEMI), vicepresident of Bioinformatics Barcelona Association (BIB) and PI of the node for Biomedical Informatics of the Spanish Institute of Bioinformatics (INB).

Group's Recognitions

- Officially recognised as a consolidated research group by the Generalitat de Catalunya: Grup de Recerca en Biomedicina Computacional (2017-2020)
 - Agència de Gestió d'Ajuts Universitaris i de Recerca (SGR 519)
 - Principal investigator: Sanz Carreras, Ferran

Theses

- Rodríguez-Espigares I. GPCRmd - A web platform for collection, visualization and analysis of molecular dynamics data for G protein-coupled receptors: Bridging the gap between receptor dynamics and receptor functionality.
 - Universitat Pompeu Fabra
 - Directors: Selent, Jana; Sanz Carreras, Ferran
 - Date of defense: 04/04/2018



Group Leader
Jordi Mestres López
jmestres@imim.es



Members
Xavier Jalencas Giménez (Researcher)
Andreu Bofill Pumarola (PhD Student)
María José Falaguera Mata (Technician)

The Research Group on Systems Pharmacology, led by Dr. Jordi Mestres, conducts research at the interface between chemistry, biology and informatics to develop novel computational methods that contribute to designing safer, more efficacious, drugs. In this respect, the group is actively involved in several initiatives to explore the mechanisms of action leading to severe adverse drug reactions, with special emphasis on cardiotoxicity and hepatotoxicity, and to investigate the impact of the human endogenous metabolome on the efficacy and safety of drugs. Current efforts are focused on ultimately gaining a better understanding of drug polypharmacology within the context of biological systems as a means of advancing towards precision medicine.

The group is also the seed of the biotech company Chemotargets SL, founded in 2006 and currently employing ten people, seven of whom are former PhD students or post-doctoral researchers of the group. The company develops and markets the CLARITY® intelligence and discovery platform for large-scale prediction of the pharmacology, safety, and diseases of small-molecule pharmaceuticals and cosmeceuticals, currently in use worldwide by sixteen big pharma, small and medium biotech companies, academic centers, and not-for-profit organizations, such as the FDA.

Main Publications

- Antolín AA, Mestres J. Dual Inhibitors of PARPs and ROCKs. ACS Omega 2018; 3: 12707-12712. SJR: 0,749. Q1.
- Reyes-Resina I, Samadi A, Navarro G, Saadeh HA, Khasawneh MA, Mestres J, Marco-Contelles J, Franco R. Identification of a Tool Compound to Study the Mechanisms of Functional Selectivity between D-2 and D-3 Dopamine Receptors. ACS Omega 2018; 3(12): 17368-17375. SJR: 0,749. Q1.

Ongoing Research Projects

- El impacto del metaboloma endógeno sobre la farmacología y seguridad de pequeñas moléculas exógenas
 - Financing institution: Ministerio de Economía y Competitividad. SAF2017-83614-R
 - Period: from 2018 to 2020
 - Principal investigator: Mestres López, Jordi
- European Sudden Cardiac Arrest network: towards Prevention, Education and NEw Treatment
 - Coordinator: Academic Medical Center of the University of Amsterdam (NL)
 - Financing institution: European Union (733381)
 - Period: from 2017 to 2021
 - Principal investigator from IMIM: Mestres López, Jordi
- EU-OPENSSCREEN DRIVE: Ensuring Long-Term Sustainability of Excellence in Chemical Biology within Europe and Beyond
 - Coordinator: Forschungsverbund Berlin e. V. (Germany)
 - Financing institution: European Union (INFRADEV-03-2018-2019)
 - Period: from 2019 to 2022
 - Principal investigator from IMIM: Mestres López, Jordi
- EOSC-Life: Providing an Open Collaborative Space for Digital Biology in Europe
 - Coordinator: ELIXIR @ European Molecular Biology Laboratory (UK)
 - Financing Institution: European Union (INFRAEOSC-04-2018)
 - Period: from 2019 to 2022
 - Principal investigator from IMIM: Mestres López, Jordi

Participation in Research Networks

- EU-OPENSCREEN: European Infrastructure of Open Screening Platforms for Chemical Biology (261861)

Group's Recognitions

- Our research group is part of the Grup de Recerca en Biomedicina Computacional, officially recognised as a consolidated research group by the Generalitat de Catalunya (2017-2020)
 - Agència de Gestió d'Ajuts Universitaris i de Recerca (SGR 0519)
 - Principal investigator: Sanz Carrera, Ferran

Theses

- Carrascosa MC. Next generation of informatics tools for big data analytics in drug discovery. Universitat Pompeu Fabra
 - Director: Mestres López, Jordi
 - Date of defense: 20/03/2018

Other

- Jordi Mestres obtained the Advanced Research Accreditation by the Agència per a la Qualitat del Sistema Universitari de Catalunya (AQU). December 11th, 2018.
- Jordi Mestres was appointed by the QSAR & Modeling Society to be the Organizer of the European QSAR Symposium that will take place in Barcelona on September 2020. October 2nd, 2018.
- Jordi Mestres was admitted as a Fellow of the Royal Society of Chemistry. June 12th, 2018.

Masters

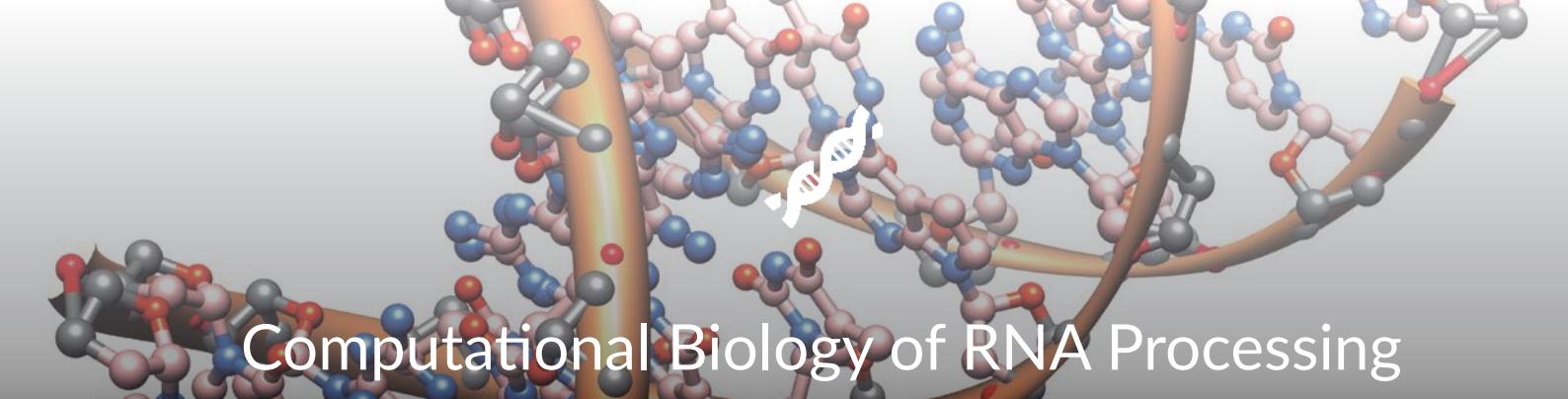
- Falaguera MJ. Identification of the core chemical structure in SureChEMBL patents. Pompeu Fabra University.
 - Director: Mestres López, J.
 - Date of defense: 02/07/2018.

Invited Presentations at International Conferences

- Annual Meeting of the Chem-Bio Informatics Society. Tokyo, Japan. Invited conference: Identification of safety events linked to drug classes. Mestres J. October 9-12, 2018.

Attendance to Courses

- Summer Course on Quantitative Pharmacology. Pamplona, Spain. Falaguera MJ. July 2-5, 2018.
- PRBB Intervals Course: Scientific Writing. Falaguera MJ. November 9, 16, 23, 30, 2018.



Computational Biology of RNA Processing

ASSOCIATED GROUP



Group Leader

Roderic Guigó

roderic.guigo@crg.cat

The overarching theme of the research in our group is the understanding of the information encoding in genomic sequences, and how this information is processed in the pathway leading from DNA to protein sequences. More specifically, we are interested in the regulation of the primary production (transcription) and post-processing (splicing) of RNA, and how this regulated production relates to cell, tissue and organism phenotypes. Our research is increasingly incorporating high throughput and experimental approaches. In addition, but related to this basic component of our research, our group is also involved in the development of software for functional annotation in genomic sequences. Our group has actively participated in the analysis of many eukaryotic genomes and is involved in a number of international projects: ENCODE, GTEx, BluePrint and the International Cancer Genome Consortium, among others.

We are the Genomics node of the Spanish Instituto Nacional de Bioinformática.

Main Publications with IMIM

- Ferreira PG, Reverter F, Sá Godinho CP, Sousa A, Amadoz A, Sodaei R, Hidalgo MR, Pervouchine D, Carbonell-Caballero J, Nurtdinov R, Breschi A, Amador R, Oliveira P, Çubuk C, Curado J, Aguet F, Oliveira C, Dopazo J, Sammeth M, Ardlie KG, Guigó R. The effects of death and post-mortem cold ischemia on human tissue transcriptomes. *Nat Commun* 2018; 9(1): 490. IF 12.353. D1.
- Garrido-Martín D, Palumbo E, Guigó R, Breschi A. ggsashimi: Sashimi plot revised for browser- and annotation-independent splicing visualization. *PLoS Comput Biol* 2018; 14(8): e1006360. IF 3.955. D1.

MORE INFO



active

F^{6.44}



L^{6.41}

L^{3.43}

Y^{7.53}

R^{3.50}

inactive

F^{6.44}

L^{3.43}

F^{6.41}

Y^{7.53}

Pharmacoinformatics

ASSOCIATED GROUP



Group Leader

Manuel Pastor Maeso

manuel.pastor@upf.edu



Members

Núria Boada Centeno (Researcher)

The Pharmacoinformatics research group is devoted to the development and application of computational methodologies in the area of drug design and development.

Nowadays, computational methodologies are widely applied in many steps of the drug discovery and development; from the structural modeling of a pharmacological target to the prediction of the ligand binding affinity. However, in the vast majority of cases the limitations of current technology allow us only to obtain approximate representations of the complex biological phenomena that are the focus of interest in the development of new drugs.

The Pharmacoinformatics group aims to improve the current state-of-the-art with a pragmatic approach. We want to develop useful tools that increase the efficiency of the pharmaceutical R&D process. At the same time, the need to produce robust models led us to go beyond reductionist approaches and to develop multi-scale methods, depicting richer and more realistic representations of the phenomena under study than those produced by classical computational methods.

Main Publications with IMIM

- López-Massaguer O, Sanz F, Pastor M. An automated tool for obtaining QSAR-ready series of compounds using semantic web technologies. *Bioinformatics* 2018; 34(1): 131-133. IF 5.481. D1.
- López-Massaguer O, Pinto-Gil K, Sanz F, Amberg A, Anger LT, Stolte M, Ravagli C, Marc P, Pastor M. Generating modelling data from repeat-dose toxicity reports. *Toxicol Sci* 2018; 162(1): 287-300. IF 4.181. Q1.
- Pastor M, Quintana J, Sanz F. Development of an Infrastructure for the Prediction of Biological Endpoints in Industrial Environments. Lessons Learned at the eTOX Project. *Front Pharmacol* 2018; 9: 1147. IF 3.831. Q1.
- Romero L, Cano J, Gomis-Tena J, Trenor B, Sanz F, Pastor M, Saiz J. In Silico QT and APD Prolongation Assay for Early Screening of Drug-Induced Proarrhythmic Risk. *J Chem Inf Model* 2018; 58(4): 867-878. IF 3.804. Q1.

MORE INFO

Cancer



12

Research groups



151

Professionals



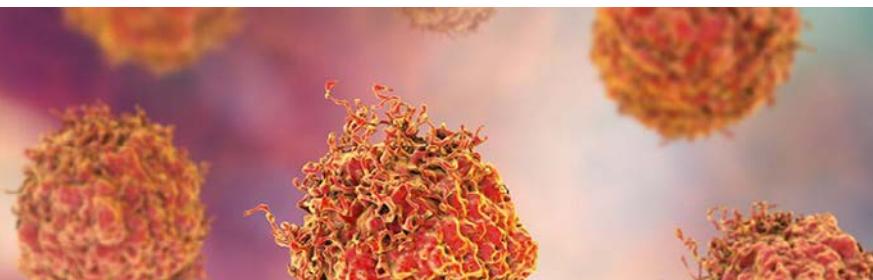
48

Research projects



177

Publications



Programme Director

Joan Albanell Mestres

RESEARCH GROUPS

Applied Clinical Research in Hematological Malignancies
Carles Besses

Colorectal Neoplasms Clinical and Translational Research
Xavier Bessa

Gastroesophageal Carcinogenesis
Manuel Ramón Pera

Genitourinary Cancer
Josep Lloreta

Localised Hyperthermia Therapies
Fernando Burdío

Mechanisms of Tumorigenesis and Tumor Progression
Antonio García de Herreros

Molecular Cancer Therapeutics
Joan Albanell

Molecular Mechanisms of Cancer and Stemness

Lluís Espinosa

Poly (ADP-ribose) Polymerases
José Yélamos

Radiation Oncology
Manuel Ignacio Algara

Stems Cells and Cancer
Anna Bigas

Translational Research on Hematological Neoplasms
Blanca Espinet

Main Programme Organization and Objectives

The programme includes basic, preclinical and clinical groups. Group leaders include basic scientists, digestologists, hematologists, immunologists, medical oncologists, radiation oncologists, pathologists, and surgeons, resulting in a multidisciplinary programme that allows undertaking collaborative projects focused on clinically relevant questions. The ultimate goal for this programme is to work at the interface between the laboratory and the clinic, with a priority in translational research.

10 groups (Albanell, Besses, Burdío, Yélamos, Espinet, Bessa, Bigas, Manuel Pera, García de Herreros, and Lloreta) are accredited by the Catalan Government (AGAUR).

In the transition from RTICC to CIBER, Anna Bigas and Joan Albanell groups play leading roles in the Molecular Mechanisms and “Breast Cancer programmes” respectively.

Overall Scientific Objectives and Strategy

We aim to provide novel discoveries that may help to advance personalized medicine across a number (but not limited to) of highly prevalent cancer types, including breast, colon, lung, pancreas, prostate and bladder cancers, as well as chronic myeloproliferative diseases and lymphoma. These diverse cancers represent well the main types in which our institute has both clinical and research expertise.

Our overall strategy includes: (i) Interrogate clinical specimens using high-throughput screening technologies and then go back to the lab, and (ii) Develop hypothesis-based studies in preclinical models and test salient findings in clinical specimens. The basic research groups should study and validate mechanistically the findings of the other groups and also provide translational hypothesis on their current main areas (EMT, NF-κB, oncogenic signalling, among others). We also incorporate, by means of collaboration with other programmes, immunology research (Inflammatory and Cardiovascular Disorders Programme), bioinformatics (Biomedical Informatics Programme) and epidemiology (Epidemiology and Public Health Programme).

We also develop clinical translational research in the fields of cancer role, personalized medicine across various tumor types, innovative surgical devices, and bone health in cancer survival, cardio-hematology and immunotherapy. We also have a growing phase I clinical programme.

Overall Technological Objectives

The aims are to develop novel biomarkers for cancer prevention, diagnosis and treatment selection, and develop novel therapeutic strategies, based on the discovery of novel mechanisms of cancer initiation or progression, as well as on translational and clinical studies. Surgeons also develop innovative technological surgical devices.

Overall Educational Objectives

The combination of researchers with different areas of training (basic, translational and clinical) aims to result in both scientists with a clinical perspective and clinicians that understand science. A number of internal and external collaborations are established, including national and international collaborations.



Applied Clinical Research in Hematological Malignancies

RESEARCH GROUP



Group Leader

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Members

Beatriz Bellosillo Paricio (Researcher)
Eva Gimeno Vázquez (Researcher)
Carmen Jiménez Martínez (Researcher)
Eugènia Monreal Abella (Researcher)
Antonio Salar Silvestre (Researcher)
Blanca Sánchez González (Researcher)
Nieves García Gisbert (PhD Student)
Anna Angona Figueras (Technician)
Randa Ben Azaiz Ben Lahsen (Technician)
Francesc Garcia Pallarols (Technician)
Lierni Fernández Ibarrondo (Technician)
Joan Gibert Fernández (Technician)
María Elena Torres Grande Technician)

The group is studying molecular markers in chronic myeloproliferative neoplasms, mainly driver mutations but also mutations in epigenetic modifiers and genes involved in the splicing mechanism, and their role in monitoring the response to cytoreductive therapy and in patient outcome. In addition, the group is searching for new mutations using exome sequencing techniques in patients with essential thrombocythemia unmutated for JAK2, CALR and MPL genes. In addition, the role of circulating DNA as a tool to diagnose and monitor the response to therapy in myeloid neoplasms is an ongoing research project. Another area of research is the use of NGS and circulating DNA to study the prognostic role of mutations in follicular lymphoma patients in relation to response to therapy and the risk of transformation to large B-cell lymphoma. Another area of clinical research in lymphoma focuses on the usefulness of natriuretic peptides and cardiovascular risk scales for predicting anthracycline-induced cardiomyotoxicity in patients with diffuse large B-cell lymphoma.

Main Publications

- Connors JM, Jurczak W, Straus DJ, Ansell SM, Kim WS, Gallamini A, Younes A, Alekseev S, Illés Á, Picardi M, Lech-Maranda E, Oki Y, Feldman T, Smolewski P, Savage KJ, Bartlett NL, Walewski J, Chen R, Ramchandren R, Zinzani PL, Cunningham D, Rosta A, Josephson NC, Song E, Sachs J, Liu R, Jolin HA, Huebner D, Radford J, ECHELON-1 Study Group (...Sánchez-González B...). Brentuximab Vedotin with Chemotherapy for Stage III or IV Hodgkin's Lymphoma. *New Engl J Med* 2018; 378(4): 331-344. IF 79.258. D1.
- Clot G, Jares P, Giné E, Navarro A, Royo C, Pinyol M, Martín-Garcia D, Demajo S, Espinet B, Salar A, Ferrer A, Muntañola A, Aymerich M, Rauert-Wunderlich H, Jaffe ES, Connors JM, Gascoyne RD, Delabie J, López-Guillermo A, Ott G, Wright GW, Staudt LM, Rosenwald A, Scott DW, Rimsza LM, Beà S, Campo E. A new molecular assay and genomic complexity predict outcome in conventional and leukemic non-nodal mantle cell lymphoma. *Blood* 2018; 132(4): 413-422. IF 15.132. D1.
- Karube K, Enjuanes A, Dlouhy I, Jares P, Martín-Garcia D, Nadeu F, Ordóñez GR, Rovira J, Clot G, Royo C, Navarro A, González-Farré B, Vaghefi A, Castellano G, Rubio-Pérez C, Tamborero D, Briones J, Salar A, et al. Integrating genomic alterations in diffuse large B-cell lymphoma identifies new relevant pathways and potential therapeutic targets. *Leukemia* 2018; 32(3): 675-684. IF 10.023. D1.
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- Montalbán C, Díaz-López A, Martín A, Baile M, Sánchez JM, Sancho JM, García O, Novelli S, Monter-Rovira A, Salar A, et al. Differential prognostic impact of GELTAMO-IPI in cell of origin subtypes of Diffuse Large B Cell Lymphoma as defined by the Hans algorithm. *Br J Haematol* 2018; 182(4): 534-541. IF 5.128. Q1.

Ongoing Research Projects

- Caracterización molecular de las neoplasias mieloides a partir del ADN tumoral circulante
 - Financing institution: Fondo de Investigación Sanitaria. ISCIII (PI16/00153)
 - Period: from 2017 to 2019
 - Principal investigator: Bellosillo Paricio, Beatriz
- Caracterización mediante secuenciación masiva de las mutaciones asociadas con fallo precoz al tratamiento de primera línea en linfoma folicular
 - Financing institution: Fondo de Investigación Sanitaria. ISCIII (PI15/00459)
 - Period: from 2016 to 2020
 - Principal investigator: Salar Silvestre, Antonio
- Molecular characterization of myeloid malignancies in tumoral circulating free DNA and exosomes
 - Financing institution: Gilead España GLD16/00064
 - Period: from 2016 to 2018
 - Principal investigator: Besses Raebel, Carles
- Caracterización de la trombocitemia esencial jak2v617f y mpl negativa mediante secuenciación del exoma.
 - Financing institution: Fondo de Investigación Sanitaria. ISCIII PI13/00393
 - Period: from 2014 to 2018
 - Principal investigator: Bellosillo Paricio, Beatriz

Group's Recognitions

- Officially recognised as a consolidated research group by the Generalitat de Catalunya: Grup de Recerca Aplicada en Hematologia (2017 to 2020)
 - Agència de Gestió d'Ajuts Universitaris i de Recerca (SGR 205)
 - Principal investigator: Besses Raebel, Carles

Clinical Trials Signed in 2018

- Ensayo clínico fase Ib/II de ruxolitinib en combinación con nilotinib y prednisona para mielofibrosis: Estudio RuNiC
 - Register: RuNiC
 - Principal investigator: Angona Figueras, Anna
- Estudio observacional, internacional, multicéntrico, sobre el uso de ruxolitinib en el tratamiento de pacientes con policitemia vera que presentan resistencia o intolerancia a la hidroxiurea
 - Register: CINC424BIC04/NOV-RUX-2017-01
 - Principal investigator: Angona Figueras, Anna
- An International, Phase 3, Open-label, Randomized Study of BGB-3111 Compared with Bendamustine plus Rituximab in Patients with Previously Untreated Chronic Lymphocytic Leukemia or Small Lymphocytic Lymphoma
 - Register: BGB-3111-304
 - Principal investigator: Gimeno Vázquez, Eva
- A Phase 1b, Dose Escalation Study to Determine the Recommended Phase 2 Dose of TAK-659 in Combination With Bendamustine (\pm Rituximab), Gemcitabine, Lenalidomide, or Ibrutinib for the Treatment of Patients With Advanced Non-Hodgkin Lymphoma After At Least 1 Prior Line of Therapy
 - Register: C34005
 - Principal investigator: Salar Silvestre, Antonio
- Estudio de fase II, abierto, de 2 cohortes y multicéntrico de INCB050465, un inhibidor de PI3K δ , en linfoma de células del manto en recidiva o resistente al tratamiento, previamente tratado con o sin un inhibidor de la BTK (CITADEL-205)
 - Register: INCB 50465-205
 - Principal investigator: Sánchez González, Blanca
- Estudio observacional retrospectivo del tratamiento del Linfoma de Células del Manto (LCM) con Ibrutinib en la práctica clínica habitual
 - Register: JAN-IBR-2017-01
 - Principal investigator: Salar Silvestre, Antonio

- Respuesta inmunitaria a la vacuna de la gripe en pacientes con neoplasias malignas de células B tratados con idelalisib
 - Register: GS-US-313-4100
 - Principal investigator: Salar Silvestre, Antonio
- Estudio retrospectivo sobre el tratamiento en primera línea del Mieloma Múltiple, en pacientes de nuevo diagnóstico no candidato a trasplante de 2012 a 2016 según práctica clínica habitual en España - Estudio RETRO
 - Register: CEL-MIE-2018-01
 - Principal investigator: Abella Monreal, Eugenia
- Estudio observacional para describir el impacto de las combinaciones de tratamiento con Daratumumab frente a otros tratamientos alternativos en pacientes con mieloma múltiple en recaída / refractario (MMRR). Datos de práctica
 - Register: JAN-DAR-2018-01
 - Principal investigator: Abella Monreal, Eugenia
- A Phase 3 Study Comparing Daratumumab, VELCADE (bortezomib), Lenalidomide, and Dexamethasone (D-VRd) with VELCADE, Lenalidomide, and Dexamethasone (VRd) in Subjects with Untreated Multiple Myeloma and for Whom Hematopoietic Stem Cell Transplant is Not Planned as Initial Therapy
 - Register: 54767414MMY3019
 - Principal investigator: Abella Monreal, Eugenia
- Estudio de fase II abierto, aleatorizado, de búsqueda de la dosis de pacritinib en pacientes con mielofibrosis primaria, mielofibrosis posterior a policitemia vera o mielofibrosis posterior a trombocitemia idiopática tratados previamente con ruxolitinib
 - Register: PAC203
 - Principal investigator: Angona Figueras, Anna



Colorectal Neoplasms Clinical and Translational Research

RESEARCH GROUP



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M. Francisca Murciano Gonzalo (Technician)
Noemí Rodríguez Fernández (Technician)

The main strategic objective is to further our understanding of the pathogenesis of various neoplastic colorectal processes, from polyps to colorectal cancer, as well as their prevention and treatment. Our research focuses on identifying the factors relating to the development of metachronous neoplastic lesions, particularly advanced colorectal adenomas, to improve patient monitoring, and study how the inflammatory response to surgery influences the oncological outcome, identifying disease progression biomarkers in patients with colorectal cancer. Ongoing projects are:

- 1) Optimization of the surveillance of colon polyps. Development of an index for the risk of recurrence based on environmental, clinical, morphological, histological and molecular factors.

- 2) Prevention of colorectal cancer in the intermediate-risk population by means of genomic and microbiomic biomarkers (CRIPREV) PERIS (SLT002 / 16/00398).
- 3) Identification of epigenetic markers of colorectal cancer progression in a prospective population cohort of colorectal cancer (CRC) patients.
- 4) Validation of postoperative serum levels of VEGF as a predictive biomarker of recurrence after surgery in patients with CRC who have undergone surgery with curative intent (FAECP grant).
- 5) Metabolic phenotyping of patients with CRC who have undergone surgery with curative intent to develop a profile of metabolites as predictive biomarkers of recurrence (ISCIII grant).

Main Publications

- Carballal S, Maisterra S, López-Serrano A, Gimeno-García AZ, Vera MI, Marín-Garbriel JC, Díaz-Tasende J, Márquez L, Álvarez-González MA, Hernández L, et al. Real-life chromoendoscopy for neoplasia detection and characterisation in long-standing IBD. *Gut* 2018; 67(1): 70-78. IF 17.016. D1.
- Ordás I, Domènech E, Mañosa M, García-Sánchez V, Iglesias-Flores E, Rodríguez-Moranta F, Márquez L, Merino O, Fernández-Bañares F, Gomollón F, et al. Post-operative morbidity and mortality of a cohort of steroid refractory acute severe ulcerative colitis: Nationwide multicenter study of the GETECCU ENEIDA Registry. *Am J Gastroenterol* 2018; 113(7): 1009-1016. IF 10.231. D1.
- Murcia O, Jover R, Egoavil CM, Juárez M, Pérez-Carbonell L, Hernández-Illán E, Rojas E, Alenda C, Balaguer F, Andreu M, Llor X, Castells A, Boland CR, Goel A. TFAP2E Methylation and Expression Status Does Not Predict Response to 5FU-based Chemotherapy in Colorectal Cancer. *Clin Cancer Res* 2018; 24(12): 2820-2827. IF 10.199. D1.
- Poves I, Burdío F, Morató O, Iglesias M, Radosevic A, Ilzarbe L, Visa L, Grande L. Comparison of Perioperative Outcomes Between Laparoscopic and Open Approach for Pancreatoduodenectomy: The PADULAP Randomized Controlled Trial. *Ann Surg* 2018; 268(5): 731-739. IF 9.203. D1.
- Rodríguez-Alcalde D, Carballal S, Moreira L, Hernández L, Rodríguez-Alonso L, Rodríguez-Moranta F, Gonzalo V, Bujanda L, Bessa X, Poves C, et al. High incidence of advanced colorectal neoplasia during endoscopic surveillance in serrated polyposis syndrome. *Endoscopy* 2018; 51(2): 142-151. IF 6.629. D1.
- Marcuello M, Mayol X, Felipe E, Costa J, López-Hierro L, Salvans S, Alonso S, Pascual M, Grande L, Pera M. Modulation of the colon cancer cell phenotype by pro-inflammatory macrophages: A preclinical model of surgery-associated inflammation and tumor recurrence. *PLoS ONE* 2018; 13(2): e0192958. IF 2.766. Q1.

- Baré M, Mora L, Torà N, Gil MJ, Barrio I, Collera P, Suárez D, Redondo M, Escobar A, Fernández de Larrea N, Quintana JM; CCR-CARESS Study Group (Pera M...). CCR-CARESS score for predicting operative mortality in patients with colorectal cancer. Br J Surg 2018; 105(13):1853-1861. IF 2.432. D1.

Ongoing Research Projects

- Repetición de una preparación intestinal en pacientes con colonoscopias con preparación inadecuada. Estudio Repeat-Prep.
 - Financing institution: Asociación Española de Gastroenterología (AEG)
 - Period: from 2017 to 2018
 - Principal investigator: Álvarez González, Marco Antonio
- Concentración postoperatoria del VEGF como factor pronóstico de recurrencia tras cirugía curativa de cáncer de colon. Estudio multicéntrico
 - Financing institution: Fundación Asociación Española de Coloproctología (FAECP)
 - Period: from 2017 to 2018
 - Principal investigator: Pascual Damieta, Marta
- Early biomarkers in circulating a 4B7 + T cells to predict response to Vedolizumab in inflammatory bowel disease patients
 - Financing institution: Takeda Pharmaceutical. IISR-2016-101479
 - Period: from 2016 to 2019
 - Principal investigator. Márquez Mosquera, Lucía
- Biomarcadores pronósticos de recurrencia tras cirugía del cáncer colorrectal: Estudio de los cambios metabólicos y del contenido proteico y de miRNA de las vesículas extracelulares
 - Financing institution: Fondo de Investigación Sanitaria. ISCIII (PI15/00458)
 - Period: from 2016 to 2019
 - Principal investigator: Pera Román, Miguel
- Optimización de la vigilancia de lesiones adenomatosas y serradas de colon. Elaboración de un índice de riesgo de recidiva mediante factores ambientales, clínicos, morfológicos, histológicos y moleculares
 - Financing institution: Asociación Española Contra el Cáncer-AECC (PS14152544ANDR)
 - Period: from 2015 to 2018
 - Principal investigator: Andreu García, Montserrat

- Optimización de la vigilancia de lesiones adenomatosas y serradas de colon. Desarrollo de un índice de riesgo de recidiva mediante factores ambientales, clínicos, morfológicos, histológicos y moleculares
 - Financing institution: Fondo de Investigación Sanitaria. ISCIII (PI14/00441)
 - Period: from 2015 to 2018
 - Principal investigator: Andreu García, Montserrat
- Infección peritoneal postoperatoria y recurrencia del cáncer colorrectal. Estudio de los cambios en el metabolismo energético de las células tumorales como mecanismo responsable de esta asociación
 - Financing institution: Fundación Mutua Madrileña (AP150582014)
 - Period: from 2014 to 2018
 - Principal investigator: Pascual Damieta, Marta

Participation in Research Networks

- Prevenció del càncer colorectal en la població de risc mitjà mitjançant biomarcadors genòmics i microbiòmics. PT 9. Coordinació de la fase pilot de l'estudi
 - PERIS (SLT002/16/00398) 2016-2010
 - Principal Investigator (WP): Bessa i Caserras,Xavier
- European Society of Coloproctology Cohort Studies
 - Investigators: Marta Pascual, Sandra Alonso, Silvia Salvans, Marta Jiménez-Toscano, Miguel Pera

Group's Recognitions

- Officially recognised as a consolidated research group by the Generalitat de Catalunya: Grup de Recerca Clínica i Translacional en Neoplàsies Colorectals (2017-2020)
 - Agència de Gestió d'Ajuts Universitaris i de Recerca (SGR 80)
 - Principal investigator: Bessa Casserras, Xavier

Clinical Trials Signed in 2018

- Suspensión del tratamiento Anti_TNF en pacientes con enfermedad inflamatoria intestinal: Ensayo clínico multicéntrico, prospectivo y aleatorizado.
 - Register: GIS-SUSANTI-TNF-2015
 - Principal investigator: Márquez Mosquera, Lucía

- Eficacia de los bolos intravenosos de corticoides más tratamiento con corticoides orales en comparación con corticoides orales en monoterapia para el tratamiento de la colitis ulcerosa moderada: ensayo clínico multicéntrico y aleatorizado.
 - Register: CECUM
 - Principal investigator: Márquez Mosquera, Lucía
- Estudio de fase IIIb, multicéntrico, aleatorizado, ciego y controlado con fármaco activo para comparar la eficacia y seguridad de ustekinumab frente a adalimumab en el tratamiento de pacientes con enfermedad de Crohn con actividad moderada o grave previamente no tratados con fármacos biológicos.
 - Register: CNT01275CRD3007
 - Principal investigator: Andreu García, Montserrat
- Colorectal Cancer Omics Collection
 - Register: CRC-OC-001
 - Principal investigator: Bessa Caserras, Xavier



Gastroesophageal Carcinogenesis

RESEARCH GROUP



Group Leader

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Members

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Mar Iglesias Coma (Researcher)
Marta Garrido Saldaña (Technician)

The sequential process prior to the appearance of a gastric or esophageal adenocarcinoma is a sequential histologically well-defined process characterized by the appearance of an intestinal phenotype. In the first stages of gastro-esophageal carcinogenesis the expression of intestinal markers, as intestinal transcription factors (CDX2), mucin genes (MUC2 and MUC4), intestinal enzymes and others, can be detected. We study the molecular mechanisms that can be initiating these processes, through the regulation of transcription factors inducing the acquisition of the intestinal phenotype. In the esophagus, the development of columnar metaplasia (Barrett's esophagus) is a response to a chronic gastroesophageal reflux injury and is a major risk factor for esophageal adenocarcinoma. Patients undergoing esophagectomy with a gastric conduit reconstruction develop columnar metaplasia in the remnant esophagus on a background of significant reflux, providing a useful model to study the early molecular events in the development of Barrett's esophagus. MiRNAs expression profiles may identify a characteristic signature that could distinguish between normal squamous epithelium, esophagitis, cardiac-type epithelium, and intestinal metaplasia. A group of miRNAs may selectively target specific transcriptional factors (CDX2) involved in the Barrett's development.

Main Publications

- Tauriello DVF, Palomo-Ponce S, Stork D, Berenguer-Llergo A, Badia-Ramentol J, Iglesias M, Sevillano M, Ibiza S, Cañellas A, Hernando-Momblona X, Byrom D, Matarín JA, Calon A, Rivas EI, Nebreda AR, Riera A, Attolini CS, Batlle E. TGF β drives immune evasion in genetically reconstituted colon cancer metastasis. *Nature* 2018; 554(7693): 538-543. IF 41.577. D1.
- López-Arribillaga E, Rodilla V, Colomer C, Vert A, Shelton A, Cheng JH, Yan B, González-Pérez A, Juntila MR, Iglesias M, Torres F, Albanell J, Villanueva A, Bigas A, Siebel CW, Espinosa L. Manic Fringe deficiency imposes Jagged1 addiction to intestinal tumor cells. *Nat Commun* 2018; 9(1): 2992. IF 12.353. D1.
- Gallardo F, Bertran J, López-Arribillaga E, González J, Menéndez S, Sánchez I, Colomo L, Iglesias M, Garrido M, Santamaría-Babí LF, Torres F, Pujol RM, Bigas A, Espinosa L. Novel phosphorylated TAK1 species with functional impact on NF- κ B and β -catenin signaling in human Cutaneous T-cell lymphoma. *Leukemia* 2018; 32(10): 2211-2223. IF 10.023. D1.
- Prieto C, López-Millán B, Roca-Ho H, Stam RW, Romero-Moya D, Rodríguez-Baena FJ, Sanjuan-Pla A, Ayllón V, Ramírez M, Bardini M, De Lorenzo P, Valsecchi MG, Stanulla M, Iglesias M, Ballerini P, Carcaboso ÁM, Mora J, Locatelli F, Bertaina A, Padilla L, Rodríguez-Manzaneque JC, Bueno C, Menéndez P. NG2 antigen is involved in leukemia invasiveness and central nervous system infiltration in MLL-rearranged infant B-ALL. *Leukemia* 2018; 32(3): 633-644. IF 10.023. D1.
- Orozco CA, Martínez-Bosch N, Guerrero PE, Vinaixa J, Dalotto-Moreno T, Iglesias M, Moreno M, Djurec M, Poirier F, Gabius HJ, Fernández-Zapico ME, Hwang RF, Guerra C, Rabinovich GA, Navarro P. Targeting galectin-1 inhibits pancreatic cancer progression by modulating tumor-stroma crosstalk. *Proc Natl Acad Sci U S A* 2018; 115(16): E3769-E3778. IF 9.504. D1.
- Poves I, Burdío F, Morató O, Iglesias M, Radosevic A, Ilzarbe L, Visa L, Grande L. Comparison of Perioperative Outcomes Between Laparoscopic and Open Approach for Pancreatoduodenectomy: The PADULAP Randomized Controlled Trial. *Ann Surg* 2018; 268(5): 731-739. IF 9.203. D1.
- Molina-Montes E, Gómez-Rubio P, Márquez M, Rava M, Löhr M, Michalski CW, Molero X, Farré A, Perea J, Greenhalf W, et al. Risk of pancreatic cancer associated with family history of cancer and other medical conditions by accounting for smoking among relatives. *Int J Epidemiol* 2018; 47(2): 473-483. IF 8.36. D1.
- Lo Re D, Montagner D, Tolan D, Di Sanza C, Iglesias M, Calon A, Giralt E. Increased immune cell infiltration in patient-derived tumor explants treated with Traniplatin: an original Pt(iv) pro-drug based on Cisplatin and Tranilast. *Chem Commun* 2018; 54(60): 8324-8327. IF 6.29. Q1.
- López-Millán B, Díaz de la Guardia R, Roca-Ho H, Anguita E, Islam ABMMK, Romero-Moya D, Prieto C, Gutiérrez-Agüera F, Bejarano-García JA, Pérez-Simon JA, Costales

P, Rovira M, Marín P, Menéndez S, Iglesias M, Fuster JL, Urbano-Ispizua A, Anjos-Afonso F, Bueno C, Menéndez P. IMiDs mobilize acute myeloid leukemia blasts to peripheral blood through downregulation of CXCR4 but fail to potentiate AraC/Idarubicin activity in preclinical models of non del5q/5q- AML. *Oncolimmunology* 2018; 7(9): e1477460. IF 5.503. Q1.

- Gasull M, Pumarega JA, Kiviranta H, Rantakokko P, Raaschou-Nielsen O, Bergdahl IA, Sandanger TM, Goñi F, Cirera L, Donat-Vargas C, et al. Methodological issues in a prospective study on plasma concentrations of persistent organic pollutants and pancreatic cancer risk within the EPIC cohort. *Environ Res* 2018; 169: 417-433. IF 4.732. D1.

Ongoing Research Projects

- Impacto de la fragilidad sobre los resultados postoperatorios de la cirugía del cáncer gástrico [TOREGA]
 - Financing institution: Asociación Española de Cirujanos
 - Period: from 2018 to 2019
 - Principal investigator: Pera Román, Manuel Ramón
- Regulación de CDX2 por miRNAs durante el proceso de intestinalización de la metaplasia cardial en un modelo humano de esófago de Barrett
 - Financing institution: Fondo de Investigación Sanitaria. ISCIII (PI13/00989)
 - Period: from 2014 to 2018
 - Principal investigator: Pera Román, Manuel Ramón
- Autoinmunidad, inflamación, y cáncer: el papel mediador de la Ciclina O y su posible aplicación clínica como indicador temprano de transformación tumoral
 - Financing institution: Fondo de Investigación Sanitaria. ISCIII (PI13/00864)
 - Period: from 2014 to 2018
 - Principal investigator: Gil Gómez, Gabriel

Group's Recognitions

- Officially recognised as a consolidated research group by the Generalitat de Catalunya: Grup de Recerca en Carcinogènesi Gastroesofàgica i Inestabilitat Genòmica (2017-2020)
 - Agència de Gestió d'Ajuts Universitaris i de Recerca (SGR 51)
 - Principal investigator: Pera Román, Manuel Ramón

Clinical Trials Signed in 2018

- A Phase 3, Global Multi-Center, Double-Blind, Randomized, Efficacy Study of IMAB362 Plus mFOLFOX6 Compared with Placebo Plus mFOLFOX6 as First-line Treatment of Subjects with Claudin (CLDN)18.2-Positive, HER2-Negative, Metastatic Gastric or Gastroesophageal Junction (GEJ) Adenocarcinoma.
 - Register: 8951-CL-0301
 - Principal investigator: Visa Turmo, Laura
- Estudio de Fase 3, aleatorizado, controlado, abierto y global, comparativo de la eficacia de BGB-A317, un anticuerpo anti-PD-1, frente a quimioterapia como segunda línea de tratamiento en pacientes con carcinoma esofágico epidermoide avanzado no resecable/metastásico.
 - Register: BGB-A317-302
 - Principal investigator: Visa Turmo, Laura
- Estudio de fase 3, en doble ciego y aleatorizado, de BGB-290 frente a placebo como tratamiento de mantenimiento en pacientes con cáncer gástrico localmente avanzado o metastásico, inoperable, que han respondido a una quimioterapia de primera línea basada en el platino.
 - Register: BGB-290-303
 - Principal investigator: Visa Turmo, Laura

Other

- Appointed Full Professor (Catedrático) in the Universitat Autònoma de Barcelona. October 2018
- Elected External Examiner at the Trinity College, Dublin, Ireland.
- Elected Honorary Fellow of the Royal College of Surgeons of Edinburgh. November 2018
- Elected member of the International Surgical Group (ISG). October 2018
- Re-elected Director, Executive Committee of the International Society for Diseases of the Esophagus (ISDE). November 2018.
- Extraordinary Doctorate Award 2018 to the student Marta Climent Agustín for her thesis “Resección con pretensión curativa del cáncer gástrico: Influencia de las complicaciones postoperatorias sobre la supervivencia y de la pérdida de peso sobre la calidad de vida”.
- Extraordinary Doctorate Award 2018 to the student Yusmeli Salazar-Silva for her thesis “Prótesis de rodilla dolorosa. relación entre la analgesia endógena ineficiente y el dolor postquirúrgico persistente”.



Genitourinary Cancer

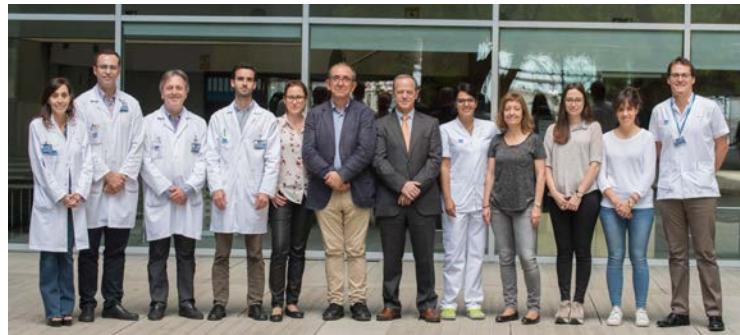
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Marta Lorenzo Pérez (Technician)

Prostate cancer is the most common non-cutaneous cancer in men, and urinary bladder cancer is the fourth most common overall in both sexes. In addition to their prevalence, there are specific features of their respective natural histories that make them two of the cancers that generate some of the highest economic costs and they are associated with high morbidity rates, thus both have a significant impact on patients' quality of life and on health care costs. These are two different models of carcinogenesis, reflecting diverse aspects of cancer biology. Two major pathways with different molecular, pathological and clinical profiles are well known in bladder cancer. A further advance relies on the identification of several specific molecular subclasses similar to those identified in breast cancer. Also in prostate cancer, the relatively unpredictable behavior of the disease appears to be related to different molecular subfamilies, namely, the complex subset of translocation-associated tumors, and the as yet poorly defined miscellaneous group of tumors not related to gene rearrangements. Furthermore, in both tumors, it has been suggested that inflammatory and immunological responses may be involved in their initiation and progression and these are regarded as new avenues for therapeutic intervention. In both tumors, there is a high demand for markers of early diagnosis, follow-up, and response to therapy, as well as for new

therapeutic targets and for parameters that allow a more personalized management of patients. Our objectives are to identify genetic signatures that may be involved in the transition from a hypothetical latent phase to a clinically significant phase, as well as markers of progression and advanced disease, in order to better understand the natural history of bladder and prostatic carcinoma and to design adequate treatment strategies for early detection, monitoring, treatment stratification, and follow-up, tailored for the personalized management of each patient.

Main Publications

- Kanesvaran R, Saux OL, Motzer R, Choueiri TK, Scotté F, Bellmunt J, Launay-Vacher V. Elderly patients with metastatic renal cell carcinoma: position paper from the International Society of Geriatric Oncology. *Lancet Oncol* 2018; 19(6): e317-e326. IF 36.418. D1.
- Bellmunt J, Nadal R. Urothelial cancer in 2017: Changes in expectations for metastatic urothelial carcinoma. *Nat Rev Clin Oncol* 2018; 15(2): 73-74. IF 24.653. D1.
- Rodríguez-Vida A, Pérez-Gracia JL, Bellmunt J. Immunotherapy Combinations and Sequences in Urothelial Cancer: Facts and Hopes. *Clin Cancer Res* 2018; 24(24): 6115-6124. IF 10.199. D1.
- Bellmunt J, Lalani AA, Jacobus S, Wankowicz SA, Polacek L, Takeda DY, Harshman LC, Wagle N, Moreno I, Lundgren K, Bossé D, Van Allen EM, Choueiri TK, Rosenberg JE. Everolimus and pazopanib (E/P) benefit genetically selected patients with metastatic urothelial carcinoma. *Br J Cancer* 2018; 119(6): 707-712. IF 5.922. Q1.
- Castelló A, Boldo E, Amiano P, Castaño-Vinyals G, Aragonés N, Gómez-Acebo I, Peiró R, Jiménez-Moleón JJ, Alguacil J, Tardón A, Cecchini L, Lope V, Dierssen-Sotos T, Mengual L, Kogevinas M, Pollán M, Pérez-Gómez B, MCC-Spain researchers. Mediterranean dietary pattern is associated to low risk of aggressive prostate cancer: MCC-Spain study. *J Urol* 2018; 199(2): 430-437. IF 5.381. Q1.
- Sonpavde GP, Mariani L, Lo Vullo S, Raggi D, Giannatempo P, Bamias A, Crabb SJ, Bellmunt J, Yu EY, Niegisch G, Vaishampayan UN, Theodore C, Berthold DR, Srinivas S, Sridhar SS, Plimack ER, Rosenberg JE, Powles T, Galsky MD, Necchi A. Impact of the number of cycles of platinum-based first-line chemotherapy for advanced urothelial carcinoma. *J Urol* 2018; 200(6): 1207-1214. IF 5.381. Q1.
- Baena-Díez JM, Subirana I, Ramos R, Gómez de la Cámara A, Elosua R, Vila JS, Marín-Ibáñez A, Guembe MJ, Rigo F, Tormo-Díaz MJ, et al. Evaluación de la validez de las funciones SCORE de bajo riesgo y calibrada para población española en las cohortes FRESCO. *Rev Esp Cardiol* 2018; 71(4): 274-282. IF 5.166. Q1.
- Mena M, Taberna M, Tous S, Márquez S, Clavero O, Quiros B, Lloveras B, Alejo M, León X, Quer M, Bagué S, Mesia R, Nogués J, Gomà M, Águila A, Bonfill T, Blázquez C, Guix M, Hijano R, Torres M, Holzinger D, Pawlita M, Pavón MA, Bravo IG, de Sanjosé S, Bosch FX, Alemany L. Double positivity for HPV-DNA/p16ink4a is the biomarker

with strongest diagnostic accuracy and prognostic value for human papillomavirus related oropharyngeal cancer patients. *Oral Oncol* 2018; 78: 137-144. IF 4.636. D1.

- Subirana I, Fitó M, Díaz O, Vila JS, Francés A, Delpon E, Sanchis J, Elosua R, Muñoz D, Degano IR, Marrugat J. Prediction of coronary disease incidence by biomarkers of inflammation, oxidation, and metabolism. *Sci Rep* 2018; 8(1): 3191. IF 4.122. Q1.
- Guitart M, Lloreta J, Mañas-García L, Barreiro E. Muscle regeneration potential and satellite cell activation profile during recovery following hindlimb immobilization in mice. *J Cell Physiol* 2018; 233(5): 4360-4372. IF 3.923. Q1.

Ongoing Research Projects

- Identificación prospectiva de predictores biológicos al tratamiento con inhibidores de PD-1/PD-L1 en cáncer de vejiga avanzado y cáncer de próstata avanzado resistente a la castración.
 - Financing institution: Fondo de Investigación Sanitaria. ISCIII (PI16/00112)
 - Period: from 2017 to 2019
 - Principal investigator: Bellmunt Molins, Joaquim
- Validación clínica y mecanismos de acción de las alteraciones moleculares con valor predictivo de progresión en el cáncer de próstata: algoritmo molecular de la carcinogénesis prostática.
 - Financing institution: Fondo de Investigación Sanitaria. ISCIII (PI15/00452)
 - Period: from 2016 to 2019
 - Principal investigator: Lloreta Trull, Josep

Group's Recognitions

- Officially recognised as a consolidated research group by the Generalitat de Catalunya: Grup de Recerca en Càncer Urològic (GRECU) (2017-2020)
 - Agència de Gestió d'Ajuts Universitaris i de Recerca (SGR 275)
 - Principal investigator: Lloreta Trull, Josep

Clinical Trials Signed in 2018

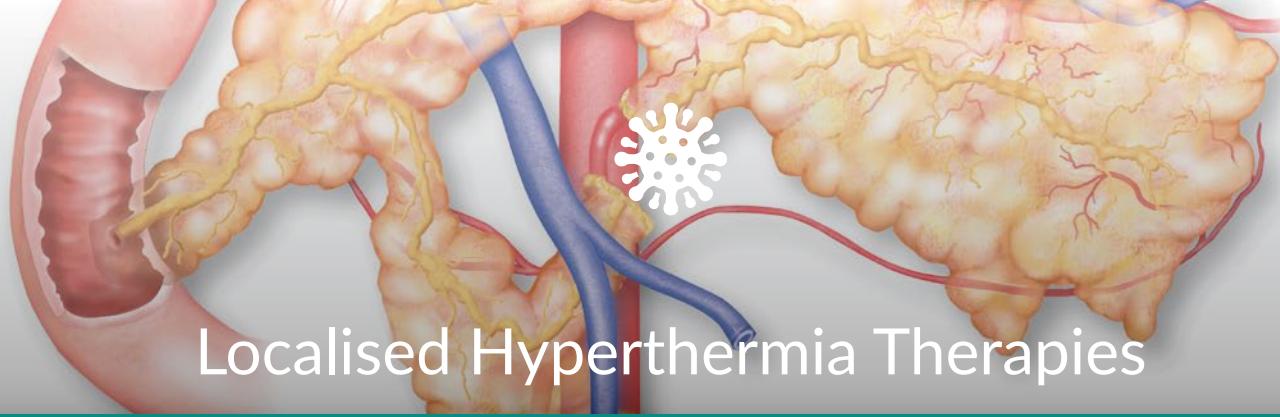
- Estudio de fase III, aleatorizado y abierto para evaluar la eficacia y la seguridad de pembrolizumab (MK-3475) más epacadostat frente al tratamiento de referencia (sunitinib o pazopanib) para el tratamiento de primera línea del carcinoma renal
 - Register: MK-3475-679/ECHO-302
 - Principal investigator: Rodríguez-Vida Rodríguez, Alejo

- Estudio clínico de fase 3 aleatorizado y doble ciego de pembrolizumab + epacadostat frente a pembrolizumab + placebo para el tratamiento del carcinoma urotelial metastásico recurrente o progresivo en pacientes que no han respondido
 - Register: MK-3475-698/ECHO-303
 - Principal investigator: Rodríguez-Vida Rodríguez, Alejo
- Análisis retrospectivo de factores clínicos asociados a un mayor beneficio con Axitinib en Cáncer Renal metastásico (Estudio AXILONG)
 - Register: A4061089 / PFI-AXI-2017-01
 - Principal investigator: Rodríguez-Vida Rodríguez, Alejo
- Phase II Study of Paclitaxel and TAK-228 in metastatic urothelial carcinoma (UC) and the impact of PI3K-mTOR pathway genomic alterations
 - Register: X31005
 - Principal investigator: Rodríguez-Vida Rodríguez, Alejo
- Estudio de fase II, multicéntrico, aleatorizado y abierto para evaluar la seguridad y la eficacia de avelumab con gemcitabina/carboplatino frente a quimioterapia con gemcitabina/carboplatino sola, en pacientes con carcinoma urotelial no resecable o metastásico que no hayan recibido terapia sistémica previa y que no sean aptos para la quimioterapia con cisplatino
 - Register: MS100070_0160
 - Principal investigator: Rodríguez-Vida Rodríguez, Alejo
- Estudio fase Ib de avelumab junto con carboplatino en pacientes con cáncer de próstata metastásico resistente a la castración en progresión tras como mínimo una línea de quimioterapia y una línea de nuevos agentes dirigidos contra la vía de señal del receptor androgénico
 - Register: APRO06-2017
 - Principal investigator: Rodríguez-Vida Rodríguez, Alejo
- Estudio de fase 2/3 b aleatorizado, abierto, multicéntrico para evaluar la eficacia y seguridad de Rogaratinib (BAY 1163877) comparado con quimioterapia en pacientes FGFR positivo con carcinoma urotelial metastásico o localmente avanzado que hayan recibido previamente quimioterapia con platino
 - Register: BAY1163877 / 17403
 - Principal investigator: Rodríguez-Vida Rodríguez, Alejo
- Ensayo mundial fase III, aleatorizado, abierto, multicéntrico de Durvalumab y el Bacilo de Calmette-Guerin (BCG) administrados como terapia combinada en comparación con BCG en monoterapia, en pacientes con cáncer de vejiga no músculo invasivo de alto riesgo sin tratamiento previo con BCG (POTOMAC).
 - Register: D419JC00001
 - Principal investigator: Cecchini Rosell, Lluís

- Estudio abierto de fase II con rucaparib en pacientes con carcinoma urotelial localmente avanzado o metastásico
 - Register: CO-338-085
 - Principal investigator: Rodríguez-Vida Rodríguez, Alejo
- Estudio de Fase IB multicéntrico, abierto, randomizado, de escalada de dosis para evaluar la seguridad, farmacocinética y actividad terapéutica de RO6874281 en combinación con atezolizumab ± bevacizumab en pacientes con carcinoma de células renales avanzado y/o metastásico no resecable
 - Register: BP39365
 - Principal investigator: Rodríguez-Vida Rodríguez, Alejo

Theses

- Font A. ERG rearrangements and PTEN loss in Prostate Cancer. Universitat Pompeu Fabra.
 - Directors: Lloreta Trull, Josep; Hernández-Llodrà, S.
 - Date of defense: 15/01/2018



Localised Hyperthermia Therapies

RESEARCH GROUP



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Members

José Ignacio Poves Prim (Researcher)

Clara Pañella Vilamú (Researcher)

The primary objective of the group is scientific production and technological innovation in the field of the application of high-frequency current to generate heat in biological tissues, aimed at local cell destruction that is minimally invasive for tissue pathologies, especially (but not exclusively) of human neoplasms.

Main Publications

- Poves I, Burdío F, Morató O, Iglesias M, Radosevic A, Ilzarbe L, Visa L, Grande L. Comparison of Perioperative Outcomes Between Laparoscopic and Open Approach for Pancreatoduodenectomy: The PADULAP Randomized Controlled Trial. Ann Surg 2018; 268(5): 731-739. IF 9.203. D1.
- Molina-Montes E, Gómez-Rubio P, Márquez M, Rava M, Löhr M, Michalski CW, Molero X, Farré A, Perea J, Greenhalf W, et al. Risk of pancreatic cancer associated with family history of cancer and other medical conditions by accounting for smoking among relatives. Int J Epidemiol 2018; 47(2): 473-483. IF 8.36. D1.
- García-Tejedor A, Guma A, Soler T, Valdivieso A, Petit A, Contreras N, Chappuis CG, Faló C, Pernas S, Amselem A, Plà MJ, Fernández-Montolí E, Burdío F, Ponce J. Radiofrequency Ablation Followed by Surgical Excision versus Lumpectomy for Early Stage Breast Cancer: A Randomized Phase II Clinical Trial. Radiology 2018; 289(2): 317-324. IF 7.469. D1.
- Castellví Q, Sánchez-Velázquez P, Moll X, Berjano E, Andaluz A, Burdío F, Bijnens B, Ivorra A. Modeling Liver Electrical Conductivity during Hypertonic Injection. Int J Numer Method Biomed Eng 2018; 34(1): e2904. IF 2.338. Q1.

Ongoing Research Projects

- Electroporación selectiva en hígado tumoral por medio de infusión de suero hipersalino vía portal
 - Financing institution: Fondo de Investigación Sanitaria. ISCIII (PI17/00468)
 - Period: from 2018 to 2020
 - Principal investigator: Burdío Pinilla, Fernando

Group's Recognitions

- Officially recognised as a consolidated research group by the Generalitat de Catalunya: Grup de Recerca Terapias de Ablación en Cirugía Oncológica (2017-2020)
 - Agència de Gestió d'Ajuts Universitaris i de Recerca (SGR 183)
 - Principal investigator: Burdío Pinilla, Fernando



Mechanisms of Tumorigenesis and Tumor Progression

RESEARCH GROUP



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Víctor Manuel Díaz Cortés (Researcher)
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Neus Martínez Moreno (Researcher)
Marina Bruch Oms (PhD Student)
David Cabrerizo Granados (PhD Student)
Héctor Franco Valls (PhD Student)
Guillem Lambies Barjau (PhD Student)
Aida Mestre Farrera (PhD Student)
Rubén Olivera Salguero (PhD Student)
Judit Vinaixa Forner (PhD Student)
Noemí Manero Rupérez (Technician)
Mireia Moreno Merino (Technician)
Raul Peña Arranz (Technician)
Jordi Vergés Sanjaime (Technician)
Silvia Geeraerd (Research assistant)

The group focuses on the study of the mechanisms controlling the acquisition of invasiveness by epithelial tumors as the first step in tumor metastasis. We are currently studying several aspects of this process. The main interest of the group concerns epithelial-to-mesenchymal transition (EMT), a conversion that provides tumor cells with greater invasive capacity, resistance to chemotherapeutic drugs, and cancer stem characteristics. In particular, we analyze the role of Snail1 transcriptional factor, required for EMT and also necessary for the activation of cancer-associated fibroblasts (CAFs). We are studying how Snail1 is post-translationally activated during EMT. Moreover,

using CAFs deprived of Snail1, we are assessing the effect of CAF activation on the growth, invasion and vascularization of epithelial tumors. We are also interested in the Snail1-dependent molecular pathways in fibroblasts involved in the activation of tumor cell invasion. In addition, we explore other molecular mechanisms underlying tumor progression, specifically the relevance of galectin-mediated tumor-stroma crosstalk. Moreover, given that cancer is a genetic disease caused by changes in gene expression during malignant transformation, we are also very interested in deciphering how these genetic changes are regulated by RNA translational control.

Main Publications

- Parras A, Anta H, Santos-Galindo M, Swarup V, Elorza A, Nieto-González JL, Picó S, Hernández IH, Díaz-Hernández JI, Belloc E, Rodolosse A, Parikhshak NN, Peñagarikano O, Fernández-Chacón R, Irimia M, Navarro P, Geschwind DH, Méndez R, Lucas JJ. Autism-like phenotype and risk gene mRNA deadenylation by CPEB4 mis-splicing. *Nature* 2018; 560(7719): 441-446. IF 41.577. D1.
- Pascual-Reguant L, Blanco E, Galán S, Le Dily F, Cuartero Y, Serra-Bardenys G, Di Carlo V, Iturbide A, Cebrià-Costa JP, Nonell L, García de Herreros A, Di Croce L, Martí-Renom MA, Peiró S. Lamin B1 mapping reveals the existence of dynamic and functional euchromatin lamin B1 domains. *Nat Commun* 2018; 9(1): 3420. IF 12.353. D1.
- Mazzolini R, González N, García-Garijo A, Millanes-Romero A, Peiró S, Smith S, García de Herreros A, Canudas S. Snail1 transcription factor controls telomere transcription and integrity. *Nucleic Acids Res* 2018; 46(1): 146-158. IF 11.561. D1.
- Orozco CA, Martínez-Bosch N, Guerrero PE, Vinaixa J, Dalotto-Moreno T, Iglesias M, Moreno M, Djurec M, Poirier F, Gabius HJ, Fernández-Zapico ME, Hwang RF, Guerra C, Rabinovich GA, Navarro P. Targeting galectin-1 inhibits pancreatic cancer progression by modulating tumor-stroma crosstalk. *Proc Natl Acad Sci U S A* 2018; 115(16): E3769-E3778. IF 9.504. D1.
- Martínez-Bosch N, Vinaixa J, Navarro P. Immune Evasion in Pancreatic Cancer: From Mechanisms to Therapy. *Cancers* 2018; 10(1): 6. IF 5.326. Q1.
- Curto J, Del Valle B, Villarroel A, Fuertes G, Vinyoles M, Peña R, García de Herreros A, Duñach M. CK1 ϵ and p120-catenin control Ror2 function in non-canonical Wnt signaling. *Mol Oncol* 2018; 12(5): 611-629. IF 5.264. Q1.
- Herrera A, Herrera M, Guerra-Pérez N, Galindo-Pumariño C, Larriba MJ, García-Barberán V, Gil B, Giménez-Moyano S, Ferreiro-Monteagudo R, Veguillas P, Candia A, Peña R, Pinto J, García-Bermejo ML, Muñoz A, García de Herreros A, Bonilla F, Carrato A, Peña C. Endothelial cell activation on 3D-matrices derived from PDGF-BB-stimulated fibroblasts is mediated by Snail1. *Oncogenesis* 2018; 7(9): 76. IF 4.722. Q1.

- Martínez-Bosch N; Barranco LE; Orozco CA; Moreno M; Visa L; Iglesias M; Oldfield L; Neoptolemos JP; Greenhalf W; Earl J; Carrato A; Costello E; Navarro P. Increased plasma levels of galectin-1 in pancreatic cancer: potential use as biomarker. *Oncotarget.* 9: 32984 - 32996. IF 4.67. Q1.
- Farfán N, Ocarez N, Castellón EA, Mejía N, García de Herreros A, Contreras HR. The transcriptional factor ZEB1 represses Syndecan 1 expression in prostate cancer. *Sci Rep* 2018; 8(1): 11467. IF 4.122. Q1.
- Goday A, Castañer O, Benaiges D, Busquets-Pou A, Ramon-Moros JM, Iglesias M, Barranco L, Flores JA. Can Helicobacter pylori Eradication Treatment Modify the Metabolic Response to Bariatric Surgery?. *Obes Surg* 2018; 28(8): 2386-2395. IF 3.895. D1.

Ongoing Research Projects

- Identificación de nuevos mecanismos de regulación de la hemostasia: control de la función plaquetaria a través de la proteína CPEB4
 - Financing institution: Fundación Española de Trombosis y Hemostasia (FETH)
 - Period: from 2018 to 2019.
 - Principal investigator: Navarro Medrano, Pilar
- Galectinas, control de la expresión génica y cáncer: de los mecanismos moleculares a la práctica clínica
 - Financing institution: Fondo de Investigación Sanitaria. ISCIII (PI17/00199)
 - Period: 2018
 - Principal investigator: Navarro Medrano, Pilar
- Entendiendo el papel de Snail1 en la metastasis: análisis de la acción de los fibroblastos activos
 - Financing institution: Ministerio de Economía y Competitividad (SAF2016-76461-R)
 - Period: from 2016 to 2019
 - Principal investigator: García de Herreros Madueño, Antonio
- Galectina-1: una nueva diana para el desarrollo de herramientas diagnósticas y terapéuticas para el cáncer de páncreas
 - Financing institution: Asociación Cáncer de Páncreas
 - Period: from 2016 to 2019
 - Principal investigator: Navarro Medrano, Pilar
- Caracterización de dianas funcionales e inhibidores de la actividad miofibroblástica para frenar la formación de metástasis
 - Financing institution: Fondo de Investigación Sanitaria. ISCIII (PI15/00447)
 - Period: from 2016 to 2018
 - Principal investigator: Baulida Estadella, Josep

- Implicaciones clínicas de la expresión de Galectina-1 en cáncer genitourinario: su papel en el diagnóstico, pronóstico, y en la predicción a la respuesta con inhibidores de los “check-point” inmunes
 - Financing institution: Asociación Española Contra el Cáncer Catalunya
 - Period: from 2016 to 2018
 - Principal investigator: Navarro Medrano, Pilar
- Nuevas funciones de Galectina-1 y CPEBs en cáncer: papel en la remodelación del estroma tumoral, invasión/metástasis y pluripotencialidad celular. Implicaciones clínicas
 - Financing institution: Fondo de Investigación Sanitaria. ISCIII (PI14/00125)
 - Period: from 2015 to 2019
 - Principal investigator: Navarro Medrano, Pilar

Group's Recognitions

- Officially recognised as a consolidated research group by the Generalitat de Catalunya: Grup de Recerca en Transició Epiteli-Mesènquia i Invasió Tumoral. 2017 to 2020
 - Agència de Gestió d'Ajuts Universitaris i de Recerca (SGR 24)
 - Principal investigator: García de Herreros Madueño, Antonio
- Officially recognised as a consolidated research group by the Generalitat de Catalunya: Cellular and molecular mechanisms of disease. 2017 to 2020
 - Agència de Gestió d'Ajuts Universitaris i de Recerca (SGR 225)
 - Principal investigator: Navarro Medrano, Pilar

Theses

- Sala-Romanyà L. Methyltransferase inhibitors interfere with Snail1 action on myofibroblast activity to prevent fibrosis and metastasis. Universitat Pompeu Fabra.
 - Director: Baulida Estadella, Josep
 - Date of defense: 20/06/2018
- Genovès J. Evolució de les lesions CIN-2 segons la P16 i el Ki-67. Autonomous University of Barcelona
 - Directors: Mancebo Moreno, Gemma; Carreras Collado, Ramon; Alameda Quitllet, Francesc
 - Date of defense: 08/11/2018



Molecular Cancer Therapeutics

RESEARCH GROUP



Group Leader

Joan Albanell Mestres

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Members

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Xavier Villanueva Castelltort (Technician)
Arnau Zafra Ponce (Technician)
Lorena Tomás Marín (Research Assistant)

Our goal is to improve human cancer treatment through preclinical research with novel anticancer agents/combinations, and translational studies in clinical settings. The group includes three medical oncologists who lead competitive projects in breast (Joan Albanell), colon (Clara Montagut), and lung cancer (Edurne Arriola). We are organized in 2 areas: Preclinical laboratory (led by Ana Rovira) and Clinical research (led by Ignasi Tusquets). With regard to clinical research, we are working on bone health in breast cancer women (Sònia Servitja), Phase I trials (María Martínez) and oncogeriatry (Laura Visa, María Martínez). A Miquel Servet investigator (Alexandre Calon), who is formed in the role of stroma in cancer, has joined the group. Our integration in a single group has proven a successful strategy since it allows for sharing resources, expertise, knowledge and results, which improves the performance of the individual PIs far beyond the collaboration between independent groups.

The group is financed by CIBERONC and AGAUR.

Main Publications

- Tauriello DVF, Palomo-Ponce S, Stork D, Berenguer-Llergo A, Badia-Ramentol J, Iglesias M, Sevillano M, Ibiza S, Cañellas A, Hernando-Momblona X, Byrom D, Matarín JA, Calon A, Rivas EI, Nebreda AR, Riera A, Attolini CS, Batlle E. TGF β drives immune evasion in genetically reconstituted colon cancer metastasis. *Nature* 2018; 554(7693): 538-543. IF 41.577. D1.
- Chakrabarti R, Celià-Terrassa T, Kumar S, Hang X, Wei Y, Choudhury A, Hwang J, Peng J, Nixon B, Grady JJ, DeCoste C, Gao J, van Es JH, Li MO, Aifantis I, Clevers H, Kang Y. Notch ligand DLL1 mediates cross-talk between mammary stem cells and the macrophageal niche. *Science* 2018; 360(6396): eaan4153. IF 41.058. D1.
- Pernas S, Martín M, Kaufman PA, Gil-Martín M, Gómez-Pardo P, López-Tarruella S, Manso L, Ciruelos E, Pérez-Fidalgo JA, Hernando C, Ademuyiwa FO, Weilbaecher K, Mayer I, Pluard TJ, Martínez-García M, Vahdat L, Pérez-García J, Wach A, Barker D, Fung S, Romagnoli B, Cortes J. Balixafortide plus eribulin in HER2-negative metastatic breast cancer: a phase 1, single-arm, dose-escalation trial. *Lancet Oncol* 2018; 19(6): 812-824. IF 36.418. D1.
- Gianni L, Mansutti M, Antón A, Calvo L, Bisagni G, Bermejo B, Semiglavov V, Thill M, Chacon JI, Chan A, Morales S, Álvarez I, Plazaola A, Zambetti M, Redfern AD, Dittrich C, Dent RA, Magazzù D, De Fato R, Valagussa P, Tusquets I. Comparing Neoadjuvant Nab-paclitaxel vs Paclitaxel Both Followed by Anthracycline Regimens in Women With ERBB2/HER2-Negative Breast Cancer-the Evaluating Treatment With Neoadjuvant Abraxane (ETNA) Trial: A Randomized Phase 3 Clinical Trial. *JAMA Oncol* 2018; 4(3): 302-308. IF 20.871. D1.
- Montagut C, Argilés G, Ciardiello F, Poulsen TT, Dienstmann R, Kragh M, Kopetz S, Lindsted T, Ding C, Vidal J, et al. Efficacy of Sym004 in Patients With Metastatic Colorectal Cancer With Acquired Resistance to Anti-EGFR Therapy and Molecularly

Selected by Circulating Tumor DNA Analyses: A Phase 2 Randomized Clinical Trial.
JAMA Oncol 2018; 4(4): e175245. IF 20.871. D1.

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- Celià-Terrassa T, Kang Y. Metastatic niche functions and therapeutic opportunities. *Nat Cell Biol* 2018; 20: 868-877. IF 19.064. D1.
- Gawrzak S, Rinaldi L, Gregorio S, Arenas EJ, Salvador F, Urosevic J, Figueras-Puig C, Rojo F, del Barco I, Cejalvo JM, et al. MSK1 regulates luminal cell differentiation and metastatic dormancy in ER+ breast cancer. *Nat Cell Biol* 2018; 20(2): 211-221. IF 19.064. D1.
- Rius Ruiz I, Vicario R, Moráncho B, Morales CB, Arenas EJ, Herter S, Freimoser-Grundschober A, Somandin J, Sam J, Ast O, et al. p95HER2-T cell bispecific antibody for breast cancer treatment. *Sci Transl Med* 2018; 10(461): eaat1445. IF 16.71. D1.
- Abad A, Martínez-Balibrea E, Viéitez JM, Orduña VA, García-Alfonso P, Manzano JL, Massutí B, Benavides M, Carrato A, Zanui M, Gallego J, Grávalos C, Conde V, Provencio M, Valladares M, Salazar R, Sastre J, Montagut C, Rivera F, Aranda E. Genotype-based selection of treatment for patients with advanced colorectal cancer (SETICC): a pharmacogenetic-based randomized phase II trial. *Ann Oncol* 2018; 29(2): 439-444. IF 13.926. D1.

Ongoing Research Projects

- Estroma tumoral y terapia personalizada en cáncer de mama y cáncer colorrectal
 - Financing institution: Fondo de Investigación Sanitaria. ISCIII (PI17/00211)
 - Period: from 2018 to 2020
 - Principal investigator: Calon, Alexandre
- Molecular characterization of the immunological traits of triple-negative breast cancer stem cells
 - Financing institution: Fondo de Investigación Sanitaria. ISCIII (CP17/00037)
 - Period: from 2018 to 2020
 - Principal investigator: Celià Terrassa, Antoni
- LCOR orchestrates the differential IFN- α response and immunological properties of triple-negative breast cancer stem cells
 - Financing institution: Cancer Research Institute (CRI) (55054)
 - Period: from 2018 to 2020
 - Principal investigator: Celià Terrassa, Antoni

- Comparación de eventos inmunológicos en pacientes con cáncer de pulmón de célula pequeña (CPCP) tratados con quimioterapia estándar vs quimioterapia más ipilimumab
 - Financing institution: Fondo de Investigación Sanitaria. ISCIII (PI16/00591)
 - Period: from 2017 to 2019
 - Principal investigator: Arriola Aperribay, Edurne
- Interaction between cancer cells and their microenvironment during metastatic dissemination
 - Financing institution: Fondo de Investigación Sanitaria. ISCIII (CP16/00151)
 - Period: from 2017 to 2019
 - Principal investigator: Calon, Alexandre
- Prevenció del càncer colorectal en la població de risc mitjà mitjançant biomarcadors genòmics i microbiòmic (CRIPREV)
 - Financing institution: Departament de Salut de la Generalitat de Catalunya (SLT002/16/00398)
 - Period: from 2017 to 2019
 - Principal investigator: Montagut Viladot, Clara
- Microenvironment contribution to response to chemotherapy in Colorectal Cancer
 - Financing institution: Asociación Española Contra el Cáncer Catalunya
 - Period: from 2017 to 2018
 - Principal investigator: Calon, Alexandre
- Resistencia a tratamiento anti-EGFR en cáncer colorrectal: dinámica clonal y estrategias terapéuticas
 - Financing institution: Fondo de Investigación Sanitaria. ISCIII (PI15/00457)
 - Period: from 2016 to 2020
 - Principal investigator: Montagut Viladot, Clara
- Uncovering resistance to monoclonal antibodies in colorectal and breast cancer
 - Financing institution: Fondo de Investigación Sanitaria. ISCIII (PIE15/00008)
 - Period: from 2016 to 2019
 - Principal investigator: Albanell Mestres, Joan
- Papel de la heterogeneidad tumoral y la reprogramación dinámica de la célula tumoral en la resistencia a anticuerpos anti-HER2 en cáncer de mama HER2 positivo
 - Financing institution: Fondo de Investigación Sanitaria. ISCIII (PI15/00146)
 - Period: from 2016 to 2018
 - Principal investigator: Albanell Mestres, Joan

- Validación del impacto clínico de la monitorización de pacientes oncológicos mediante genotipado de DNA tumoral circulante en sangre (biopsia líquida)
 - Financing institution: Fondo de Investigación Sanitaria. ISCIII (DTS15/00048)
 - Period: from 2016 to 2018
 - Principal investigator: Montagut Viladot, Clara
- Potenciación de la citotoxicidad dependiente de anticuerpo mediada por linfocitos NK para inmunoterapia del cáncer
 - Financing institution: Asociación Española Contra el Cáncer-AECC (GCB15152947MELE)
 - Period: from 2015 to 2020
 - Principal investigator: Albanell Mestres, Joan
- Ultra-selection and molecular monitoring of colorectal cancer patients treated with anti-EGFR therapy using NGS platforms and serial liquid biopsies
 - Financing institution: Merck Serono International SA
 - Period: from 2015 to 2018
 - Principal investigator: Montagut Viladot, Clara

Participation in Research Networks

- CIBER Cáncer
 - Fondo de Investigación Sanitaria. ISCIII. CB16/12/00241
 - Principal investigator: Albanell Mestres, Joan

Group's Recognitions

- Officially recognised as a consolidated research group by the Generalitat de Catalunya: Grup de Recerca en Terapèutica Molecular del Càncer. 2017-2020
 - Agència de Gestió d'Ajuts Universitaris i de Recerca (SGR 507)
 - Principal investigator: Albanell Mestres, Joan

Clinical Trials Signed in 2018

- Estudio en fase III, internacional, multicéntrico, abierto, aleatorizado, de sacituzumab govitecan (IMMU-132) frente al tratamiento elegido por el médico en pacientes con cáncer de mama triple negativo metastásico que recibieron al menos dos tratamientos previos
 - Register: IMMU-132-05
 - Principal investigator: Martínez García, María

- Estudio de Fase II multicéntrico, abierto para evaluar la actividad terapéutica de RO6874281, una inmunocitoquina compuesta por una variante de interleuquina 2 (IL-2V) dirigida contra la proteína de activación de fibroblastos (FAP), en combinación con atezolizumab (Anti-PD-L1), administrados por vía intravenosa, en pacientes con tumores sólidos avanzados y/o metastásicos
 - Register: BP40234
 - Principal investigator: Taus García, Álvaro
- Estudio observacional retrospectivo del tratamiento con nab-paclitaxel en pacientes con cáncer de mama metastásico HER2-negativo en condiciones de práctica clínica habitual. Estudio CAREMA
 - Register: FIB-PAC-2017-01
 - Principal investigator: Martos Cárdenas, Tamara
- Ensayo clínico fase II abierto de enzalutamida en cáncer de la granulosa ovárica avanzado no resecable o metastásico. Estudio GreKo III
 - Register: GETHI 2016-01
 - Principal investigators: Hernández González, Ainhoa; Taus García, Álvaro
- Estudio en fase III, aleatorizado, con doble enmascaramiento y controlado con placebo, de Nivolumab o Nivolumab con cisplatino, en combinación con radioterapia en participantes con Carcinoma de Células Escamosas de Cabeza y Cuello (CCECC) localmente avanzado elegibles o no para recibir tratamiento con cisplatino
 - Register: CA209-9TM
 - Principal investigator: Guix Arnau, Marta
- Identificación de mecanismos de resistencia a Kadcyla (trastuzumab emtansina; T-DM1) en pacientes con cáncer de mama avanzado HER2 positivo: un estudio prospectivo de GEICAM. (Estudio KATIA)
 - Register: GEICAM/2017-04
 - Principal investigator: Albanell Mestres, Joan
- Estudio de fase II con diseño de Simon de dos etapas para pacientes con cáncer de mama metastásico, BRCA negativo y con deficiencia en la recombinación homóloga, tratadas con olaparib en monoterapia (Estudio NOBROLA)
 - Register: MedOPP100
 - Principal investigator: Servitja Tormo, Sònia
- Single Arm, Open Label Phase 1b/2 Study of SGN-LIV1A in Combination with Pembrolizumab for First-Line Treatment of Patients with Unresectable Locally-Advanced or Metastatic Triple-Negative Breast Cancer
 - Register: SGNLVA-002
 - Principal investigator: Albanell Mestres, Joan

- Estudio en Fase III multicéntrico, abierto, randomizado, con dos brazos de tratamiento para evaluar la farmacocinética, la eficacia y la seguridad de la administración subcutánea de la combinación en dosis fijas de pertuzumab y trastuzumab en combinación con quimioterapia en pacientes con cáncer de mama precoz HER2 positivo
 - Register: WO40324
 - Principal investigator: Martínez García, María
- Estudio de fase III, aleatorizado, secuencial y abierto, para evaluar la eficacia de FOLFOX + panitumumab seguido por FOLFIRI + bevacizumab (Secuencia 1) frente a FOLFOX + bevacizumab seguido por FOLFIRI + panitumumab (Secuencia 2) en pacientes con cáncer colorrectal metastásico no resecable, RAS nativo, tumor primario en lado izquierdo, no tratado previamente: CR-SEQUENCE
 - Register: TTD-18-01
 - Principal investigator: Guix Arnau, Marta
- A Randomized, Open-Label, Phase 3 Study of Abemaciclib combined with Standard Adjuvant Endocrine Therapy versus Standard Endocrine Therapy Alone in Patients with High Risk, Node Positive, Early Stage, Hormone Receptor Positive, Human Epidermal Receptor 2 Negative, Breast Cancer
 - Register: I3Y-MC-JPCF
 - Principal investigator: Servitja Tormo, Sònia
- Phase Ib clinical trial, multicenter study to evaluate the combination of THC-CBD with Temozolomide and radiotherapy in patients with newly diagnosed glioblastoma
 - Register: GEINO 1601
 - Principal investigator: Martínez García, María
- A Phase III, randomized, double-blind, placebo-controlled, multicenter, international study of osimertinib as maintenance therapy in patients with locally advanced , unresectable EGFR mutation-positive Non-Small Cell Lung Cancer (Stage III) whose disease has not progressed following definitive platinum-based chemoradiation therapy (LAURA)
 - Register: D5160C00048
 - Principal investigator: Arriola Aperribay, Edurne
- Análisis retrospectivo, observacional del tratamiento con palbociclib en pacientes con cáncer de mama avanzado dentro del programa de uso compasivo
 - Register: PALBOCOMP
 - Principal investigator: Servitja Tormo, Sònia

- Estudio de Fase IA/IB, abierto, multicéntrico, de escalada de dosis, para evaluar la seguridad, la farmacocinética y la actividad antitumoral preliminar de RO7122290, un ligando 4-1BB (CD137L) dirigido contra la proteína α de activación de fibroblastos (FAP), con o sin pretratamiento con obinutuzumab, en pacientes con tumores sólidos avanzados y/o metastásicos, en monoterapia o en combinación con atezolizumab, seguido de cohorte(s) de expansión específica(s) del tumor
 - Register: BP40087
 - Principal investigator: Martínez García, María
- A Phase 2, Randomized, Open-Label, Multicenter, Three-Arm Trial of Sym004 versus each of its Component Monoclonal Antibodies, Futuximab and Modotuximab, in Patients with Chemotherapy-Refractory Metastatic Colorectal Carcinoma and Acquired Resistance to Anti-EGFR Monoclonal Antibody Therapy
 - Register: Sym004-13
 - Principal investigator: Guix Arnau, Marta
- A Phase 1b/2 Study of BMS-813160 in Combination with Chemotherapy or Nivolumab in Patients with Advanced Solid Tumors
 - Register: CV202-103
 - Principal investigator: Guix Arnau, Marta

Theses

- Sampera A. Characterization of molecular mechanisms of acquired resistance to trastuzumab in gastric cancer. Universitat Pompeu Fabra
 - Directors: Montagut, Clara; Sánchez-Martín, F.J.
 - Date of defense: 20/11/2018



Molecular Mechanisms of Cancer and Stemness

RESEARCH GROUP



Group Leader
Lluís Espinosa Blay
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Members
Joan Bertran Comulada (Researcher)
Irene Pecharromán Ruiz (PhD Student)
Laura Solé Font (PhD Student)
Laura Marruecos Aylagas (Technician)
Leonie Schoch (Technician)

The Molecular Mechanisms of Cancer and Stemness group is fully dedicated to the identification of elements and pathways that regulate Stem Cell and Cancer Stem Cell homeostasis, with the final goal of discovering biomarkers and therapeutic targets for regenerative medicine and cancer.

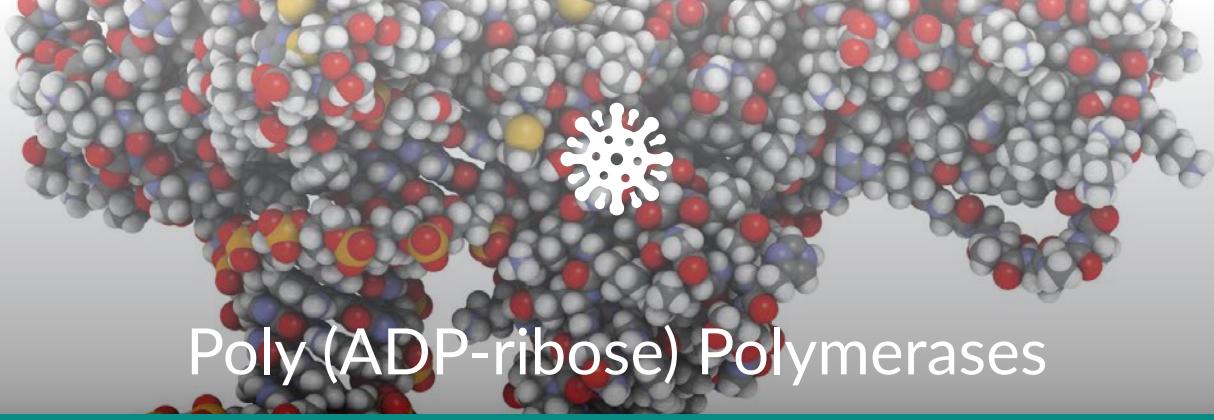
The group has historically focused on studying the Notch and NF- κ B pathways, which are principal actors of these processes. However, our research now aims to integrate these pathways in the context of other important signals for stem cell and cell transformation such as BRAF or β -catenin.

Main Publications

- López-Arribillaga E, Rodilla V, Colomer C, Vert A, Shelton A, Cheng JH, Yan B, González-Pérez A, Juntila MR, Iglesias M, Torres F, Albanell J, Villanueva A, Bigas A, Siebel CW, Espinosa L. Manic Fringe deficiency imposes Jagged1 addiction to intestinal tumor cells. *Nat Commun* 2018; 9(1): 2992. IF 12.353. D1.
- Santos-Barriopedro I, Bosch-Presegué L, Marazuela-Duque A, de la Torre C, Colomer C, Vázquez BN, Fuhrmann T, Martínez-Pastor B, Lu W, Braun T, Bober E, Jenuwein T, Serrano L, Esteller M, Chen Z, Barceló-Batllo S, Mostoslavsky R, Espinosa L, Vaquero A. SIRT6-dependent cysteine monoubiquitination in the PRE-SET domain of Suv39h1 regulates the NF-κB pathway. *Nat Commun* 2018; 9(1): 101. IF 12.353. D1.
- Gallardo F, Bertran J, López-Arribillaga E, González J, Menéndez S, Sánchez I, Colomo L, Iglesias M, Garrido M, Santamaría-Babí LF, Torres F, Pujol RM, Bigas A, Espinosa L. Novel phosphorylated TAK1 species with functional impact on NF-κB and β-catenin signaling in human Cutaneous T-cell lymphoma. *Leukemia* 2018; 32(10): 2211-2223. IF 10.023. D1.
- Bigas A, Espinosa L. The multiple usages of Notch signaling in development, cell differentiation and cancer. *Curr Opin Cell Biol* 2018; 55: 1-7. IF 10.015. D1.
- Colomer C, Margalef P, González J, Vert A, Bigas A, Espinosa L. IKK α is required in the intestinal epithelial cells for tumour stemness. *Br J Cancer* 2018; 118(6): 839-846. IF 5.922. Q1.

Ongoing Research Projects

- Identificación de nuevos biomarcadores y dianas terapéuticas asociados a la actividad IKK
 - Financing institution: Fondo de Investigación Sanitaria. ISCIII (PI16/00437)
 - Period: from 2017 to 2019
 - Principal investigator: Espinosa Blay, Lluís



Poly (ADP-ribose) Polymerases

RESEARCH GROUP



Group Leader

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Members

Jaime Jimeno Fraile (Researcher)

Coral Ampurdanés Descals (Technician)

Lucía Moreno Lama (Technician)

The aim of this group is to investigate the immunomodulatory roles of PARP proteins by using *in vivo* mouse models, and to investigate the relevance of this immunomodulation in the context of the immune response to cancer.

Main Publications

- Redondo-Pachón D, Pérez-Sáez MJ, Mir M, Gimeno J, Llinás L, García C, Hernández JJ, Yélamos J, Pascual J, Crespo M. Impact of persistent and cleared preformed HLA DSA on kidney transplant outcomes. *Hum Immunol.* 2018 Jun;79(6):424-431. IF 1.994. Q2

Ongoing Research Projects

- Estudio de las funciones específicas de las proteínas PARP en el stress replicativo inducido por oncogenes y su relevancia en cáncer
 - Financing institution: Ministerio de Economía y Competitividad (SAF2017-83565-R)
 - Period: from 2018 to 2020
 - Principal investigator: Yélamos López, José
- Modulación de la respuesta inmune por las proteínas PARP en cáncer de mama
 - Financing institution: Fundación Asociación Española Contra el Cáncer (PROYEI6018YÉLA)
 - Period: from 2017 to 2020
 - Principal investigator: Yélamos López, José

Group's Recognitions

- Officially recognised as a consolidated research group by the Generalitat de Catalunya: Diferenciació i Fisiopatologia Limfocitària (2017-2020)
 - Agència de Gestió d'Ajuts Universitaris i de Recerca (SGR 125)
 - Principal investigator: Yélamos López, José



Maker 2+

Radiation Oncology

RESEARCH GROUP



Group Leader

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Members

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Javier Sanz Latiesas (Researcher)
M. Josefa Dengra Domingo (Technician)
Rafael Jiménez Lahuerta (Technician)

The Radiation Oncology Research Group (GREOR) is a clinical and basic research group working on the use of radiation as a base of cancer treatment, especially in the lines of altered fractionation, radiotoxicity and quality of life, technological quality control and innovation; in addition to clinical projects linked to the clinical activity in the Radiation Oncology Service.

It is a multidisciplinary group comprising medical staff, physicists, technicians and nursing staff. The group has a significant scientific output in relation to radiation oncology groups in the area, besides activity to give research visibility.

Its main objective is to maintain the active lines of research, establish synergies with other groups, both national and international, to continue with the group's training activities and the level of scientific output, and fundraising for both competitive and non-competitive funds, besides increasing its impact in society (popular science, clinical practice guidelines, patient groups and dissemination).

Main Publications

- Couñago F, Rodríguez de Dios N, Montemuiño S, Jové-Teixidó J, Martín M, Calvo-Crespo P, López-Mata M, Samper-Ots MP, López-Guerra JL, García-Cañibano T, et al. Neoadjuvant treatment followed by surgery versus definitive chemoradiation in stage IIIA-N2 non-small-cell lung cancer: A multi-institutional study by the oncologic group for the study of lung cancer (Spanish Radiation Oncology Society). *Lung Canc* 2018; 118: 119-127. IF 4.486. Q1.
- Rodríguez de Dios N, Couñago F, López JL, Calvo P, Murcia M, Rico M, Vallejo C, Luna J, Trueba I, Cigarral C, Farré N, Manero RM, Durán X, Samper P. Treatment Design and Rationale for a Randomized Trial of Prophylactic Cranial Irradiation With or Without Hippocampal Avoidance for SCLC: PREMER Trial on Behalf of the Oncologic Group for the Study of Lung Cancer/Spanish Radiation Oncology Group-Radiation Oncology Clinical Research Group. *Clin Lung Cancer* 2018; 19(5): e693-e697. IF 4.204. Q2.
- Maurel J, Sánchez-Cabús S, Laquente B, Gaba L, Visa L, Fabregat J, Poves I, Roselló S, Díaz-Beveridge R, Martín-Richard M, Rodríguez J, Sabater L, Conill C, Cambray M, Reig A, Ayuso JR, Valls C, Ferrández A, Bombí JA, Ginés A, García-Albéniz X, Fernández-Cruz L. Outcomes after neoadjuvant treatment with gemcitabine and erlotinib followed by gemcitabine-erlotinib and radiotherapy for resectable pancreatic cancer (GEMCAD 10-03 trial). *Cancer Chemoth Pharm* 2018; 82(6): 935-943. IF 2.808. Q2.
- Sanz J, Zhao M, Rodríguez de Dios N, Granado R, Foro P, Reig A, Membrive I, Algara M. Once-Weekly Hypofractionated Radiotherapy for Breast Cancer in Elderly Patients: Efficacy and Tolerance in 486 Patients. *Biomed Res Int* 2018; 2018: 8321871. IF 2.583. Q2.

Ongoing Research Projects

- Valoración de los beneficios de la rehabilitación profiláctica de la musculatura deglutoria sobre la calidad de vida y deglución, a corto y medio plazo, de los pacientes sometidos a radioterapia por cáncer de cabeza y cuello: Ensayo Clínico Aleatorizado
 - Financing institution: Fundación Asociación Española Contra el Cáncer (PS14152556FORO)
 - Period: from 2015 to 2019
 - Principal investigator: Foro Arnalot, Palmira

Clinical Trials Signed in 2018

- OPTimizing Irradiation through Molecular Assessment of Lymph Node after primary systemic treatment (OPTIMAL IIa)
 - Register: GIC - RAD - 2016 - 01
 - Principal researcher: Algara López, Manuel Ignacio



Stem Cells and Cancer

RESEARCH GROUP



Group Leader

Anna Bigas Salvans

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Members

Roshana Thambyrajah (Researcher)

David Arambilet Morilla (PhD Student)

Jessica González Miranda (Technician)

Arnaud Iglesias Piqueras (Technician)

Cristina Ruiz Herguido (Technician)

Our research group studies the molecular mechanisms involved in the generation and maintenance of stem cells and their differentiation from functional cells. We particularly focus in studying signaling pathways and their activation effects that control the hematopoietic system. Our goal is to understand how these signals are important in the generation of hematopoietic stem cells during embryonic development, maintenance of these cells in adulthood and how these signals are perturbed in leukemic processes.

Main Publications

- Dzierzak E, Bigas A. Blood Development: Hematopoietic Stem Cell Dependence and Independence. *Cell Stem Cell* 2018; 22(5): 639-651. IF 23.29. D1.
- López-Arribillaga E, Rodilla V, Colomer C, Vert A, Shelton A, Cheng JH, Yan B, González-Pérez A, Juntila MR, Iglesias M, Torres F, Albanell J, Villanueva A, Bigas A, Siebel CW, Espinosa L. Manic Fringe deficiency imposes Jagged1 addiction to intestinal tumor cells. *Nat Commun* 2018; 9(1): 2992. IF 12.353. D1.
- Gallardo F, Bertran J, López-Arribillaga E, González J, Menéndez S, Sánchez I, Colomo L, Iglesias M, Garrido M, Santamaría-Babí LF, Torres F, Pujol RM, Bigas A, Espinosa L. Novel phosphorylated TAK1 species with functional impact on NF-κB and β-catenin signaling in human Cutaneous T-cell lymphoma. *Leukemia* 2018; 32(10): 2211-2223. IF 10.023. D1.
- Bigas A, Espinosa L. The multiple usages of Notch signaling in development, cell differentiation and cancer. *Curr Opin Cell Biol* 2018; 55: 1-7. IF 10.015. D1.
- Colomer C, Margalef P, González J, Vert A, Bigas A, Espinosa L. IKKa is required in the intestinal epithelial cells for tumour stemness. *Br J Cancer* 2018; 118(6): 839-846. IF 5.922. Q1.

Ongoing Research Projects

- Regeneració hematopoètica a partir de cèl·lules mare pluripotents.
 - Financing institution: Departament de Salut de la Generalitat de Catalunya (SLT002/16/00299)
 - Period: from 2017 to 2019
 - Principal investigator: Bigas Salvans, Anna
- Exploring Mechanisms of Resistance in Adult and Pediatric T-Acute Lymphoblastic Leukemia
 - Financing institution: Fundación Asociación Española Contra el Cáncer (GC16173697BIGA)
 - Period: from 2016 to 2021
 - Principal investigator: Bigas Salvans, Anna
- Especificación de célula madre hematopoyética y leucémica
 - Financing institution: Ministerio de Economía y Competitividad (SAF2016-75613-R)
 - Period: from 2016 to 2019
 - Principal investigator: Bigas Salvans, Anna

Participation in Research Networks

- CIBER Cancer
 - Fondo de Investigación Sanitaria. ISCIII (CB16/12/00244)
 - Period: from 2017 to 2019
 - Principal investigator: Bigas Salvans, Anna
- Network Metabocancer
 - Ministerio de Ciencia, Innovación y Universidades, RED2018-102379-T9
 - Period: from 2018 to 2019
 - Investigator: Bigas Salvans, Anna

Group's Recognitions

- Officially recognised as a consolidated research group by the Generalitat de Catalunya: Grup de Recerca en Cèl·lules Mare i Càncer. 2017 to 2020
 - Agència de Gestió d'Ajuts Universitaris i de Recerca (SGR 135)
 - Principal investigator: Bigas Salvans, Anna



Translational Research on Hematological Neoplasms

RESEARCH GROUP



Group Leader

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Members

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Fernando Gallardo Hernández (Researcher)
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Anna Maria Puiggros Metje (Researcher)
Marta Salido Galeote (Researcher)
Sílvia Ramos Campoy (PhD Student)
Sergi Clavé Safon (Technician)
Beatrix Costán Medina (Technician)
M. Carme Melero Vilella (Technician)
Maria del Mar Rodríguez Rivera (Technician)

The Translational Research on Hematological Neoplasms Group (GRETNHE) is integrated within the Cancer Programme from the Hospital del Mar Medical Research Institute (IMIM). The GRETNHE is a multidisciplinary group with different research areas. Among them, the most relevant are myelodysplastic syndromes (MDS), myeloproliferative neoplasms/myelodysplastic syndromes (MPN/MDS), chronic lymphocytic leukemia/monoclonal B cell lymphocytosis (CLL/MBL), mantle cell lymphoma/monoclonal asymptomatic lymphocytosis cyclin D1 positive (MCL/MALD1), splenic marginal zone lymphoma (SMZL) and cutaneous lymphomas (CL). Our aim is the phenotypic, cytogenetic and molecular characterization of these entities.

Main Publications

- Clot G, Jares P, Giné E, Navarro A, Royo C, Pinyol M, Martín-Garcia D, Demajo S, Espinet B, Salar A, Ferrer A, Muntañola A, Aymerich M, Rauert-Wunderlich H, Jaffe ES, Connors JM, Gascoyne RD, Delabie J, López-Guillermo A, Ott G, Wright GW, Staudt LM, Rosenwald A, Scott DW, Rimsza LM, Beà S, Campo E. A new molecular assay and genomic complexity predict outcome in conventional and leukemic non-nodal mantle cell lymphoma. *Blood* 2018; 132(4): 413-422. IF 15.132. D1.
- Calvo X, Florensa L, Arenillas L. (In)convenience of adding age and comorbidities to prognostic models in myelodysplastic syndromes. *Leukemia* 2018; 32(5): 1264-1266. IF 10.023. D1.
- Gallardo F, Bertran J, López-Arribillaga E, González J, Menéndez S, Sánchez I, Colomo L, Iglesias M, Garrido M, Santamaría-Babí LF, Torres F, Pujol RM, Bigas A, Espinosa L. Novel phosphorylated TAK1 species with functional impact on NF-κB and β-catenin signaling in human Cutaneous T-cell lymphoma. *Leukemia* 2018; 32(10): 2211-2223. IF 10.023. D1.
- Karube K, Enjuanes A, Dlouhy I, Jares P, Martín-Garcia D, Nadeu F, Ordóñez GR, Rovira J, Clot G, Royo C, et al. Integrating genomic alterations in diffuse large B-cell lymphoma identifies new relevant pathways and potential therapeutic targets. *Leukemia* 2018; 32(3): 675-684. IF 10.023. D1.
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Ongoing Research Projects

- Desarrollo y validación de un panel de secuenciación para translocaciones y mutaciones con relevancia clínica en neoplasias de células B maduras
 - Financing institution: Fondo de Investigación Sanitaria. ISCIII (PI15/00437)
 - Period: from 2016 to 2020
 - Principal investigator: Espinet Solà, Blanca
- Leucemia linfática crónica de alto riesgo genético: caracterización citogenético-molecular y epigenética por microarrays y Next Generation Sequencing. Asociación con impacto clínico
 - Financing institution: Fundación Española de - Hematología y Hemoterapia (FEHH)
 - Period: from 2018 to 2019
 - Principal investigator: Blanco Ares, Gonzalo
- Análisis clínico de la monitorización mediante genotipado de ADN tumoral circulante en sangre (biopsia líquida) en pacientes con neoplasias linfoideas de alto grado
 - Financing institution: Fondo de Investigación Sanitaria. ISCIII (PI17/00313)
 - Period: from 2018 to 2020
 - Principal investigator: Colomo Saperas, Lluís
- Clinico-biological characterization of chronic lymphocytic leukemia (CLL) patients with complex karyotype (CK) and absence of TP53 aberrations
 - Financing institution: GILEAD SCIENCES S.L.U
 - Period: from 2018 to 2019
 - Principal investigator: Espinet Solà, Blanca

Group's Recognitions

- Officially recognised as a consolidated research group by the Generalitat de Catalunya: Grup de Recerca Translacional en Neoplàsies Hematològiques (GRETNHE). 2017-2020
 - Agència de Gestió d'Ajuts Universitaris i de Recerca (SGR 437)
 - Principal investigator: Espinet Solà, Blanca

Clinical Trials Signed in 2018

- Estudio en fase III, aleatorizado, doble ciego y controlado con placebo para investigar la eficacia y seguridad de roxadustat (FG-4592) en el tratamiento de la anemia en pacientes con riesgo inferior de síndrome mielodisplásico (SMD) y carga baja de transfusión (LTB) de eritrocitos
 - Register: FGCL-4592-082
 - Principal investigator: Pedro Olivé, Carme
- Estudio aleatorizado (1:1), doble ciego, multicéntrico y controlado con placebo para evaluar la quimioterapia intensiva con o sin GLASDEGIB (PF-04449913) o la azacitidina (AZA) con o sin GLASDEGIB en pacientes con leucemia mieloide aguda no tratada previamente
 - Register: B1371019
 - Principal investigator: Pedro Olivé, Carme

Epidemiology and Public Health



12

Research groups



123

Professionals



36

Research projects



273

Publications



Programme Directors

Jordi Alonso Caballero

Jaume Marrugat de la Iglesia

RESEARCH GROUPS

Barcelona Research Infertility Group

Miguel Ángel Checa

Cardiovascular Epidemiology and Genetics

Roberto Elosua

Cardiovascular Risk and Nutrition

Montserrat Fitó

Clinical and Molecular Epidemiology of Cancer

Miquel Porta

Epidemiology and Evaluation

Maria Sala

Girona Heart Registry

Jaume Marrugat

Health Services

Jordi Alonso

Research Group in Nursing Care

Silvia Esteban

Social Epidemiology and Occupational Health

Consol Serra

ASSOCIATED GROUPS

Healthy Cities and Environmental Justice

Isabelle Anguelovski

Occupational and Environmental Epidemiology

Manolis Kogevinas

Respiratory Health, Air Pollution, Childhood Development

Jordi Sunyer

The Epidemiology and Public Health Programme (EPISAP) includes 12 research groups with a total of 123 professionals from the Hospital del Mar Medical Research Institute (IMIM), the Barcelona Institute for Global Health (ISGlobal), and the Pompeu Fabra University (UPF). All EPISAP research groups are recognized by the Catalan Agency for Research (AGAUR) and are members of major Spanish collaborative research networks (CIBERs and RETICs).

EPISAP researchers apply advanced epidemiologic methods and approaches for a better understanding of: a) the frequency and burden of disease; b) major risk factors and underpinning mechanisms; and c) the role of health services and interventions, and their impact on the health outcomes of individuals and populations. Our research focuses on cancer, mental disorders, cardiovascular disease, and on environmental and occupational exposures.

We translate our research into clinical practice and contribute significantly to innovation and development several preventive and health care assessment fields. EPISAP researchers participate in community activities, as expert members of committees and advisory boards of health system institutions and research organizations. Researchers of the programme have a longstanding research career with international recognition and have established solid relationships with many regional, national and international research institutions and research networks.

Education and training in epidemiology, public health and other disciplines for graduate, postgraduate and medical specialty students is a key activity of EPISAP. Many of our researchers are faculty members of the Pompeu Fabra University (UPF), the Autonomous University of Barcelona (UAB) and the University of Vic and lead a variety of formal courses and programmes.

Research lines 2018

Cancer

- Quality, effectiveness and costs of breast and colon cancer screening programs.
- Personalization of breast cancer screening program. To develop new predictive models of individual risk of breast cancer in women participating in mammographic breast cancer screening based on individual risk factors To estimate the impact of the polygenic risk score as a risk factor for breast cancer
- To estimate health care needs and resources for long term breast cancer survivors surveillance
- Clinical and molecular epidemiology of exocrine pancreatic cancer.
- Causes and consequences of diagnostic and therapeutic delays in cancer.
- Comparative effectiveness and cost-utility of localized prostate cancer therapies.

- Methodological issues in longitudinal studies on body burden of environmental pollutants and pancreatic cancer risk.
- Toenail concentrations of trace elements and occupational history in pancreatic cancer.

Cardiovascular

- Determination of incidence, mortality and case-fatality trends in myocardial infarction (MI) and distribution of cardiovascular (CV) risk factors.
- Development of new systems to establish myocardial infarction and acute coronary syndrome population incidence with administrative data (CMBD and mortality data) in Girona and Catalonia.
- Improvement of predictive capacity of cardiovascular risk functions for primary prevention of cardiovascular diseases.
- Physical activity measurement and its relationship with cardiovascular health and mechanisms.
- Analysis of common and rare genetic and epigenetic variants (focused on microRNA and gene methylation) associated with cardiovascular traits; Gene by Environment interaction in CV diseases.
- New biomarkers of prognosis and prediction of cardiovascular diseases, with particular emphasis in epigenetics (DNA methylation and microRNAs) and in the analysis of their causal or mediating role.
- Apply the benchmarking function developed in the EURHOBOP and EUROTTRACS EC projects led by EPISAP groups, to Catalan hospitals in agreement with AQUAS.
- Development and evaluation of new methods to prevent cardiovascular diseases by using information technologies
- Effectiveness of drugs and intervention in the prevention and treatment of cardiovascular diseases.

Environment

- Health effects of Exposome.
- Birth cohorts in Europe.
- Environmental, occupational and genetic factors related to cancer, immune, respiratory disease and child health.
- Exposure assessment using new biomedical technologies and implementing complex statistics and bioinformatics methods.
- Environmental exposures in early life and neurodevelopment, obesity and metabolic syndrome, and allergy and asthma.

- NCDs and Environment to low and middle income countries.
- Assessing the population distribution and impact on human health of Persistent Organic Pollutants (POPs) and other environmental chemical agents.
- Global urban environments. Built environment and health.
- Body concentrations of persistent pollutants and unhealthy metabolic phenotypes in normal-weight, overweight and obese individuals.

Equity

- Patterns and causes of health inequities embedded in urbanization processes.
- Urban Planning and the Right to the Healthy Cities.
- In-depth spatial and quantitative analysis of the scope and magnitude of green gentrification trends in 40 cities in the US, Canada, and Europe.
- Health and wellbeing effects of green rooftops for people with disabilities: effects and potential mechanisms.
- Advanced theoretical and measurement methods of objective and perceived gentrification for public health research.
- Health effects of gentrification and displacement, pathways, and mechanisms.

Health care

- Advanced measurement methods for patient-reported outcomes (PROMs).
- Information systems for assessment of costs per patient and risk adjustment.
- New strategies for improving quality and patient safety.
- Tools and methods for improving health services research, including discrete event simulation models.
- Comparative effectiveness and cost-utility of therapies for most burdensome conditions (asthma, cancer, depression, low-back pain, and MI, among others).
- Comorbidity and health services use among breast cancer survivors.
- Access to care and changes in urban healthcare delivery systems (healthcare gentrification) (cross with equity).

Infertility

- Effects of air pollution on fertility and sperm quality.
- Effects of air pollution and ovarian reserve.
- Effects of assisted reproduction technologies on perinatal outcomes.

Mental health

- Frequency and risk factors of common mental disorders and suicide in general population and among university students.
- Distribution and correlates of perceived health and psychological well-being in the general population.
- Association of mental disorders and physical chronic conditions.
- Prevalence trends of drug use and associated factors.
- Psychiatric comorbidity, interpersonal violence and mortality associated to drug use.
- Incidence of suicide attempt and reattempt and evaluation of interventions in high risk of suicide individuals.
- Impacts of gentrification and displacement on mental health and wellbeing (Cross with equity).

Nutrition

- Obesity and diabetes: epidemiology and prevention across the life span.
- High density lipoproteins (HDL) functionality and atherogenic lipoproteins linked to nutrition. Predictive value of HDL functions for chronic degenerative diseases, such as cardiovascular, cancer, and neurodegenerative ones.
- Nutrigenomics: changes in gene expression attributable to nutrients and foods.
- Interaction between diet and intestinal flora.
- Halo effect of a life-style intervention on the familiar nucleus.
- Nutrition intervention studies.
- Nutritional epidemiology and childhood obesity.

Nursing care

- Nurse empowerment: impact of BPSO program on nurse's work environment and nurse evidence based practice.
- PROMs -Patient-Reported Outcomes and PREMs -Patient-reported experiences (PREMs).
- Impact nursing care on patient and caregivers and health systems: impact of specific nursing care programs on: QOL in dialysis patients; patients with epilepsy.
- Development of a decision algorithm of the PICC
- Analysis of the PSMAR Electronic Nursing records

Occupation & Employment

- Labor market trajectories and permanent disability and mortality.
- Occupational diseases recognition.
- Working condition surveys in Latin America and Caribbean.
- Cluster-randomized controlled trial of a multicomponent workplace intervention to improve musculoskeletal health in hospital workers (INTEVAL_plus).

Achieved objectives 2018

Scientific objectives

During 2018, researchers of the programme have published 273 papers in scientific journals ranging from New England Journal of Medicine, Lancet, Nature Genetics, BMJ-British Medical Journal, Lancet Respiratory Medicine, Circulation, Diabetes Care, Journal of Allergy and Clinical Immunology, Nature Communications to journals internationally recognized in the fields of molecular, clinical, and environmental epidemiology. Such a broad integration of basic, clinical and epidemiologic knowledge is one of our signs of identity worldwide.

Investigators of the Cardiovascular Epidemiology and Genetics group have:

- Analyzed the relationship between chronic immune-mediated inflammatory diseases and cardiovascular risk.
- Developed and validated a method for self-screening of cardiovascular risk.
- Evaluated the effectiveness of cardiovascular primary prevention strategies (such as the use of statins), and therapeutic interventions (such as revascularization) in patients with an acute coronary syndrome and peripheral artery disease.
- Contributed to the knowledge of the genetic and epigenetic architecture of several cardiovascular traits such as myocardial infarction, stroke, lipid profile, diabetes, hypertension and obesity.
- Initiated the follow-up of the 11,000 participants of the REGICOR cohort.

Investigators of the Cardiovascular Risk and Nutrition group have:

- Reported that an intervention with virgin olive oils enriched in phenolic compounds improves HDL antioxidant content in hypercholesterolemic subjects.
- Observed that pre-operative Helicobacter pylori eradication improves the body weight and triglycerides at a short-term period after the bariatric surgery.

- Reported that the incidence of the type II diabetes in the working population is within the range established in the general population.
- Observed that the laparoscopic Roux-en-Y gastric bypass is associated with greater reduction in total cholesterol and low-density lipoprotein cholesterol in comparison to sleeve gastrectomy, after a 5 year-follow up.
- Established the effectiveness of an implementation of a daily physical activity intervention program, in which the goal-setting for aerobic activity was mainly based on briskly walking, in elderly subjects after one year of follow-up.
- Leisure time physical activity is inversely associated with body mass index, waist circumference and incidence of general and abdominal obesity, in elderly individuals.
- Established that higher levels of leisure time physical activity and adherence to the Mediterranean diet are associated separately and jointly with lower all-cause mortality. The finding that light of leisure time physical activity is inversely associated with mortality is relevant, given that it is a feasible option for older adults.
- Reported that the screen time, physical activity, meal frequency, and external eating predict adherence to the Mediterranean diet independently of baseline diet quality, in Spanish children.
- Reported a community-based childhood obesity intervention program on anthropometric measures and lifestyle, in Spanish children aged 8 to 10 years.
- Reviewed the association between the microbiota diversity and the obesity and changes in weight.
- Reviewed the mid-term results of laparoscopic Roux-en-Y gastric bypass and laparoscopic sleeve gastrectomy

Investigators of the Girona Heart Registry-REGICOR group have:

- Analyzed the burden of coronary heart disease and cardiovascular risk factors and their trends at the population level across all ages.
- Analyzed the validity of cardiovascular risk functions and analyzed the predictive added value of new biomarkers (glomerular filtration rate, albumin, vitamin D, Apo A and Apo B, inflammatory biomarkers).
- Evaluated the effectiveness of cardiovascular primary prevention strategies (such as the use of statins), and therapeutic interventions (such as invasive vs conservative strategy) in patients with an acute coronary syndrome.
- Identified several predictors of in-hospital mortality and analyzed the interhospital variability in patients with acute coronary syndrome.
- Contributed to the knowledge of the genetic hypertension.
- Initiated the follow-up of the 11,000 participants of the REGICOR cohort.

- Analyzed the role of miRNAs in the development of atherosclerosis and their role as predictors of future coronary heart disease events.
- Assessed the trends, projections and consequences of overweight and diabetes in Spanish population.

Investigators of the Clinical and Molecular Epidemiology of Cancer group have:

- Explained the relative influence of trace element concentrations on the mutational status of the oncogene KRAS in pancreatic cancer patients.
- Described occupational factors that influence trace element concentrations in pancreatic cancer cases.
- Shown that higher blood concentrations of Persistent Toxic Pollutants are associated with unhealthy metabolic phenotypes, not only in obese and overweight individuals, but also in normal-weight individuals.

Investigators of the Epidemiology and Evaluation group have:

- Described treatment and long term complications of Ductal Carcinoma in Situ in breast cancer screening participants.
- Described long term complications and readmissions of breast cancer patients (invasive and DCIS) according to treatment and mode of diagnosis
- Systematically reviewed and critically appraised the use of health care services among long-term breast cancer survivors.
- Systematically reviewed and critically appraised the individualized breast cancer risk prediction models and personalized breast cancer screening strategies.
- Deepen the knowledge of the relationship between clinical and histologic characteristics of breast cancers in women with previous pathologic diagnosis of benign breast disease in Spain and the determined the long-term risk of screen-detected and interval breast cancer after false-positive results at mammography screening in a Joint analysis of an international cohort.
- Described the relationship between values of FIT (faecal immunochromic test) under the threshold of positivity and the diagnosis of interval cancers and future risk of advanced colorectal neoplasia in a colorectal cancer screening programme and describe the factors influencing a colorectal cancer diagnosis in the emergency department.
- Initiated an international collaboration to take part of a large European Randomized Controlled Trial (MyPEBS) to assess personalized breast cancer screening strategies based on women's individual risk.

Investigators of the Health Services Research group have:

- Described the treatment gap of anxiety disorders, uncovering a very low level of use of health services and that less than a 10% of cases receiving adequate treatment worldwide.
- Described the prevalence and risk factors of mental conditions among university students, including suicidal thoughts and behaviours, common mental disorders and the associated disability in 8 countries.
- Systematically reviewed the risk factors of suicidal thoughts and behaviors in adolescents and young adults, and quantitatively estimated the risk associated to early exposure to interpersonal violence (abuse, maltreatment, neglect, bullying and community violence), and sexual orientation (LGBT).
- Launched a collaborative research project to study the risk of serious suicidal attempts and re-attempts in Catalonia, based on the innovative prevention programme Suicide Risk Code.
- Collaborated with the most recent publication of results of the Global Burden of Disease with 2017 estimates worldwide, as well as produced detailed analyses for Spain.
- Systematically reviewed longitudinal studies to assess the impact of primary treatments for localized prostate cancer, measured with Patient-Reported Outcomes (PROs), and to examine differences among modalities within treatments.
- Described, for the first time, the impact of asthma on patients' Health-Related Quality of Life by comparing it with general population reference norms, stratifying by gender.

Investigators of the Healthy Cities and Environmental Justice group have:

- Initiated comparative studies and analyses (completed/published for New York City) on the relationship between green space exposure and health, with gentrification as mediating factor.
- Initiated a study about perceived health and wellbeing of families (including parents and children) of urban greening interventions in Barcelona.
- Initiated studies of the relationship between gentrification and health impacts.
- Initiated a study on the restructuring of the American healthcare delivery system and access to care and quality jobs (healthcare gentrification) in Dallas, Seattle, Philadelphia and Atlanta
- Assessed the impacts of urban rooftop gardening on health for participants with mental disabilities and mental health problems.

Investigators of the Barcelona Research Infertility Group have:

- Evaluated the relationship between air pollution and Assisted Reproduction.
- Contributed to the knowledge of the effects of assisted reproduction technology on the perinatal outcomes (pre-term delivery and birth weight).

Investigators of the Nursing Care Research group have:

- Continued the quasi-experimental study to determine the effectiveness of a nurse intervention on epileptic patients and their perception of risk.
- Started a multicentric quasi-experimental study to determine the impact of “Centros comprometidos con la excelencia en cuidados” program on the nurses work environment and their Evidence based practice attitudes.
- Initiated the validation of the ICU nursing workload scale (NAS) based on electronic records.

Investigators of the Social Epidemiology & Occupational Health group have:

- Completed a Basic Working and Employment Questionnaire, providing nationally representative, comparable data on work and health status of workers in eight Latin America and Caribbean countries.
- Established an association between unstable labour market trajectories and early retirement due to permanent disability and mortality, based on analyses of the Spanish Continuous Working Life Sample.
- Initiated a cluster randomized trial to reduce musculoskeletal morbidity and disability among health care workers.
- Identified cases series of patients admitted in the PSMar with suspected occupational disease.

Investigators of the Occupational and Environment Epidemiology group have:

- Been leaders of OMEGA-NET, a network to integrate and optimize occupational cohorts in Europe and to help foster healthy work environments.
- Shown that early supper is associated with lower risk of breast and prostate cancer. People who have their evening meal before 9 pm or wait two hours before going to sleep have lower risk of breast and prostate.
- Contributed to a new study that analyzed 2,000 women—half of whom had breast cancer—from several parts of Spain and conclude that exposure to common THM levels in drinking water not associated with breast cancer.
- Discovered that night exposure to blue light is linked with breast and prostate cancer. The study is based on images taken by astronauts to evaluate outdoor lighting in Madrid and Barcelona.

Investigators of the Respiratory Health, Air Pollution and Childhood Development group have:

- Contributed to make possible that 1,200 pregnant women in Barcelona will participate in one of the largest studies on air pollution and pregnancy. The BISC project will assess the role of the placenta regarding air pollutants and brain development in children, before and after birth. The cohort is funded through an ERC Advanced Grant and a grant from the US Health Effects Institute.
- Discovered that Mediterranean diet during pregnancy is associated with lower risk of accelerated growth for the child.
- Discovered that risk gene for Alzheimer's Disease may aggravate the health effects of air pollution on neurodevelopment in children. Children carrying the ε4 variant of the APOE gene may be particularly vulnerable to the detrimental effects of air pollutants on brain.
- Contributed to the POLAR project, funded by the European Institute of Innovation and Technology project, that uses innovative tools (mobile application) for monitoring allergic rhinitis and its relationship with health and environmental factors.

Technological & translational objectives

The EPISAP Groups have contributed to the following translational and innovation achievements:

- Consolidating and expanding technological platforms and services:
 - BiblioPRO, the online library of reference for Patient Reported Outcomes (PRO) in Spanish (www.bibliopro.org).
 - CASSANDRA model, an open access web application that is used to assess the impact of preventive interventions at the population level (www.redheracles.net/cassandra/es/).
 - EURHOBOP benchmarking tool, that was developed by EPISAP researchers to monitor hospitals coronary artery disease outcomes (<http://www.eurhobop.eu>).
 - GRANMO online software for sample size estimation in Biomedical Research (<https://www.imim.es/ofertadeserveis/software-public/granmo/index.html>).
 - REGICOR cardiovascular risk function for primary prevention, that is setup on the electronic medical records of Madrid, Catalonia, Basque Country, Valencia, Balearic Islands, Extremadura, and is in use among most primary care practitioners (<https://www.imim.es/ofertadeserveis/software-public/regicor>).
 - WORKss for data from 1,5 million of the Spanish Social Security affiliated with information on mortality and permanent disability since 2004 and data linkage capabilities with health records.
 - Data sharing platform (DataShield) for EU birth cohorts.

- Teleform data collection platforms for cancer data abstraction software workflow solutions, and several projects in Hospital del Mar.
- National data sharing platform (SURBCAN project) from Real World Data for the study of effectiveness and efficiency of chronic care of breast cancer patients in the SNS, using the actual pathways of care endured by those patients.
- To assess the impact on workflow and user acceptance of The NAVIFY Tumor Board solution (NTBS) to prepare for multidisciplinary Tumor Boards, an oncology informatics platform (Roche Diagnostics Information Solutions; Belmont, CA). It facilitates extraction of key data from clinical source data systems and presents holistic, relevant and intuitive information to clinicians during case preparation.
- To participate in the Barcelona City Scientific Council as core invited/founding member (Isabelle Anguelovski).
- To develop a database based on survey data on health impacts of gentrification in Barcelona.
- To develop a database based on survey data on green space perceptions and wellbeing in Barcelona.
- To participate in the Mental Health Plan of the city of Barcelona (Jordi Alonso).

Patents under exploitation:

- Title: Risk markers for cardiovascular diseases (I). Authors: Jaume Marrugat; Roberto Elosua; Eduardo Salas; Sergio Castillo; Joan Salgado; José M. Ordovás. Country: National. Under Exploitation: Yes, by Gendiag Exe, S.L. Application # / Patent No: WO 2010/142713. Year 2010.
- Title: Risk markers for cardiovascular diseases (II). Authors: Jaume Marrugat; Roberto Elosua; Eduardo Salas; Sergio Castillo; Joan Salgado; José M. Ordovás. Country: International. Under exploitation: Yes, by Gendiag Exe, S.L. Application No / Patent #: EP/09.06.09/EPA 09162329. Year 2010.
- Title: Risk markers for cardiovascular diseases (III). Authors: Jaume Marrugat; Roberto Elosua; Eduardo Salas; Sergio Castillo; Joan Salgado; José M. Ordovás. Country: International; Under exploitation: Yes, by Gendiag Exe, S.L. Application No / Patent #: 10725412.0 – 122 PCT/ep2010058064. Year 2012.
- Title: Method and kit for detecting the risk of developing hypertension. Authors: José Manuel Fernández, Marta Tomás, Esther Vázquez, Mariano Sentí, Jaume Marrugat, Miguel Ángel Valverde. Country: International; Under exploitation: Yes, by Universidad Pompeu Fabra. Number: WO/2005/093096 -P200400883; Year: 24 March 2004.

Educational objectives

In 2018 investigators of EPISAP have:

- Mentored 10 doctoral theses which were successfully defended.
- Led a number of formal educational education activities:
 - Continue and expand our active collaboration in graduate education (Medicine, Biology, Other Health Sciences) Pompeu Fabra University (UPF)-Autonomous University of Barcelona (UAB), and University of Vic -Central of Catalonia (UVic-UCC).
 - Consolidate leadership in postgraduate education in Public health: Master's in Public Health program (120 ECTS UPF-UAB), Master's Degree in Occupational Health and Safety (UPC-UB-UPF), and Postgraduate Diploma in Public Health (30 ECTS).
 - Continue and expand participation in the Medical Specialties Residency Programs, as part of the educational units for the medical specialties of Preventive Medicine & Public Health, and Occupational Medicine. Collaboration with other programs include: European Educational Program in Epidemiology (EEPE), Master in Nursing Sciences, Master in Cardiology Nursing, Bachelor's degree in Biology, Biotechnology and Biochemistry, among many others.



Barcelona Research Infertility Group

RESEARCH GROUP



Group Leader

Miguel Ángel Checa Vizcaino
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Members

Mireia González Comadran (Researcher)
Maria Prat Om (Researcher)
Anna Beatriz Robles Corchado (Researcher)

Biomedical care in fertility disorders has gained recognition as has the diagnosis and treatment of a disease, infertility, where an essential biological function to achieve a life plan is impaired. Taking this into consideration, since 1995, the diagnosis and treatment of infertility has been included as a basic benefit within the Catalog of Services of the National Health System (Royal Decree 63/1995, 20 January, health benefits under the social security program).

The overall objective is to carry out research in a multidisciplinary group, and to combine collective expertise to extend knowledge of the loss of fertility observed in our society, as well as to offer preventive, diagnostic and therapeutic solutions that will either minimize the impact of this disorder or successfully overcome it.

Epidemiological research aims to analyze various air pollutants and environmental factors and assess their impact on reproductive outcomes, including sperm quality, which may lead to guidelines for the prevention or reduction of human exposure to environmental pollutants.

Clinical research in human model will allow us to assess strategies that may potentially improve reproductive functions and thereby increase live birth rate when ART are required.

Evidence Based Medicine research: We collaborate with the Cochrane Gynecology and Fertility group evaluating the evidence in reproductive medicine in international studies. We aim to develop translational recommendations for best clinic practice.

Main Publications

- Pareja R, Echeverri L, Rendon G, Munsell M, González-Comadran M, Sanabria D, Isla D, Frumovitz M, Ramírez PT. Radical parametrectomy after 'cut-through' hysterectomy in low-risk early-stage cervical cancer: Time to consider this procedure obsolete. *Gynecol Oncol* 2018; 149(3): 520-524. IF 4.54. D1.
- Checa MA, Bellver J, Bosch E, Espinós JJ, Fabregues F, Fontes J, García-Velasco J, Requena A, Spanish Infertility SWOT Group (SISG). Hysteroscopic septum resection and reproductive medicine: A SWOT analysis. *Reprod Biomed Online* 2018; 37(6): 709-715. IF 2.967. Q1.
- Ferrer-Molina P, Calatayud-Lliso C, Carreras-Collado R, Muñoz-García M, Díaz-Bachiller M, Blanes-Espí J, Checa M. Oral versus transdermal oestrogen delivery for endometrial preparation before embryo transfer: a prospective, comparative, randomized clinical trial. *Reprod Biomed Online*. 2018 Dec;37(6):693-702. doi: 10.1016/j.rbmo.2018.09.003. Epub 2018 Sep 29. IF 2.967. Q1.

Ongoing Research Projects

- Impacto de la exposición aguda a contaminantes atmosféricos sobre los resultados de la Fecundación In Vitro
 - Financing institution: Fondo de Investigación Sanitaria. ISCIII (PI13/00454)
 - Period: from 2014 to 2018
 - Principal investigator: Checa Vizcaíno, Miguel Ángel

Group's Recognitions

- Officially recognised as a precompetitive research group by the Generalitat de Catalunya: Grup de Recerca de Medicina Reproductiva i Fetal (2017-2020)
 - Agència de Gestió d'Ajuts Universitaris i de Recerca (SGR 420)
 - Principal investigator: Checa Vizcaíno, Miguel Ángel

Clinical Trials Signed in 2018

- Spirit Extension: An International Phase 3 Open-Label, Single-Arm, Safety and Efficacy Extension Study to Evaluate Relugolix Co-Administered with Low-Dose Estradiol and Norethindrone Acetate in Women with Endometriosis-Associated Pain
 - Register: Myovant Sciences GmbH
 - Principal investigator: González Comadran, Mireia

Theses

- González Comadran, M. Impacte de l'exposició aguda i subaguda a contaminants atmosfèrics en el resultat de la FIV. Universitat Autònoma de Barcelona
 - Directors: Checa Vizcaíno, Miguel Ángel; Carreras Collado, Ramón
 - Date of defense: 20/10/2018



Cardiovascular Epidemiology and Genetics

RESEARCH GROUP



Group Leader
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Members
Albert Clarà Velasco (Researcher)
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Maria Luïsa Piña Cànaves (Technician)
Isaac Subirana Cachinero (Technician)
Esmeralda Gómez Pires (Research Assistant)

The group focuses on the study of the epidemiology and genetic basis of cardiovascular disorders and their risk factors. The group participates in international consortia using genome-wide and exome sequencing approaches to identify common and rare variants associated with cardiovascular traits. We are also interested in the study of epigenetic signatures, mainly DNA methylation, related to these diseases. The research team comprises a multidisciplinary group of epidemiologists, biologists, biochemists, clinicians and biostatisticians who work together to tackle these topics. We use this knowledge to identify new mechanisms and new predictive biomarkers, and to define instrumental variables to assess the causal relationship between a biomarker and a cardiovascular phenotype.

The members of the group also participate in the REGICOR (REgistre Gironí del COR) study to determine the burden of cardiovascular disease and its risk factors at the population level, and to develop and improve cardiovascular risk functions. We are also actively exploring the dose-response relationship between physical activity and cardiovascular disease, and the mechanisms by which physical activity reduces cardiovascular risk. Finally, we are also exploring, developing and evaluating new approaches to improve cardiovascular prevention by using new information-technology tools.

Main Publications

- Evangelou E, Warren HR, Mosen-Ansorena D, Mifsud B, Pazoki R, Gao H, Ntritsos G, Dimou N, Cabrera CP, Karaman I, et al. Genetic analysis of over 1 million people identifies 535 new loci associated with blood pressure traits. *Nat Genet* 2018; 50(10): 1412-1425. IF 27.125. D1.
- Ramos R, Comas-Cufí M, Martí-Lluch R, Balló E, Ponjoan A, Alves-Cabrata L, Blanch J, Marrugat J, Elosua R, Grau M, Elosua-Bayés M, García-Ortiz L, Garcia-Gil M. Statins for primary prevention of cardiovascular events and mortality in old and very old adults with and without type 2 diabetes: retrospective cohort study. *BMJ* 2018; 362: k3359. IF 23.259. D1.
- Emdin CA, Khera AV, Klarin D, Natarajan P, Zekavat SM, Nomura A, Haas ME, Aragam K, Ardissino D, Wilson JG, Schunkert H, McPherson R, Watkins H, Elosua R, Bown MJ, Samani NJ, Baber U, Erdmann J, Gormley P, Palotie A, Stitzel N, Gupta N, Danesh JN, Saleheen D, Gabriel SB, Kathiresan S. Phenotypic Consequences of a Genetic Predisposition to Enhanced Nitric Oxide Signaling. *Circulation* 2018; 137(3): 222-232. IF 18.88. D1.
- Comín J, Manito N, Segovia-Cubero J, Delgado J, García Pinilla JM, Almenar L, Crespo-Leiro MG, Sionis A, Blasco T, Pascual-Figal D, González- Vílchez F, Lambert-Rodríguez JL, Grau M, Bruguera J, on behalf of the LION-HEART Study Investigators. Efficacy and safety of intermittent intravenous outpatient administration of levosimendan in patients with advanced heart failure: the LION-HEART multicentre randomised trial. *Eur J Heart Failure* 2018; 20(7): 1128-1136. IF 10.683. D1.
- Garcia-Gil M, Comas-Cufí M, Blanch J, Martí R, Ponjoan A, Alves-Cabrata L, Petersen I, Marrugat J, Elosua R, Grau M, Ramos R. Effectiveness of statins as primary prevention in people with different cardiovascular risk: A population-based cohort study. *Clin Pharmacol Ther* 2018; 104(4): 719-732. IF 6.544. D1.
- Fernández-Sanlés A, Sayols-Baixeras S, Curcio S, Subirana I, Marrugat J, Elosua R. DNA Methylation and Age-Independent Cardiovascular Risk, an Epigenome-Wide Approach: The REGICOR (REgistre Gironí del COR) Study. *Arterioscler Thromb Vasc Biol* 2018; 38(3): 645-652. IF 6.086. D1.

- Baena-Díez JM, Garcia-Gil M, Comas-Cufí M, Ramos R, Prieto-Alhambra D, Salvador-González B, Elosua R, Dégano IR, Peñafiel J, Grau M. Association between chronic immune-mediated inflammatory diseases and cardiovascular risk. Heart 2018; 104(2): 119-126. IF 5.42. Q1.
- Vázquez-Oliva G, Zamora A, Ramos R, Martí R, Subirana I, Grau M, Dégano IR, Marrugat J, Elosua R. Tasas de incidencia y mortalidad, y letalidad poblacional a 28 días del infarto agudo de miocardio en adultos mayores. Estudio REGICOR. Rev Esp Cardiol 2018; 71(9): 718-725. IF 5.166. Q1.
- Iribarren C, Lu M, Jorgenson E, Martínez M, Lluís-Ganella C, Subirana I, Salas E, Elosua R. Weighted Multi-marker Genetic Risk Scores for Incident Coronary Heart Disease among Individuals of African, Latino and East-Asian Ancestry. Sci Rep 2018; 8(1): 6853. IF 4.122. Q1.
- Subirana I, Fitó M, Díaz O, Vila JS, Francés A, Delpon E, Sanchis J, Elosua R, Muñoz D, Dégano IR, Marrugat J. Prediction of coronary disease incidence by biomarkers of inflammation, oxidation, and metabolism. Sci Rep 2018; 8(1): 3191. IF 4.122. Q1.
- Barroso M, Vila M, Zomeño MD, Martí-Lluch R, Cordon F, Ramos R, Elosua R, Dégano IR, Fitó M, Cabezas C, Salvador G, Castell C, Grau M. Validity of a method for the self-screening of cardiovascular risk. Clin Epidemiol 2018; 10: 549-560. IF 3.799. Q1.

Ongoing Research Projects

- Eficacia de una aplicación móvil para la prevención de las enfermedades cardiovasculares a través del empoderamiento individual y comunitario
 - Financing institution: Fondo de Investigación Sanitaria. ISCIII (PI17/00250)
 - Period: from 2018 to 2020
 - Principal investigator: Grau Magaña, María
- Seguiment de la cohort poblacional de l'estudi REGICOR: tendències en la incidència de malaltia cardiovascular, en la prevalença de factors de risc, identificació de nous mecanismes i biomarcadors predictius, i avaluació d'estratègies de prevenció
 - Financing institution: Departament de Salut, Generalitat de Catalunya (SLT002/16/00088)
 - Period: from 2017 to 2019
 - Principal investigator: Elosua Llanos, Roberto
- La metilación del ADN y el infarto agudo de miocardio: ¿biomarcador de riesgo y mediador de los efectos de estilos de vida?
 - Financing institution: Fondo de Investigación Sanitaria. ISCIII (PI15/00051)
 - Period: from 2016 to 2018
 - Principal investigator: Elosua Llanos, Roberto

- Validez y efectividad de un método de auto-cribado del riesgo cardiovascular
 - Financing institution: Fondo de Investigación Sanitaria. ISCIII (PI14/00449)
 - Period: from 2015 to 2018
 - Principal investigator: Grau Magaña, María

Participation in Research Networks

- CIBER Enfermedades Cardiovasculares
 - Fondo de Investigación Sanitaria. ISCIII (CB16/11/00229)
 - Principal investigator: Elosua Llanos, Roberto

Group's Recognitions

- Our research group is part of the Grup de Recerca REGICOR (REgistre Gironí del Cor), officially recognised as a consolidated research group by the Generalitat de Catalunya (2017-2020)
 - Agència de Gestió d'Ajuts Universitaris i de Recerca (SGR 222)
 - Principal investigator: Marrugat de la Iglesia, Jaume

Theses

- Ribas, N. Influència pronòstica del Codi Infart en els pacients amb infart agut de miocardi amb elevació del segment ST. Anàlisi del control dels factors de risc cardiovascular. Universitat Autònoma de Barcelona
 - Directors: Elosua Llanos, Roberto; Garcia, C.
 - Date of defense: 13/11/2018

Other

- Roberto Elosua Llanos. Prize for the best articles presented in the Spanish Journal of Cardiology. Sociedad Española de Cardiología (SEC). 20/08/2018.



Cardiovascular Risk and Nutrition

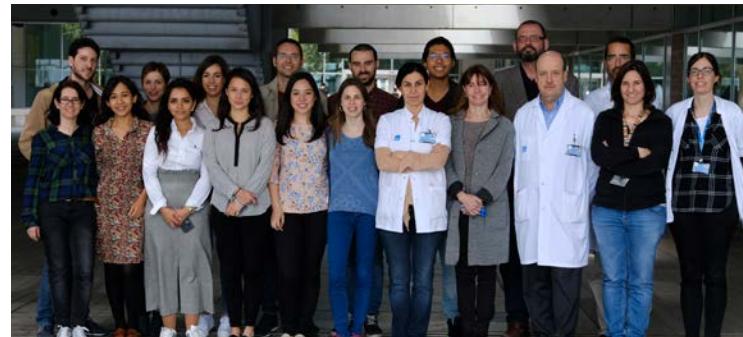
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Helmut Schröder (Researcher)
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Anna Maria Blasco Lapuente (Research Assistant)

The Mediterranean diet, its foods and the interaction of its nutrients, have healthy effects on morbidity and mortality related to chronic degenerative diseases, such as cardiovascular disease. In this context, the main objective of our research is to determine the benefit of a healthy diet pattern and some characteristic foods (including olive oil and wine) on different cardiovascular risk factors. We also focus on lifestyle habits including diet and physical activity on obesity (both in children and adults), diabetes, and cardiovascular disease. The health effects of bariatric surgery are also among our aims.

Based on the knowledge of underlying mechanisms beyond the diet benefits, progress is being made in research of the classical and emerging risk factors for cardiovascular and neurodegenerative diseases. One of our main research lines is focused on HDL-

and ApoB-containing particles. Firstly, it is becoming increasingly more accepted that the biological functions of HDL are more indicative of the cardioprotective role of these particles than the quantity of HDL cholesterol. Reduced values of the most relevant HDL function (its ability to pick up cholesterol from peripheral cells, the cholesterol efflux) have been shown to be linked to a high risk of sub-clinical atherosclerosis and high incidence of coronary events. Our group was the first to report the protective effect of a healthy dietary pattern (a Mediterranean Diet enriched in virgin olive oil) and real-life doses of virgin olive oil on HDL functions (Hernández A et al., Circulation 2017). Secondly, we are also interested in the residual risk factor linked to the atherogenicity of ApoB-containing particles such as LDL and triglyceride-rich lipoproteins.

Main Publications

- Estruch R, Ros E, Salas-Salvadó J, Covas MI, Corella D, Arós F, Gómez-Gracia E, Ruiz-Gutiérrez V, Fiol M, Lapetra J, Lamuela-Raventós RM, Serra-Majem L, Pintó X, Basora J, Muñoz MA, Sorlí JV, Martínez JA, Fitó M, Gea A, Hernán MA, Martínez-González MA, PREDIMED Study Investigators. Primary Prevention of Cardiovascular Disease with a Mediterranean Diet Supplemented with Extra-Virgin Olive Oil or Nuts. *New Engl J Med* 2018; 378(25): e34. IF 79.258. D1.
- Schröder H, Cárdenas-Fuentes G, Martínez-González MA, Corella D, Vioque J, Romaguera D, Alfredo Martínez J, Tinahones FJ, López-Miranda J, Estruch R, et al. Effectiveness of the physical activity intervention program in the PREDIMED-Plus study: a randomized controlled trial. *Int J Behav Nutr Phys Act* 2018; 15(1): 110. IF 5.548. D1.
- Pedro-Botet J, Benaiges D. Neurotensin and Nonalcoholic Fatty Liver Disease: Beyond Obesity. *Obesity (Silver Spring)* 2018; 26(2): 251. IF 4.042. Q1.
- Climent E, Benaiges D, Flores JA, Ramon-Moros JM, Pedro-Botet J, Goday A. Changes in the lipid profile 5 years after bariatric surgery: laparoscopic Roux-en-Y gastric bypass versus laparoscopic sleeve gastrectomy. *Surg Obes Relat Dis* 2018; 14(8): 1099-1105. IF 3.9. D1.
- Goday A, Castañer O, Benaiges D, Busquets-Pou A, Ramon-Moros JM, Iglesias M, Barranco L, Flores JA. Can Helicobacter pylori Eradication Treatment Modify the Metabolic Response to Bariatric Surgery?. *Obes Surg* 2018; 28(8): 2386-2395. IF 3.895. D1.
- Cárdenas-Fuentes G, Bawaked RA, Martínez-González MÁ, Corella D, Subirana I, Salas-Salvadó J, Estruch R, Serra-Majem L, Ros E, Lapetra J, Fiol M, Rekondo J, Gómez-Gracia E, Tur JA, Pintó X, Babio N, Ortega C, Martínez JA, Schröder H. Association of physical activity with body mass index, waist circumference and incidence of obesity in older adults. *Eur J Public Health* 2018; 28(5): 944-950. IF 2.782. Q1.

Ongoing Research Projects

- Integridad neurovascular y desarrollo de demencia: Efecto neuroprotector de las lipoproteínas de alta densidad y marcadores asociados
 - Financing institution: Fondo de Investigación Sanitaria. ISCIII (PI17/00214)
 - Period: from 2018 to 2020
 - Principal investigator: Castañer Niño, Olga
- Caracterización y desarrollo de procesos de elaboración de productos panificables con impacto positivo en la salud humana: Estudio en modelos humanos de inflamación y disbiosis intestinal. Retos colaboración 2017
 - Financing institution: Ministerio de Economía y Competitividad (RTC-2017-6467-2)
 - Period: from 2018 to 2020
 - Principal investigator: Fitó Colomer, Montserrat
- Efecte HALO de l'estudi PREDIMED PLUS
 - Financing institution: Departament de Salut, Generalitat de Catalunya (SLT002/16/00132)
 - Period: from 2017 to 2019
 - Principal investigator: Goday Arno, Albert
- Efecto de una pérdida de peso con dieta mediterránea hipocalórica y promoción de la actividad física en la prevención primaria cardiovascular: Estudio PREDIMED-PLUS
 - Financing institution: Fondo de Investigación Sanitaria. ISCIII (PI16/00533)
 - Period: from 2017 to 2019
 - Principal investigator: Goday Arno, Albert
- Novel predictors of coronary heart disease: endothelial microparticles, HDL functionality, and fatty acid composition of cell membranes
 - Financing institution: Fundació La Marató de TV3 (20151231)
 - Period: from 2016 to 2019
 - Principal investigator: Fitó Colomer, Montserrat
- Funcionalidad de la HDL en la predicción de eventos cardiovasculares en una cohorte a 5 años en población general. Estilo de vida como factor modulador
 - Financing institution: Fondo de Investigación Sanitaria. ISCIII (PI15/00047)
 - Period: from 2016 to 2019
 - Principal investigator: Fitó Colomer, Montserrat

Participation in Research Networks

- CIBEROBN: Fisiopatología de la obesidad y nutrición
 - Fondo de Investigación Sanitaria. ISCIII (CB06/03/0028)
 - Principal investigator: Fitó Colomer, Montserrat
- CIBERESP: Epidemiología y salud pública
 - Fondo de Investigación Sanitaria. ISCIII (CB06/02/0029)
 - Principal investigator: Schröder, Helmut

Clinical Trials Signed in 2018

- Estudio prospectivo, observacional de una alimentación por sonda con alto contenido calórico y proteico, con carbohidratos de liberación lenta y ácidos grasos monoinsaturados (AGMI), en una población malnutrida con diabetes
 - Register: DA14
 - Principal investigator: Villatoro Moreno, Montserrat

Theses

- Bawaked, RA. Childhood Obesity: Interrelation among Diet Quality, Lifestyle Factors, and Obesity. Universitat Pompeu Fabra.
 - Director: Schröder, Helmut
 - Date of defense: 08/10/2018
- Climent, E. Efectes de la cirurgia bariàtrica sobre el perfil lipídic. Universitat Autònoma de Barcelona.
 - Directors: Benaiges Boix, David; Goday Arno, Albert; Pedro-Botet, J.
 - Date of defense: 23/11/2018
- Prados, M. Alteración del metabolismo de la glucosa y del perfil lipídico en el seguimiento postparto de mujeres con antecedentes de diabetes gestacional en un entorno multiétnico. Universitat Autònoma de Barcelona.
 - Directors: Pedro-Botet, J.; Flores Le Roux, Juana Antonia
 - Date of defense: 20/07/2018



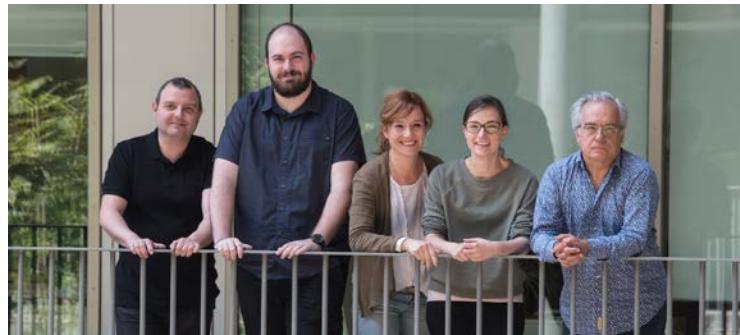
Clinical and Molecular Epidemiology of Cancer

RESEARCH GROUP



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Members

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Magda Gasull Panadès (Technician)
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Yolanda Rovira Pons (Research Assistant)

We conduct integrative scientific research on human pancreatic cancer at all causal and mechanistic levels, from genomics to clinical medicine to the social and physical environment. Our aim is to achieve an optimal integration of professional cultures, scientific knowledge, methodologies and techniques from epidemiology and public health, clinical medicine and the biological sciences. We are a team that has worked across disciplines for more than three decades, one of the pioneer groups in Europe on clinical and molecular epidemiology. Cancer is a complex set of processes that result from the accumulation of genetic, epigenetic and other alterations during the lifecourse. Thus, integrative studies on the causes of cancer are a natural meeting point between molecular biology and epidemiology. We are also a world-recognized research group on the biomonitoring of internal body concentrations of environmental chemical agents ('internal contamination') in representative samples of the general population.

Main Publications

- Klein AP, Wolpin BM, Risch HA, Stolzenberg-Solomon RZ, Mocci E, Zhang MF (...), Porta M, Real FX, Rothman N (...), Kraft P, Li D, Chanock S, Obazee O, Petersen GM, Amundadottir LT. Genome-wide meta-analysis identifies five new susceptibility loci for pancreatic cancer. *Nature Communications* 2018; 9: 556. IF 12.353. D1.
- NCD Risk Factor Collaboration (NCD-RisC). Zhou B, Bentham J, Di Cesare M, Bixby H, Danaei G, Hajifathalian K, (...) Gasull M, (...) Porta M, (...) Neuhauser HK, Sorić M, Starc G, Sundström J, Woodward M, Ezzati M. Contributions of mean and shape of blood pressure distribution to worldwide trends and variations in raised blood pressure: a pooled analysis of 1018 population-based measurement studies with 88.6 million participants. *International Journal of Epidemiology* 2018; 47: 872-883i. IF 8.36. Q1.
- Lee DH, Porta M, Lind L, Lind PM, Jacobs DR Jr. Neurotoxic chemicals in adipose tissue: A role in puzzling findings on obesity and dementia. *Neurology* 2018; 90: 176-182. IF 7.609. D1.
- Matejcic M, Lesueur F, Biessy C, Renault AL, Mebirouk N, Yammie S (...), Duell EJ, Porta M, Sánchez MJ, (...), Bueno-de-Mesquita HB, Riboli E, Vineis P, Romieu I, Gunter M, Chajès V. Circulating plasma phospholipid fatty acids and risk of pancreatic cancer in a large European cohort. *International Journal of Cancer* 2018; 143: 2437-2448. IF 7.36. Q1.
- Gasull M, Pumarega JA, Kiviranta H, Rantakokko P, Raaschou-Nielsen O, Bergdahl IA, Sandanger TM, Goñi F, Cirera L, Donat-Vargas C, Alguacil J (...), González CA, Weiderpass E, Bueno-de-Mesquita B, Duell EJ, Vineis P, Porta M. Methodological issues in a prospective study on plasma concentrations of persistent organic pollutants and pancreatic cancer risk within the EPIC cohort. *Environ Res* 2018; 169: 417-433. IF 4.732. D1.
- Hernández-Quevedo C, López-Valcárcel BG, Porta M. Short-Term Adverse Effects of Austerity Policies on Mortality Rates: What Could Their Real Magnitude Be? (Editorial). *Am J Public Health* 2018; 108(8): 983-985. IF 4.38. D1.
- Gasull M, Castell C, Pallarès N, Miret C, Pumarega J, Téllez-Plaza M, López T, Salas-Salvadó J, Lee DH, Goday A, Porta M. Blood concentrations of persistent organic pollutants and unhealthy metabolic phenotypes in normal-weight, overweight and obese individuals. *Am J Epidemiol* 2018; 187: 494-506. IF 4.322. D1.

Ongoing Research Projects

- Influencia de las concentraciones de compuestos tóxicos persistentes sobre la mortalidad, la incidencia de trastornos crónicos y la expresión de miARN en población general
 - Financing institution: Fondo de Investigación Sanitaria. ISCIII (PI17/00088)
 - Period: from 2018 to 2020
 - Principal investigator: Porta Serra, Miquel
- Concentraciones sanguíneas de compuestos organoclorados, estilo de vida y riesgo de cáncer de páncreas en la cohorte EPIC
 - Financing institution: Fondo de Investigación Sanitaria. ISCIII (PI13/00020)
 - Period: from 2014 to 2018
 - Principal investigator: Porta Serra, Miquel

Participation in Research Networks

- CIBERESP: Epidemiología y salud pública
 - Fondo de Investigación Sanitaria. ISCIII (CB06/02/0034)
 - Principal investigator: Porta Serra, Miquel

Group's Recognitions

- Officially recognised as a consolidated research group by the Generalitat de Catalunya: Epidemiologia Clínica i Molecular del Càncer. 2017-2020. Agència de Gestió d'Ajuts Universitaris i de Recerca (SGR 439)
 - Principal investigator: Porta Serra, Miquel

Other

- Members of the Group have acted as Advisors and External Reviewers to the World Health Organization (Avoiding Early Environmental Exposures); CaixaBank (Postgraduate Fellowships); Environment and Health Fund, Israel; Cancer TMOI of the French National Alliance for Life and Health Sciences (AVIESAN) & French National Cancer Institute (INCa); National Science Centre (Narodowe Centrum Nauki - NCN), Poland; Kuwait University; Escola de Salut Pública de Menorca; DEMCat (TermCat and Acadèmia de Ciències Mèdiques i de la Salut de Catalunya i Balears). They have also been invited to give keynote lectures and seminars at Columbia University, Mailman School of Public Health, New York; Columbia University, Center for Environmental Health in Northern Manhattan, New York; City University of New York

(CUNY), Center for the Biology of Natural Systems (CBNS), Queens College, New York; CUNY School of Public Health; Johns Hopkins University, Bloomberg School of Public Health, Baltimore; Kuwait University, Faculty of Medicine; University of Ottawa, School of Epidemiology, Public Health and Preventive Medicine, Ottawa; University of Bergen, Department of Global Health and Primary Care, National Research School in Population Based Epidemiology; Universidad Miguel Hernández, Programa de Doctorado en Salud Pública; Pompeu Fabra University and Autonomous University of Barcelona, Máster Universitario en Salud Pública.



Epidemiology and Evaluation

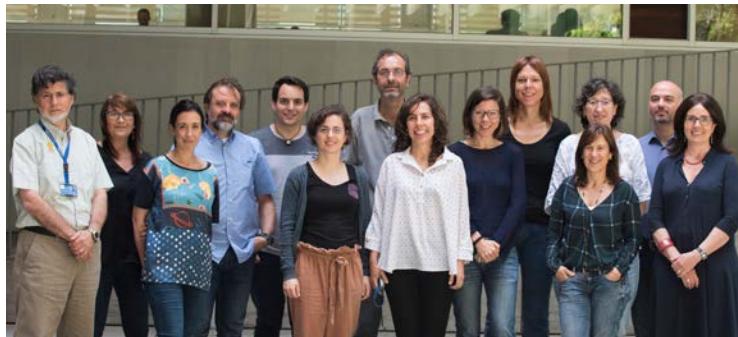
RESEARCH GROUP



Group Leader

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Members

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Xavier Castells Oliveres (Researcher)
Mercè Comas Serrano (Researcher)
Francesc Cots Reguant (Researcher)
Laia Domingo Torrell (Researcher)
Francesc Assís Macià Guilà (Researcher)
Margarita Posso Rivera (Researcher)
Anna Renom Guiteras (Researcher)
Marta Román Expósito (Researcher)
Roser Terradas Robledo (Researcher)
Cristina Hernández Rodríguez (Technician)
Anna Jansana Riera (Technician)
Javier Louro Aldamiz-Echevarría (Technician)
Diego Juárez Rodríguez (Technician)
Pietro Chiarello (Research Assistant)
Irene Fernández Garcia (Research Assistant)
Priscilla Giraldo Matamoros (Researcher Assistant)
Esther Martínez Amor (Research Assistant)

This is a group with multidisciplinary training (epidemiology, health economy, statistics and nursing), which has carried out research activity in the field of health services research (HSR), specifically in the evaluation of the effectiveness and costs of health services and interventions; the evaluation of the needs and use of health services; and the development of instruments for HSR. Current research areas focus mainly on the evaluation of the health care process in cancer patients, focusing on breast and colon cancer screening, and the impact of the process on survival, specifically in the study of cancer screening personalization and on health care of long-term survivors.

Main Publications

- Rojas-Camayo J, Mejía CR, Callacondo D, Dawson JA, Posso M, Galván CA, Dávila-Arango N, Bravo EA, Loescher VY, Padilla-Deza MM, Rojas-Valero N, Velásquez-Chávez G, Clemente J, Alva-Lozada G, Quispe-Mauricio A, Bardalez S, Subhi R. Reference values for oxygen saturation from sea level to the highest human habitation in the Andes in acclimatised persons. *Thorax* 2018; 73(8): 776-778. IF 9.655. D1.
- Hofvind S, Sagstad S, Sebuødegård S, Chen Y, Román M, Lee CI. Interval Breast Cancer Rates and Histopathologic Tumor Characteristics after False-Positive Findings at Mammography in a Population-based Screening Program. *Radiology* 2018; 287(1): 58-67. IF 7.469. D1.
- Heijnsdijk EAM, Bangma CH, Borràs JM, de Carvalho TM, Castells X, Eklund M, Espinàs JA, Graefen M, Grönberg H, Lansdorp-Vogelaar I, van Leeuwen PJ, Nelen V, Recker F, Roobol MJ, Vandenbulcke P, de Koning HJ. Summary statement on screening for prostate cancer in Europe. *Int J Cancer* 2018; 142(4): 741-746. IF 7.36. Q1.
- Sala M, Domingo L, Louro J, Torá-Rocamora I, Baré M, Ferrer J, Carmona-Garcia MC, Barata T, Román M, Macià F, Castells X. Survival and disease-free survival by breast density and phenotype in interval breast cancers. *Cancer Epidemiol Biomark & Prev* 2018; 27(8): 908-916. IF 4.554.D1.
- Boldo E, Castelló A, Aragonés N, Amiano P, Pérez-Gómez B, Castaño-Vinyals G, Martín V, Guevara M, Urtiaga C, Dierssen-Sotos T, Fernández-Tardón G, Moreno V, Solans M, Peiró R, Capelo R, Gómez-Acebo I, Castilla J, Molina AJ, Castells X, Altzibar JM, Lope V, Kogevinas M, Romieu I, Pollán M, MCC-Spain researchers. Meat intake, methods and degrees of cooking and breast cancer risk in the MCC-Spain study. *Maturitas* 2018; 110: 62-70. IF 3.315. Q1.
- Puigpinós-Riera R, Graells-Sans A, Serral G, Continente X, Bargalló X, Domènech M, Espinosa-Bravo M, Grau J, Macià F, Manzanera R, Pla M, Quintana MJ, Sala M, Vidal E. Anxiety and depression in women with breast cancer: Social and clinical determinants and influence of the social network and social support (DAMA cohort). *Cancer Epidemiol* 2018; 55: 123-129. IF 2.888. Q1.
- Esteva M, Ruiz-Díaz M, Sánchez MA, Pértega-Díaz S, Pita-Fernández S, Macià F, Posso M, González-Luján L, Boscá-Wats MM, Leiva A, Ripoll J, DECCIRE GROUP. Emergency presentation of colorectal patients in Spain. *PLoS ONE* 2018; 13(10): e0203556. IF 2.766. Q1.

Ongoing Research Projects

- Estimación del riesgo individual de cáncer de mama según factores de riesgo conocidos de la mujer para la personalización del cribado mamográfico poblacional
 - Financing institution: Fondo de Investigación Sanitaria. ISCIII (PI17/00047)
 - Period: from 2018 to 2020
 - Principal investigator: Román Expósito, Marta
- La reconciliación después del error médico: la mediación como herramienta de ayuda a las víctimas
 - Financing institution: Fundació Víctor Grífols i Lucas (BEC-2018-004)
 - Period: from 2018 to 2019
 - Principal investigator: Giraldo Matamoros, Priscila
- Uso de servicios de salud y comorbilidades en mujeres supervivientes de larga duración de cáncer
 - Financing institution: Fondo de Investigación Sanitaria. ISCIII (PI16/00244)
 - Period: from 2017 to 2019
 - Principal investigator: Sala Serra, Maria
- Evaluación del patrón secuencial del nivel de sangre oculta en heces y su relación con el riesgo de neoplasia colorrectal: hacia la optimización del cribado poblacional de cáncer colorrectal
 - Financing institution: Fondo de Investigación Sanitaria. ISCIII (PI16/00239)
 - Period: from 2017 to 2019
 - Principal investigator: Buron Pust, Andrea
- Lesiones benignas de mama, densidad mamaria y asociación con el riesgo de cáncer en una cohorte de mujeres cribadas
 - Financing institution: Fondo de Investigación Sanitaria. ISCIII (PI15/00098)
 - Period: from 2016 to 2019
 - Principal investigator: Castells Oliveres, Xavier

Participation in Research Networks

- Research network on health services in chronical diseases – REDISSEC (Red de Investigación en Servicios de Salud en Enfermedades Crónicas)
 - Fondo de Investigación Sanitaria. ISCIII. Subprograma RETICS (RD16/0001/0013)
 - Principal investigator: Sala Serra, Maria

Group's Recognitions

- Officially recognised as a consolidated research group by the Generalitat de Catalunya: Servei d'avaluació i epidemiologia clínica. 2017-2020. Agència de Gestió d'Ajuts Universitaris i de Recerca (SGR 213)
 - Principal investigator: Castells Oliveres, Xavier

Theses

- Blanch, J. Avaluació de la taxa de detecció de càncer i del càncer d'interval en programes de detecció precoç del càncer de mama utilitzant mètodes longitudinals. Universitat Autònoma de Barcelona.
 - Directors: Sala Serra, Maria; Rué, M.
 - Date of defense: 14/03/2018

Other

- Margarita Posso Rivera. Cribado poblacional del cáncer de mama: aspectos relacionados con la efectividad y coste-efectividad. Prize for the Best Doctoral Thesis on Health Management and Health Economics. UAM-ASISA Foundation, Universidad Autónoma de Madrid. Date: 14/11/2018.
- Prize award Emilio Perea for the Best oral communication of a senior researcher at the XXXVI Scientific Meeting of the Spanish Society of Epidemiology. Lisbon (Portugal), September 11-14, 2018 to the communication: Evidencia sobre la eficacia de la personalización del cribado de cáncer de mama: una revisión sistemática, presented by Marta Román
- Julieta Politi. Prize 2018 from Sociedad Española de Epidemiología for the Best Master Thesis on Epidemiology and Public Health "The role of detection mode and treatment in predicting breast cancer recurrence & complications for Ductal Carcinoma In Situ (DCIS) Breast Cancer", directed by María Sala.

REGICOR

Girona Heart Registry

RESEARCH GROUP



Group Leader

Jaume Marrugat de la Iglesia

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Members

Irene Roman Degano (Researcher)
Susanna Tello Rovira (Technician)
Silvia Pérez Fernández (Technician)
Joan Salvador Vila Domènech (Technician)
Gemma Blanchart Cuella (Technician)
Sandra Farré Anton (Research Assistant)
Yolanda Ferrer Campo (Research Assistant)
Sònia Gaijas Vasallo (Research Assistant)

The mission of the Girona Heart Registry Research Group is to increase our knowledge of the magnitude of the populational problem of cardiovascular diseases, their molecular, cellular and environmental mechanisms, and design the best strategies for preventing them.

The ultimate goal of this knowledge is to significantly reduce the burden of this disease on society, creating tools –such as cardiovascular risk functions– that allow us to transfer the knowledge we acquire to clinical practice.

The REGICOR Group also has the mission of training new researchers in this area of knowledge.

Main Publications

- Evangelou E, Warren HR, Mosen-Ansorena D, Mifsud B, Pazoki R, Gao H, Ntritsos G, Dimou N, Cabrera CP, (... Marrugat J ...), et al. Genetic analysis of over 1 million people identifies 535 new loci associated with blood pressure traits. *Nat Genet* 2018; 50(10): 1412-1425. IF 27.125. D1.
- Ramos R, Comas-Cufí M, Martí-Lluch R, Balló E, Ponjoan A, Alves-Cabrata L, Blanch J, Marrugat J, Elosua R, Grau M, Elosua-Bayés M, García-Ortiz L, Garcia-Gil M. Statins for primary prevention of cardiovascular events and mortality in old and very old adults with and without type 2 diabetes: retrospective cohort study. *BMJ* 2018; 362: k3359. IF 23.259. D1.
- Baena-Díez JM, Subirana I, Ramos R, Gómez de la Cámara A, Elosua R, Vila JS, Marín-Ibáñez A, Guembe MJ, Rigo F, Tormo-Díaz MJ, Moreno-Iribas C, Cabré JJ, Segura A, Lapetra J, Quesada M, Medrano MJ, González-Diego P, Frontera G, Gavrila D, Ardanaz E, Basora J, García JM, García-Lareo M, Gutiérrez-Fuentes JA, Mayoral E, Sala J, Degano IR, Francés A, Castell C, Grau M, Marrugat J. Evaluación de la validez de las funciones SCORE de bajo riesgo y calibrada para población española en las cohortes FRESCO. *Rev Esp Cardiol* 2018; 71(4): 274-282.
- Elosua-Bayés M, Martí-Lluch R, García-Gil MM, Camós L, Comas-Cufí M, Blanch J, Ponjoan A, Alves-Cabrata L, Elosua R, Grau M, Marrugat J, Ramos R. Asociación de los factores de riesgo cardiovascular y estilos de vida clásicos con el índice vascular corazón-tobillo en población general mediterránea. *Rev Esp Cardiol* 2018; 71(6): 458-465. IF 5.166. Q1.
- Vázquez-Oliva G, Zamora A, Ramos R, Martí R, Subirana I, Grau M, Degano IR, Marrugat J, Elosua R. Tasas de incidencia y mortalidad, y letalidad poblacional a 28 días del infarto agudo de miocardio en adultos mayores. Estudio REGICOR. *Rev Esp Cardiol* 2018; 71(9): 718-725. IF 5.166. Q1.
- Vázquez-Oliva G, Zamora A, Ramos R, Subirana I, Grau M, Degano IR, Muñoz D, Fitó M, Elosua R, Marrugat J. Valor predictivo de la albúmina plasmática, la vitamina D y las apolipoproteínas A y B como biomarcadores de riesgo coronario en el estudio REGICOR. *Rev Esp Cardiol* 2018; 71(11): 910-916. IF 5.166. Q1.
- Subirana I, Fitó M, Díaz O, Vila JS, Francés A, Delpon E, Sanchis J, Elosua R, Muñoz D, Degano IR, Marrugat J. Prediction of coronary disease incidence by biomarkers of inflammation, oxidation, and metabolism. *Sci Rep* 2018; 8(1): 3191. IF 4.122. Q1.
- Barroso M, Goday A, Ramos R, Marín-Ibáñez A, Guembe MJ, Rigo F, Tormo-Díaz MJ, Moreno-Iribas C, Cabré JJ, Segura A (...), Grau M, Marrugat J, FRESCO Investigators. Interaction between cardiovascular risk factors and body mass index and 10-year incidence of cardiovascular disease, cancer death, and overall mortality. *Prev Med* 2018; 107: 81-89. IF 3.483. Q1.

Ongoing Research Projects

- Trastorns afectius i risc cardiovascular en població general: efecte diferencial dels mecanismes fisiopatològics
 - Financing institution: Departament de Salut, Generalitat de Catalunya (SLT006/17/00234)
 - Period: from 2018 to 2020
 - Principal investigator: Marrugat de la Iglesia, Jaume
- Epidemiologia de la hipercolesterolemia familiar; predicció de risc, efectivitat i seguretat del tractament hipolipemiant
 - Financing institution: Departament de Salut, Generalitat de Catalunya (SLT002/16/00145)
 - Period: from 2017 to 2019
 - Principal investigator: Marrugat de la Iglesia, Jaume
- Role of micro RNAs expressed by human endothelial and vascular smooth muscle cells in myocardial infarction. (MIR MIDmicro RNAs in Myocardial Infarction Disease)
 - Financing institution: Fundación BBVA (PR-16_BIO_CAR_0041)
 - Period: from 2016 to 2019
 - Principal investigator: Marrugat de la Iglesia, Jaume
- Papel del microRNA no codificante producido por las células endoteliales y musculares lisas arteriales humanas en el infarto de miocardio
 - Financing institution: Fondo de Investigación Sanitaria. ISCIII (PI15/00064)
 - Period: from 2016 to 2019
 - Principal investigator: Marrugat de la Iglesia, Jaume
- Validation of a coronary heart disease risk calculator adapted to Human Immunodeficiency Virusinfected patients. The COMVIH-COR project
 - Financing institution: Gilead Sciences S.L.U. (GLD17-00224)
 - Period: from 2018 to 2020
 - Principal investigator: Marrugat de la Iglesia, Jaume

Participation in Research Networks

- CIBER Enfermedades Cardiovasculares
 - Fondo de Investigación Sanitaria. ISCIII (CB16/11/00229)
 - Principal investigator: Marrugat de la Iglesia, Jaume

Group's Recognitions

- Officially recognised as a consolidated research group by the Generalitat de Catalunya: Grup de recerca consolidat REGICOR (REgistre Gironi del COR) 2017-2020
 - Agència de Gestió d'Ajuts Universitaris i de Recerca (SGR 222)
 - Principal investigator: Marrugat de la Iglesia, Jaume

Other

- Jaume Marrugat... and Degano I. Prize for the best communication presented at the XXX Congress of the Catalan Society of Cardiology 2018. "Paper de l'extensió de la malaltia cardiovascular i del nivell de colesterol en les recurrències dels pacients amb malaltia cardiovascular establerta".
- Angela Vea, ...Jaume Marrugat,... and Vicenta Llorente. "Análisis del LRP1 soluble como biomarcador de riesgo coronario: asociación con acontecimientos clínicos y capacidad de predicción". Primary Care-Epidemiology Award 2018 to the communication presented at the XXXI Spanish Society of Arteriosclerosis National Congress, Girona 2018.
- Albert Massó-Van Roessel, Jaume Marrugat... and Roberto Elosua. "Asociación entre las características de la onda P y la fibrilación auricular en el estudio REGICOR" Catalan Institute of Cardiovascular Sciences, Hospital del Mar Medical Research Institute, CIBER of Cardiovascular Diseases. Prize of the clinical cardiology section of the Spanish Society of Cardiology to the best articles published in the Spanish Journal of Cardiology October 2018.
- Daniel Fernández-Bergés... and Jaume Marrugat. Prizes of the Spanish Society of Cardiology to articles published in the Spanish Journal of Cardiology with the greatest international repercussion. Second prize for the most cited article in the long term, to the publication: "Síndrome metabólico en España: prevalencia y riesgo coronario asociado a la definición armonizada y a la propuesta por la OMS. Estudio DARIOS". 2018.



Health Services

RESEARCH GROUP



Group Leader

Jordi Alonso Caballero



Members

Alfonso Antón López (Researcher)
María Jesús Blasco Cubedo (Researcher)
Montserrat Ferrer Forés (Researcher)
Olatz Garin Boronat (Researcher)
Yolanda Pardo Cladellas (Researcher)
Gemma Vilagut Saiz (Researcher)
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Javier Gómez Sánchez (Technician)
Philippe Mortier (Technician)
Àngels Pont Acuña (Technician)
Beatriz Puértolas Gracia (Technician)
Víctor Zamora Ruiz (Technician)
Purificación Barbas López (Research Assistant)
Carme Gasull Planes (Research Assistant)
Luisa Aurea Martín Morris (Research Assistant)

Our research focuses on methods for measuring perceived health, patient-reported outcomes (PROs), and the burden of disease. Our main areas of research apply these methods to assessing the burden of common mental disorders and to evaluating the comparative effectiveness of interventions for chronic diseases, in particular cancer and asthma. Our research is carried out in collaboration with several international research networks, including the WHO World Mental Health Surveys initiative, and the Movember Foundation initiative TrueNTH Global Registry – Prostate Cancer Outcomes.

Knowledge transfer is also an important focus for the group, which plays a leading role in BiblioPRO, the online library of PROs in Spanish, containing more than 2000 instruments. We have developed a standard guide to evaluate the quality of these instruments (EMPRO) and a "Procedure and system to evaluate the quality of life related to the health of an individual" (patent n P200600211, May 1999). We also collaborate on a number of international research projects (IQOD, MHADIE, KIDSCREEN, EuroQol, PROMIS and ICHOM).

We are engaged in a number of educational and mentoring activities, including the Master's programme in Public Health, the degree in Medicine, and other official education programmes from both Pompeu Fabra University (UPF) and the Autonomous University of Barcelona (UAB), as well as the PSMAR Teaching Unit of Specialists in Preventive Medicine and Public Health.

Our team comprises some 15 professionals with different backgrounds, such as life sciences, psychology, statistics, and others; it is part of the CIBER in Epidemiology and Public Health (Carlos III Health Institute), and is recognized as a Consolidated Research Group by AGAUR (DIUE, Generalitat de Catalunya).

Main Publications

- GBD 2017 SDG Collaborators (...Alonso J...). Measuring progress from 1990 to 2017 and projecting attainment to 2030 of the health-related Sustainable Development Goals for 195 countries and territories: a systematic analysis for the Global Burden of Disease Study 2017. *Lancet* 2018; 392(10159): 2091-2138. IF 53.254. D1.
- Kessler RC, Aguilar-Gaxiola S, Alonso J, Bromet EJ, Gureje O, Karam EG, Koenen KC, Lee S, Liu H, Pennell BE, et al. The associations of earlier trauma exposures and history of mental disorders with PTSD after subsequent traumas. *Mol Psychiatr* 2018; 23(9): 1-8. IF 11.64. D1.
- Ávila M, Patel L, Cortés-Sanabria L, Garin O, Pont A, Ferrer F, Boladeras A, Fosså S, Storås AH, Sanda M, Serra-Sutton V, Ferrer M. Patient-reported outcomes after treatment for clinically localized prostate cancer: A systematic review and meta-analysis. *Cancer Treat Rev* 2018; 66: 23-44. IF 8.122. D1.
- Mortier P, Auerbach RP, Alonso J, Bantjes J, Benjet C, Cuijpers P, Ebert DD, Green JG, Hasking P, Nock MK, O'Neill S, Pinder-Amaker S, Sampson NA, Vilagut G, Zaslavsky AM, Bruffaerts R, Kessler RC, WHO WMH-ICS Collaborators (...Castellví P...). Suicidal Thoughts and Behaviors Among First-Year College Students: Results From the WMH-ICS Project. *J Am Acad Child Psy* 2018; 57(4): 263-273. IF 6.25. D1.
- Alonso J, Liu Z, Evans-Lacko S, Sadikova E, Sampson N, Chatterji S, Abdulmalik J, Aguilar-Gaxiola S, Al-Hamzawi A, Andrade LH, et al. Treatment gap for anxiety disorders is global: Results of the World Mental Health Surveys in 21 countries. *Depress Anxiety* 2018; 35(3): 195-208. IF 5.043. D1.

- Alonso J, Mortier P, Auerbach RP, Bruffaerts R, Vilagut G, Cuijpers P, Demyttenaere K, Ebert DD, Ennis E, Gutiérrez-García RA, Green JG, Hasking P, Lochner C, Nock MK, Pinder-Amaker S, Sampson NA, Zaslavsky AM, Kessler RC, WHO WMH-ICS Collaborators. Severe role impairment associated with mental disorders: Results of the WHO World Mental Health Surveys International College Student Project. *Depress Anxiety* 2018; 35(9): 802-814. IF 5.043. D1.
- Alonso J, Saha S, Lim CCW, Aguilar-Gaxiola S, Al-Hamzawi A, Benjet C, Bromet EJ, Degenhardt L, de Girolamo G, Esan O, et al. The association between psychotic experiences and health-related quality of life: a cross-national analysis based on World Mental Health Surveys. *Schizophr Res* 2018; 201: 46-53. IF 3.958. Q1.
- Arias J, Vilagut G, Martín V, Molina AJ, Alonso J. Prevalence of major depressive disorder and association with personal and socio-economic factors. Results for Spain of the European Health Interview Survey 2014-2015. *J Affect Disorders* 2018; 239: 203-207. IF 3.786. Q1.
- Hernández G, Dima AL, Pont A, Garin O, Martí M, Alonso J, Van Ganse E, Laforest L, de Bruin M, Mayoral K, Ferrer M, ASTRO-LAB group. Impact of asthma on women and men: Comparison with the general population using the EQ-5D-5L questionnaire. *PLoS ONE* 2018; 13(8): e0202624. IF 2.766. Q1.
- Martí M, Pérez G, German D, Pont A, Garin O, Alonso J, Gotsens M, Ferrer M. Health-related quality of life inequalities by sexual orientation: Results from the Barcelona Health Interview Survey. *PLoS ONE* 2018; 13(1): e0191334. IF 2.766. Q1.

Ongoing Research Projects

- Incidencia poblacional de la tentativa y de la repetición de tentativa de suicidio: evaluación del Código riesgo suicidio de Cataluña
 - Financing institution: Fondo de Investigación Sanitaria. ISCIII (PI17/00521)
 - Period: from 2018 to 2020
 - Principal investigator: Alonso Caballero, Jordi
- TrueNTH Global Registry – Prostate Cancer Outcomes
 - Financing institution: Movember Europe
 - Period: from 2017 to 2019
 - Principal investigator: Ferrer Forés, Montserrat
- Aplicación de los instrumentos PRO en España: revisión sistemática y recomendaciones basadas en la evidencia
 - Financing institution: Fondo de Investigación Sanitaria. ISCIII (PI16/00130)
 - Period: from 2017 to 2019
 - Principal investigator: Garin Boronat, Olatz

- Evaluación del tratamiento con broncodilatadores de acción larga en los niños con asma: estudio observacional prospective
 - Financing institution: Fondo de Investigación Sanitaria. ISCIII (PI15/00449)
 - Period: from 2016 to 2020
 - Principal investigator: Ferrer Forés, Montserrat
- Evaluación de la precisión diagnóstica, el coste y la utilidad del rastreo de glaucoma basado en detección guiada por imágenes, análisis automático de imágenes y telemedicina
 - Financing institution: Fondo de Investigación Sanitaria. ISCIII (PI15/00412)
 - Period: from 2016 to 2019
 - Principal investigator: Antón López, Alfonso
- Trastorno por uso de alcohol y otras sustancias en estudiantes universitarios: factores de riesgo, incidencia, e impacto en la cohorte “UniverSal-Universidad y Salud Mental”
 - Financing institution: Ministerio de Sanidad, Servicios Sociales e Igualdad (2015I015)
 - Period: from 2016 to 2019
 - Principal investigator: Alonso Caballero, Jordi
- Efectividad a largo plazo: Seguimiento hasta los 10 años de la cohorte del “Estudio multicéntrico español de cáncer de próstata localizado”
 - Financing institution: Fondo de Investigación Sanitaria. ISCIII (PI13/00412)
 - Period: from 2014 to 2018
 - Principal investigator: Garin Boronat, Olatz
- PROMIS.es Salud Mental: calibración y validación de un instrumento informatizado de evaluación de resultados percibidos por los pacientes para diagnóstico y monitorización en Salud Mental
 - Financing institution: Fondo de Investigación Sanitaria. ISCIII (PI13/00506)
 - Period: from 2014 to 2018
 - Principal investigator: Vilagut Sanz, Gemma
- UNIVERSAL: UNIVERSIDAD Y SALUD MENTAL. Modelos Predictivos de Ideación y Conducta Suicida en Estudiantes Universitarios Españoles
 - Financing institution: Fondo de Investigación Sanitaria. ISCIII (PI13/00343)
 - Period: from 2014 to 2018
 - Principal investigator: Alonso Caballero, Jordi

Participation in Research Networks

- CIBERESP: Epidemiología y salud pública
 - Fondo de Investigación Sanitaria. ISCIII (CB06/02/0046)
 - Principal investigator: Alonso Caballero, Jordi

Group's Recognitions

- Officially recognised as a consolidated research group by the Generalitat de Catalunya: Grup de Recerca en Serveis Sanitaris. 2017-2020
 - Agència de Gestió d'Ajuts Universitaris i de Recerca (SGR 452)
 - Principal investigator: Alonso Caballero, Jordi

Theses

- Hernández, G. Treatment Safety, Adherence and Health-related Quality of Life in patients with asthma. Universitat Autònoma de Barcelona.
 - Directors: Ferrer Forés, Montserrat; Garin Boronat, Olatz
 - Date of defense: 12/12/2018

Other

- Dr. Jordi Alonso has been included for three consecutive years (2016, 2017 and 2018) among the most highly cited researchers around the World, in recognition of the exceptional research performance demonstrated by production of multiple highly cited papers, placing him in the top 1% rank by citations per field and year in Psychiatry/Psychology.
- Extraordinary Doctorate Award 2016-2017 to the student Mónica Ávila Pacheco for her thesis with International Doctorate Mention 'Comparative Effectiveness Research on Localized Prostate Cancer Treatments'. This award by the Directive Committee of the Doctoral School of Pompeu Fabra University was approved unanimously on July 27th, 2018.



Research Group in Nursing Care

RESEARCH GROUP



Group Leader

Silvia Esteban Sepúlveda

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Members

David Iglesias Villanueva (Researcher)

Laia Lacueva Pérez (Researcher)

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Antonio Rafael Moreno Poyato (Researcher)

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María Isabel Flores Muxí (Technician)

Núria Orfila Tena (Technician)

Rosa Villanueva Boloix (Technician)

The Research Group in Nursing Care arises from the need to formally integrate the Parc de Salut Mar nursing into the research field, encompassing all the parts of which it is comprised (Hospital del Mar, Hospital de l'Esperança, Centre Peracamps, Centre Fòrum, Centre Emili Mira and Escola Superior d'Infermeria del Mar).

The Group's objective is to generate scientific nursing knowledge and to apply it to evidence-based assistance, with the ultimate aim of improving health, both in terms of care given to the patient and to the community.

It is worth noting that several members of the Group have participated or are actively involved in various national and international research projects.

The main lines of research will focus on training patients to manage their own health and the training of nurses who care for patients.

Main Publications

- Cano-Plans S, Lacueva-Pérez L, Cabrera E, Zabalegui A. Knowledge expectations of orthopaedic patients. *Int J Nurs Pract* 2018; 24(3): e12639. IF 1.142. Q3.

Ongoing Research Projects

- Mejorando la Relación Terapéutica en los Cuidados Enfermeros a Través de la Evidencia. Estudio multicéntrico en unidades de agudos de psiquiatría de Cataluña
 - Financing institution: Col·legi Oficial d'Infermeria de Barcelona (PR-218/17)
 - Period: from 2018-2020
 - Principal investigator: Moreno Poyato, Antonio Rafael

Other

- David Iglesias Villanueva. Tenim Talent Award, Category Young Talent Manager. Societat Catalanobalear d'Infermeria.



Social Epidemiology and Occupational Health

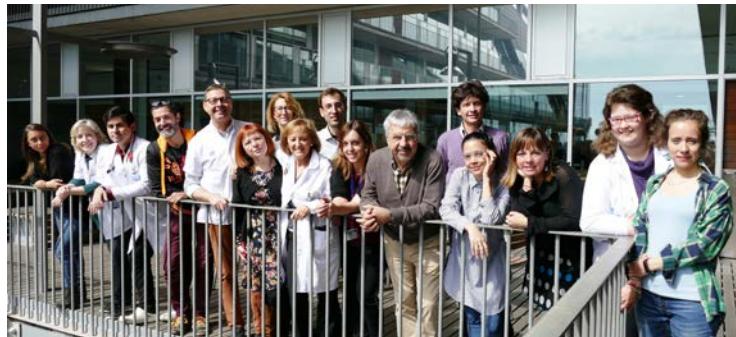
RESEARCH GROUP



Group Leader

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Members

Jordi Delclòs Clanchet (Researcher)
Fernando García Benavides (Researcher)
David Gimeno Ruiz de Porras (Researcher)
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María López Ruiz (Researcher)
José María Ramada Rodilla (Researcher)
Laura Serra Saurina (Researcher)
Mònica Ubalde López (Researcher)
Rocío Villar Vinuesa (Researcher)
Julio César Hernando Rodríguez (PhD Student)
Mercè Soler Font (PhD Student)
Montserrat Fernàndez Busquets (Research Assistant)

The Research Group in Social Epidemiology and Occupational Health (CISAL) is an IMIM research group led by Dr. Consol Serra Pujadas. CISAL is also part of the Department of Experimental and Health Sciences at Pompeu Fabra University and is recognized by the CIBER of Epidemiology and Public Health (since 2008) as a consolidated group by the Agència de Gestió d'Ajuts Universitaris i de Recerca (AGAUR), (since 2002).

The European strategy on Safety and Health at Work draws attention to the need to keep people in the labor market, through healthy work environments, effective return programs for those who leave the labor market, whether temporarily or permanently, for health reasons, and with a focus on the employment of vulnerable groups, such as migrants, ethnic minorities, women and workers in precarious employment.

CISAL investigates occupational health issues with major implications for workers, companies and governments that are particularly sensitive for social welfare systems, with the objective of contributing to the improvement of workers' health, evaluating the impact of preventive programs in the workplace and informing the priorities of health policies.

CISAL research and transfer focuses on a variety of current work-related health problems that include (but are not limited to) musculoskeletal disorders, work injuries, workplace prevention programs and the determinants of absence due to illness and temporary/permanent disability. Its research also emphasizes groups of vulnerable workers, with a focus on the aging population, women, migrants and precarious employment.

CISAL is involved in the development of new measurement tools for the Spanish working population and surveys of working conditions and health. It is also involved in ongoing research collaboration with universities and institutions in Europe, North America and Latin America.

Main Publications

- Martínez-Solanas È, López-Ruiz M, Wellenius GA, Gasparrini A, Sunyer J, Benavides FG, Basagaña X. Evaluation of the Impact of Ambient Temperatures on Occupational Injuries in Spain. *Environ Health Perspect* 2018; 126(6): 067002. IF 8.309. D1.
- Rava M, Czachorowski MJ, Silverman D, Márquez M, Kishore S, Tardón A, Serra C, García-Closas M, Garcia-Closas R, Carrato A, Rothman N, Real FX, Kogevinas M, Malats N. Asthma status is associated with decreased risk of aggressive urothelial bladder cancer. *Int J Cancer* 2018; 142(3): 470-476. IF 7.36. Q1.
- Demou E, Smith S, Bhaskar A, Mackay DF, Brown J, Hunt K, Vargas-Prada S, Macdonald EB. Evaluating sickness absence duration by musculoskeletal and mental health issues: a retrospective cohort study of Scottish healthcare workers. *BMJ Open* 2018; 8(1): e018085. IF 2.413. Q2.

Ongoing Research Projects

- INTEVAL-Plus Project: Cluster-randomized controlled trial of a multicomponent workplace intervention to improve musculoskeletal health in hospital workers
 - Financing institution: Fondo de Investigación Sanitaria. ISCIII (PI17/00779)
 - Period: from 2018 to 2020
 - Principal investigator: Ramada Rodilla, José María
- CEPS Project: Burden of Occupational Diseases treated at the Spanish National Health System
 - Financing institution: Fondo de Investigación Sanitaria. ISCIII (PI16/00061)
 - Period: from 2017 to 2019
 - Principal investigator: Serra Pujadas, Consol

- EBISA Project: Social welfare state and health: professional life, inability to work and mortality in a cohort of workers affiliated to the Social Security System, 2004-2013
 - Financing institution: Fondo de Investigación Sanitaria. ISCIII (PI14/00057)
 - Period: from 2015 to 2019
 - Principal investigator: García Benavides, Fernando

Participation in Research Networks

- CIBERESP (Ciber de Epidemiología y Salud Pública)
- Cochrane Occupational Safety and Health Review Group (COSH RG)
- MODERNET- Monitoring Trends in Occupational Diseases and Emerging Risks in a Network
- Red Experta en Encuestas de Condiciones de Trabajo, Empleo y Salud (Red ECoTES)
- COST Action (CA16216) Network on the Coordination and Harmonisation of European Occupational Cohorts
- COST Action (TD1206) StanDerm: Common European standards on occupational skin disease prevention and patient management
- Red Experta en Encuestas de Condiciones de Trabajo, Empleo y Salud (Red ECoTES)

Group's Recognitions

- Officially recognised as a consolidated research group by the Generalitat de Catalunya: Grup d'Epidemiologia Social i Salut Laboral (CISAL) (2017-2020)
 - Agència de Gestió d'Ajuts Universitaris i de Recerca (SGR 1436) (associated to UPF)
 - Principal investigator: García Benavides, Fernando

Theses

- González-Viana, A. Evaluación de la implementación a escala del Plan de Actividad Física, Deporte y Salud. Universitat Pompeu Fabra.
 - Directors: Plasencia, A.; Cabezas, C.; García Benavides, F.
 - Date of defense: 13/12/2018



Healthy Cities and Environmental Justice

ASSOCIATED GROUP



Group Leader

Isabelle Anguelovski

isabelle.anguelovski@uab.cat



Members

Francesc Baró Porras (Researcher)

Helen Cole (Researcher)

James Connolly (Researcher)

Melissa García Williams (Researcher)

Santiago Gorostiza Langa (Researcher)

Panagiota Kotsila (Researacher)

Johannes Langemeyer (Researcher)

Margarita Triguero Mas (Researcher)

Filka Tsvetkova Sekulova (Researcher)

Carmen Pérez de Pulgar Frowein (PhD Student)

Galia Shokry (PhD Student)

Laura Jiménez Fernández (Research Assistant)

The group's research line focuses on the social determinants of healthy and just cities and on the health and social impacts of planning and creating greener, more sustainable, and resilient cities. Many of our studies examine environmental and health inequities resulting from urban planning decisions and interventions, as well as the community actions, policies, and planning decisions able to address such inequities. We also analyze how cities integrate health risks, impacts, and emergencies into urban planning and policy, the constraints they face to bring health, health equity, and health services at the center of policy agenda, planning decisions, and implementation, and the opportunities that exist to bring health at the center of urban planning and development. Last, the group examines the role played by risks or experiences of urban gentrification and displacement on mental and physical health outcomes. Particular attention is paid here to the role played by gentrification as a mediating factor between exposure to new green and sustainable urban environments and health outcomes.

Main Publications with IMIM

- Langemeyer J, Camps-Calvet M, Calvet-Mir L, Barthel S, Gómez-Baggethun E. Stewardship of urban ecosystem services: understanding the value(s) of urban gardens in Barcelona. *Landscape Urban Plan* 2018; 170: 79-89. IF 4.994. D1.
- Turkelboom F, Leone M, Jacobs S, Kelemen E, García-Llorente M, Baró F, Termansen M, Barton DN, Berry P, Stange E, Thoonen M, Kaloczai A, Vadineanu A, Castro AJ, Czucz B, Röckmann C, Wurbs D, Odee D, Preda E, Gómez-Baggethun E, Rusch GM, Martínez-Pastur G, Palomo I, Dick J, Casaer J, van Dijk J, Priess JA, Langemeyer J, Mustajoki J, Kopperoinen L, Baptist MJ, Peri PL, Mukhopadhyay R, Aszalós R, Roy SB, Luque S, Rusch V. When we cannot have it all: Ecosystem services trade-offs in the context of spatial planning. *Ecosyst Serv* 2018; 29 (Part C): 566-578. IF 4.395. Q1.
- Anguelovski I, Connolly JJT, Masip L, Pearsall H. Assessing green gentrification in historically disenfranchised neighborhoods: a longitudinal and spatial analysis of Barcelona. *Urban Geogr* 2018; 39(3): 458-491. IF 2.307. Q1.
- Anguelovski I, Cole H, Connolly JJT, Triguero-Mas M. Do green neighbourhoods promote urban health justice?. *Lancet Public Health* 2018; 3(6): e270. IF 1.824. Q1.
- Anguelovski I, Connolly JJT, Brand AL. From landscapes of utopia to the margins of the green urban life: For whom is the new green city? *City* 2018; 22(3): 417-436. IF 1.333. Q1.
- Comelli T, Anguelovski I, Chu E. Socio-spatial legibility, discipline, and gentrification through favela upgrading in Rio de Janeiro. *City* 2018; 22(5-6): 633-656. IF 1.333. Q1.

MORE INFO



Occupational and Environmental Epidemiology

ASSOCIATED GROUP



Group Leader

Manolis Kogevinas

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Members

Cristina Villanueva Belmonte (Researcher)

Ana Espinosa Morano (Technician)

Silvia Fuchs Casas (Technician)

The main research of the group is focused on environmental, occupational and genetic factors related to cancer, respiratory disease and child health. Among the main exposures, the group is focused on water pollutants (disinfection by-products in drinking water and swimming pools), air pollution, transport and green spaces in urban areas, hormonal disruption, life style (diet, passive smoking), radiations (smartphones, UV, ionizing), as well as occupational studies in cleaning workers and shift-work and circadian cycle disruption. In the last years we have applied new technologies to assess the exposure (e.g. smartphones), extensively used new biomedical technologies (Exposome, biomarkers, genomics, epigenetics, metabolomics) and implemented complex statistics and bioinformatics methods. The group has an important international reputation and devotes considerable efforts in education, dissemination and knowledge transfer.

Main Publications with IMIM

- Schumacher FR, Al Olama AA, Berndt SI, Benlloch S, Ahmed M, Saunders EJ, Dadaev T, Leongamornlert D, Anokian E, Cieza-Borrella C, (... Kogevinas M ...), et al. Association analyses of more than 140,000 men identify 63 new prostate cancer susceptibility loci. *Nat Genet* 2018; 50(7): 928-936. IF 27.125. D1.
- Lytras T, Kogevinas M, Kromhout H, Carsin AE, Antó JM, Bentouhami H, Weyler J, Heinrich J, Nowak D, Urrutia I, et al. Occupational exposures and 20-year incidence of COPD: the European Community Respiratory Health Survey. *Thorax* 2018; 73(11): 1008-1015. IF 9.655. D1.
- García-Sáenz A, Sánchez de Miguel A, Espinosa A, Valentín A, Aragonés N, Llorca J, Amiano P, Martín-Sánchez V, Guevara M, Capelo R (... Castaño-Vinyals G, Kogevinas M ...), et al. Evaluating the Association between Artificial Light-at-Night Exposure and Breast and Prostate Cancer Risk in Spain (MCC-Spain Study). *Environ Health Perspect* 2018; 126(4): 047011. IF 8.309. D1.
- Kogevinas M, Espinosa A, Castelló A, Gómez-Acebo I, Guevara M, Martín V, Amiano P, Alguacil J, Peiro R, Moreno V, Costas L, Fernández-Tardón G, Jiménez JJ, Marcos-Gragera R, Pérez-Gómez B, Llorca J, Moreno-Iribas C, Fernández-Villa T, Oribe M, Aragonés N, Papantoniou K, Pollán M, Castaño-Vinyals G, Romaguera D. Effect of mistimed eating patterns on breast and prostate cancer risk (MCC-Spain Study). *Int J Cancer* 2018; 143(10): 2380-2389. IF 7.36. Q1.
- Font-Ribera L, Gràcia-Lavedan E, Aragonés N, Pérez-Gómez B, Pollán M, Amiano P, Jiménez-Zabala A, Castaño-Vinyals G, Roca-Barceló A, Ardanaz E, Burgui R, Molina AJ, Fernández-Villa T, Gómez-Acebo I, Dierssen-Sotos T, Moreno V, Fernández-Tardón G, Peiró R, Kogevinas M, Villanueva CM. Long-term exposure to trihalomethanes in drinking water and breast cancer in the Spanish multicase-control study on cancer (MCC-SPAIN). *Environ Int* 2018; 112: 227-234. IF 7.297. D1.
- Villanueva CM, Gràcia-Lavedan E, Júlvez J, Santa-Marina L, Lertxundi N, Ibarluzea J, Llop S, Ballester F, Fernández-Somoano A, Tardón A, Vrijheid M, Guxens M, Sunyer J. Drinking water disinfection by-products during pregnancy and child neuropsychological development in the INMA Spanish cohort study. *Environ Int* 2018; 110: 113-122. IF 7.297. D1.
- O'Callaghan-Gordo C, Kogevinas M, Cirach M, Castaño-Vinyals G, Aragonés N, Delfrade J, Fernández-Villa T, Amiano P, Dierssen-Sotos T, Tardón A, Capelo R, Peiró-Pérez R, Moreno V, Roca-Barceló A, Pérez-Gómez B, Vidan J, Molina AJ, Oribe M, Gràcia-Lavedan E, Espinosa A, Valentín A, Pollán M, Nieuwenhuijsen MJ. Residential proximity to green spaces and breast cancer risk: The multicase-control study in Spain (MCC-Spain). *Int J Hyg Envir Heal* 2018; 221(8): 1097-1106. IF 4.848. D1.
- O'Callaghan-Gordo C, Flores JA, Lizárraga P, Okamoto T, Papoulias DM, Barclay F, Orta-Martínez M, Kogevinas M, Astete J. Oil extraction in the Amazon basin and exposure to metals in indigenous populations. *Environ Res* 2018; 162: 226-230. IF 4.732. D1.

- De Batlle J, Gràcia-Lavedan E, Romaguera D, Méndez M, Castaño-Vinyals G, Martín V, Aragonés N, Gómez-Acebo I, Olmedo-Requena R, Jiménez-Moleón JJ, et al. Meat intake, cooking methods and doneness and risk of colorectal tumours in the Spanish multicase-control study (MCC-Spain). Eur J Nutr 2018; 57(2): 643-653. IF 4.423. Q1.

Theses

- Lytras T. The role of occupational exposures in Chronic Obstructive Pulmonary Disease. Universitat Pompeu Fabra.
 - Director: Kogevinas, Manolis; Zock, JP
 - Date of defense: 22/05/2018
- Ruiz-Domínguez JM. Factores de riesgo ocupacionales en el desarrollo de cáncer de próstata en el estudio MultiCaso-Control-Spain (MCC-Spain). Universitat Autònoma de Barcelona.
 - Director: Castaño-Vinyals G; Gelabert-Mas A; Ibarz L
 - Fecha lectura: 04/07/2018

MORE INFO



Respiratory Health, Air Pollution, Childhood Development

ASSOCIATED GROUP



Group Leader

Jordi Sunyer Deu

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Members

Josep M. Antó Boqué (Researcher)

Anne-Elie Carsin (Technician)

Mònica López Vicente (PhD Student)

Gemma Punyet Ribes (Research Assistant)

The prenatal and postnatal periods are critical in the origins of chronic diseases such as obesity, metabolic syndrome, cognitive development, and the origins of asthma and allergy. The major scientific objective of the group is to perform epidemiological studies on the early-life origins of the effects of environmental contaminants, nutrition and lifestyles during prenatal and postnatal life on the development and health of children, including maturation of the neurobehavioral system, obesity, metabolism, respiratory health and mental health.

Main Publications with IMIM

- Ramon MA, Ter Riet G, Carsin AE, Gimeno-Santos E, Agustí A, Antó JM, Donaire-González D, Ferrer J, Rodríguez E, Rodríguez-Roisin R, Puhan MA, Garcia-Aymerich J, PAC-COPD Study Group. The dyspnoea-inactivity vicious circle in COPD: Development and external validation of a conceptual model. *Eur Respir J* 2018; 52(3): 1800079. IF 12.242. D1.
- Alemany S, Vilor-Tejedor N, García-Estebar R, Bustamante M, Dadvand P, Esnaola M, Mortamais M, Forns J, van Drooge BL, Álvarez-Pedrerol M, Grimalt JO, Rivas I, Querol X, Pujol J, Sunyer J. Traffic-Related Air Pollution, APOE Status, and Neurodevelopmental Outcomes among School Children Enrolled in the BREATHE Project (Catalonia, Spain). *Environ Health Perspect* 2018; 126(8): 087001. IF 8.309. D1.
- Dadvand P, Pujol J, Macià D, Martínez-Vilavella G, Blanco-Hinojo L, Mortamais M, Álvarez-Pedrerol M, Fenoll R, Esnaola M, Dalmau-Bueno A, López-Vicente M, Basagaña X, Jerrett M, Nieuwenhuijsen M, Sunyer J. The Association between Lifelong Greenspace Exposure and 3-Dimensional Brain Magnetic Resonance Imaging in Barcelona Schoolchildren. *Environ Health Perspect* 2018; 126(2): 027012. IF 8.309. D1.
- Villanueva CM, Gràcia-Lavedan E, Júlvez J, Santa-Marina L, Lertxundi N, Ibarluzea J, Llop S, Ballester F, Fernández-Somoano A, Tardón A, Vrijheid M, Guxens M, Sunyer J. Drinking water disinfection by-products during pregnancy and child neuropsychological development in the INMA Spanish cohort study. *Environ Int* 2018; 110: 113-122. IF 7.297. D1.
- Forns J, Sunyer J, García-Estebar R, Porta D, Ghassabian A, Giorgis-Allemand L, Gong T, Gehring U, Sørensen M, Standl M, et al. Air pollution exposure during pregnancy and symptoms of attention deficit and hyperactivity disorder in children in Europe. *Epidemiology* 2018; 29(5): 618-626. IF 4.991. D1.

Theses

- Natàlia I. Vilor-Tejedor. Analytical strategies in Imaging Genetics: Assessment of potential risk factors for neurodevelopmental domains. Universitat Pompeu Fabra.
 - Directors: Sunyer Deu, Jordi; González Ruiz, Juan Ramón
 - Date of defense: 16/03/2018
- Elisabet Suades González. Socio-environmental exposures and neurodevelopmental disorders. Universitat Pompeu Fabra.
 - Director: Sunyer Deu, Jordi
 - Date of defense: 15/05/2018

MORE INFO

Inflammatory and Cardiovascular Disorders



15

Research groups



181

Professionals



50

Research projects



293

Publications



Programme Director

Miguel López-Botet

RESEARCH GROUPS

B Cell Biology

Andrea Cerutti

Biomedical Research in Heart Diseases

Begoña Benito

Cell Research on Inflammation and Cartilage

Jordi Monfort

Critical Illness

Joan Ramon Masclans

Hepatologic Research

Ricard Solà

Immunity and Infection

Miguel López-Botet

Infectious Pathology and Antimicrobials

Juan Pablo Horcajada

Inflammatory and Neoplastic Dermatological Diseases

Ramon Maria Pujol

Kidney Disease

Julio Pascual

Muscle Wasting and Cachexia in Chronic Respiratory Diseases and Lung Cancer

Esther Barreiro

Musculoskeletal Research

Francesc Xavier Nogués

Myogenesis, Inflammation & Muscle Function

Joaquim Gea

Neuroimmunology

Jose Enrique Martínez

Neurovascular

Jaume Roquer

Rehabilitation

Esther Duarte

The Research in Inflammatory and Cardiovascular Disorders (RICAD) program currently gathers fifteen groups, mostly led by researchers from Parc de Salut Mar with clinical duties, including two with recognized expertise in Immunology. Scientific interests are oriented to the study of a variety of disorders involving inflammatory processes in their pathophysiology. On the other hand, knowledge on the molecular basis of inflammation is promoting the development of novel therapeutic approaches with an impact in other health problems (e.g. cancer, neurodegenerative disorders), thus fostering internal collaborations between different IMIM programs.

Among such a diversity of research lines, those more competitive and aligned with hospital health care priorities receive a special consideration in the framework of the institutional strategic plan. Internal seminars aimed to promote communication between the different groups are organized monthly. Established researchers have specific space assigned at IMIM premises, facilitating their interaction with other institutions located at the Barcelona Biomedical Research Park (PRBB), as well as access to shared infrastructures and core facilities. Currently, laboratory space constraints become a limitation for integrating new researchers and the development of emerging groups.

Overall, RICAD satisfactorily contributed to IMIM achievements in 2018 according to the rate/visibility of indexed publications, competitive fund raising and reinvestment of clinical trials income to support academic research. Most RICAD groups participate in national research ISCIII networks (RETICs, CIBERs), training PhD students and medical residents. An increase of productive collaborations, both internal and across other IMIM programs (i.e. Cancer), is reflected by co-authored publications. An effort to further enhance leadership/visibility in publications, internationalization and transfer activities is warranted. A key challenge for the next years is to achieve a balanced generational shift, establishing a stable critical mass of competitive independent researchers, including both hospital staff members and basic scientists working in tight collaboration.



B Cell Biology

RESEARCH GROUP



Group Leader

Andrea Cerutti
(ICREA Professor)

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Members

Giuliana Magri (Researcher)
Sonia Tejedor Vaquero (Technician)
Roser Tachó Piñot (Technician)

In the B Cell Biology research group we take advantage of different cellular, histological and molecular techniques to address basic questions related to the regulation of B cell activation and antibody production. B cells are a type of lymphocyte whose main function is to fight infections by producing antibodies. Our research group is especially interested in the class switching of the immunoglobulin (Ig) heavy chain. By substituting IgM with IgG, IgA or IgE, class switching provides antibodies with novel effector functions without changing their antigen specificity. Our overall goal is to dissect the mechanisms by which different subsets of systemic or mucosal B cells regulate class switching and antibody production in response to signals from microbial products and the innate immune system.

Main Publications

- Barbet G, Sander LE, Geswell M, Leonardi I, Cerutti A, Iliev I, Blander JM. Sensing Microbial Viability through Bacterial RNA Augments T Follicular Helper Cell and Antibody Responses. *Immunity* 2018; 48(3): 584-598. IF 19.734. D1.
- Shan M, Carrillo J, Yeste A, Gutzeit C, Segura D, Walland AC, Pybus M, Grasset EK, Yeiser JR, Matthews DB, van de Veen W, et al. Secreted IgD Amplifies Humoral T Helper 2 Cell Responses by Binding Basophils via Galectin-9 and CD44. *Immunity* 2018; 49(4): 709-724.e8. IF 19.734. D1.
- Farinello D, Wozinska M, Lenti E, Genovese L, Bianchessi S, Migliori E, Sacchetti N, di Lillo A, Bertilaccio MTS, de Lalla C, et al. A retinoic acid-dependent stroma-leukemia crosstalk promotes chronic lymphocytic leukemia progression. *Nat Commun* 2018; 9(1): 1787. IF 12.353. D1.
- García-Carmona Y, Ting AT, Radigan L, Athuluri Divakar SK, Chávez J, Meffre E, Cerutti A, Cunningham-Rundles C. TACI Isoforms Regulate Ligand Binding and Receptor Function. *Front Immunol* 2018; 9: 2125. IF 5.511. Q1.
- Pizzagalli DU, Farsakoglu Y, Palomino-Segura M, Palladino E, Sintes J, Marangoni F, Mempel TR, Koh WH, Murooka TT, Thelen F, Stein JV, Pozzi G, Thelen M, Krause R, González SF. Leukocyte Tracking Database, a collection of immune cell tracks from intravital 2-photon microscopy videos. *Sci Data* 2018; 5: 180129. IF 5.305. Q1.

Ongoing Research Projects

- Estudio de la respuesta humoral en la mucosa respiratoria: papel de la IgD
 - Financing institution: Ministerio de Economía y Competitividad (SAF2014-52483-R)
 - Period: from 2015 to 2019
 - Principal investigator: Cerutti, Andrea
- Innate Signalling Networks in B-Cell Antibody Production: New Targets for Vaccine Development (ERC GRANT)
 - Financing institution: European Community (294561)
 - Period: from 2012 to 2018
 - Principal investigator: Cerutti, Andrea

Group's Recognitions

- Officially recognized as a consolidated research group by the Generalitat de Catalunya: B cell biology group (2017-2020)
 - Agència de Gestió d'Ajuts Universitaris i de Recerca (SGR 120)
 - Principal investigator: Cerutti, Andrea



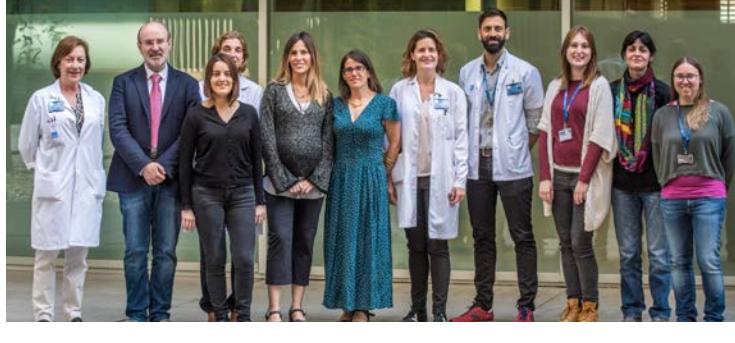
Biomedical Research in Heart Diseases

RESEARCH GROUP



Group Leader

Begoña Benito Villabriga



Members

Laia Carla Belarte Tornero (Researcher)
Mercè Cladellas Capdevila (Researcher)
Josep Comín Colet (Researcher)
Núria Farré López (Researcher)
Anna García-Elías Heras (Researcher)
Paloma Garcimartín Cerezo (Researcher)
Julio Martí Almor (Researcher)
Aleksandra Mas-Stachurska (Researcher)
Lluís Molina Ferragut (Researcher)
Marta Tajes Orduña (Researcher)
Helena Tizón Marcos (Researcher)
Ermengol Vallès Gras (Researcher)
Beatriz Vaquerizo Montilla (Researcher)
Marta Gimeno López (Technician)
Iris Rodríguez Costoya (Technician)
Laia Yáñez Bisbe (Technician)

The Group of Biomedical Research in Heart Diseases (GREC) focuses on generating new translational research in the field of Cardiovascular Diseases, where bedside unresolved questions generate hypotheses for applied basic and clinical research with potential impact on patient management. The group works in four main areas of cardiology (coronary heart disease, valvular heart disease, arrhythmias, and cardiomyopathies/heart failure), around which it has established five main research areas: 1) identification of biomarkers of cardiovascular disease; 2) assessment of mechanisms of cardiac remodeling; 3) study of iron deficiency, inflammation, and oxidative stress in the pathophysiology of heart disease; 4) early detection of atrial fibrillation in high-risk patients; and 5) application of new technologies in the daily management of cardiac patients.

Main Publications

- Eggebrecht H, Vaquerizo B, Moris C, Bossone E, Lämmer J, Czerny M, Zierer A, Schröfel H, Kim WK, Walther T, et al., on Behalf of European Registry on Emergent Cardiac Surgery during TAVI (EuRECS-TAVI). Incidence and outcomes of emergent cardiac surgery during transfemoral transcatheter aortic valve implantation (TAVI): insights from the European Registry on Emergent Cardiac Surgery during TAVI (EuRECS-TAVI). *Eur Heart J* 2018; 39(8): 676-684. IF 23.425. D1.
- Comín J, Manito N, Segovia-Cubero J, Delgado J, García Pinilla, Almenar L, Crespo-Leiro MG, Sionis A, Blasco T, Pascual-Figal D, González-Vílchez F, Lambert-Rodríguez JL, Grau M, Bruguera J, on behalf of the LION-HEART Study Investigators. Efficacy and safety of intermittent intravenous outpatient administration of levosimendan in patients with advanced heart failure: the LION-HEART multicentre randomised trial. *Eur J Heart Failure* 2018; 20(7): 1128-1136. IF 10.683. D1.
- Tkaczyszyn M, Comín J, Voors AA, van Veldhuisen DJ, Enjuanes C, Moliner-Borja P, Rozentryt P, Polonski L, Banasiak W, Ponikowski P, van der Meer P, Jankowska EA. Iron deficiency and red cell indices in patients with heart failure. *Eur J Heart Failure* 2018; 20(1): 114-122. IF 10.683. D1.
- Acosta J, Fernández-Armenta J, Borràs R, Anguera I, Bisbal F, Martí-Almor J, Tolosana JM, Penela D, Andreu D, Soto-Iglesias D, et al. Scar Characterization to Predict Life-Threatening Arrhythmic Events and Sudden Cardiac Death in Patients With Cardiac Resynchronization Therapy: The GAUDI-CRT Study. *JACC. Cardiovasc imaging* 2018; 11(4): 561-572. IF 10.247. D1.
- Bisbal F, Alarcón F, Ferrero-de-Loma-Osorio A, González-Ferrer JJ, Alonso C, Pachón M, Tizón H, Cabanas-Grandío P, Sánchez M, Benito E, Teis A, et al. Left atrial geometry and outcome of atrial fibrillation ablation: results from the multicentre LAGO-AF study. *Eur Heart J Cardiovasc Imaging* 2018; 19(9): 1002-1009. IF 8.336. Q1.
- Vaquerizo B, Escabias C, Dubois D, Gómez G, Barreiro-Pérez M, Cruz-González I. Patient-specific 3D-printed Cardiac Model for Percutaneous Left Atrial Appendage Occlusion. *Rev Esp Cardiol* 2018; 71(9): 762-764. IF 5.166. Q1.
- Farré N, Otero J, Falcones B, Torres M, Jorba I, Gozal D, Almendros I, Farré R, Navajas D. Intermittent Hypoxia Mimicking Sleep Apnea Increases Passive Stiffness of Myocardial Extracellular Matrix. A Multiscale Study. *Front Physiol* 2018; 9: 1143. IF 3.394. Q1.

Ongoing Research Projects

- Diagnóstico y tratamiento precoz de cardiotoxicidad en pacientes onco-hematológicos en el marco de una unidad multidisciplinar
 - Financing institution: Sociedad Española de Cardiología
 - Period: from 2018 to 2019
 - Principal investigator: Belarte Tornero, Laia Carla
- Ensayo clínico randomizado: valoración de la intervención multidisciplinar conjunta de cardiólogo y geriatra en pacientes ancianos tras ingreso reciente por insuficiencia cardíaca
 - Financing institution: Fundación MAPFRE
 - Period: from 2018 to 2019
 - Principal investigator: Farré López, Núria
- Determinants pronòstics de mortalitat i reingrés en pacients amb insuficiència cardíaca avançada (ICA) atesos en atenció primària: Estudi HADES
 - Financing institution: Departament de Salut Generalitat de Catalunya (SLT002/16/00073)
 - Period: from 2017 to 2019
 - Principal investigator: Farré López, Núria
- Papel diferencial de los canales trpv4 en el desarrollo del remodelado cardíaco patológico o adverso frente al fisiológico o adaptativo
 - Financing institution: Fondo de Investigación Sanitaria. ISCIII (PI16/00619)
 - Period: from 2017 to 2019
 - Principal investigator: Benito Villabriga, Begoña
- EMPAC - Patrones de cambio en el empoderamiento de los pacientes con insuficiencia cardíaca
 - Financing institution: Fondo de Investigación Sanitaria. ISCIII (PI15/00089)
 - Period: from 2016 to 2020
 - Principal investigator: Garcimartín Cerezo, Paloma
- Micro-RNA as a novel biomarker of cardiovascular fibrosis in patients with degenerative aortic stenosis
 - Financing institution: Fundació la Marató de TV3 (201519 10)
 - Period: from 2016 to 2019
 - Principal investigator: Benito Villabriga, Begoña
- CPAP And New Onset Atrial fibrillation reduction in OSAS (CANOA)
 - Financing institution: Fundació la Marató de TV3 (201541 10)
 - Period: from 2016 to 2019
 - Principal investigator: Vallès Gras, Ermengol

- RehApp: Estudio del impacto de un aplicativo móvil en el control de los factores de riesgo cardiovascular y la adherencia terapéutica tras un síndrome coronario agudo
 - Financing institution: Sociedad Española de Cardiología
 - Period: from 2016 to 2018
 - Principal investigator: Garcimartín Cerezo, Paloma
- Estudio y evolución del déficit de hierro en los pacientes con cardiopatías agudas: papel del estrés oxidativo y la inflamación
 - Financing institution: Fondo de Investigación Sanitaria. ISCIII (PI14/00175)
 - Period: from 2015 to 2018
 - Principal investigator: Cladellas Capdevila, Mercè
- Estudio de la fibrilación auricular silente en pacientes con ictus criptogénico. Papel de las nuevas tecnologías y nuevos marcadores biológicos
 - Financing institution: Fondo de Investigación Sanitaria. ISCIII (PI13/01830)
 - Period: from 2014 to 2018
 - Principal investigator: Benito Villabriga, Begoña

Group's Recognitions

- Officially recognized as a precompetitive research group by the Generalitat de Catalunya: Grup de Recerca Biomèdica en Malalties del Cor (GREC) (2017-2020)
 - Agència de Gestió d'Ajuts Universitaris i de Recerca (SGR 498)
 - Principal investigator: Benito Villabriga, Begoña

Clinical Trials Signed in 2018

- Intravenous iron in patients with systolic heart failure and iron deficiency to improve morbidity & mortality
 - Register: FAIR-HF2
 - Principal investigator: Farré López, Núria
- Factores de Riesgo Asociados con la progresión de la Insuficiencia Cardíaca (IC) en pacientes con fibrilación auricular tratados con un anticoagulante oral directo (rivaroxaban)
 - Register: BAY-RIV-2017-01
 - Principal investigator: Farré López, Núria

- Clear Synergy (OASIS 9) - Un ensayo controlado, aleatorizado, factorial, de 2x2 de Colchicina y Espironolactona en pacientes con infarto de miocardio con elevación del segmento ST/Registro de Stent de SYNERGY – Organización para evaluar estrategias para síndromes isquémicos 9
 - Register: CLSYN.1702
 - Principal investigator: Vaquerizo Montilla, Beatriz
- Crioablación de venas pulmonares vs fármacos antiarrítmicos en fibrilación auricular persistente (CRAFT)
 - Register: CRAFT
 - Principal investigator: Martí Almor, Julio
- Insuficiencia cardíaca congestiva global (G-CHF): Un registro global para estudiar los factores demográficos, socioeconómicos y clínicos, la etiología, la fisiopatología, el tratamiento, los obstáculos para la atención y el desenlace de pacientes con insuficiencia cardíaca
 - Register: G-CHF
 - Principal investigator: Farré López, Núria
- RETrospective Observational Study of Evolocumab Use in Spanish Cardiology Units [RETOSS-Cardio]
 - Register: AMG-EVO-2017-01
 - Principal investigator: Recasens Gràcia, Lluís
- Estudio no intervencionista y transversal para describir el tratamiento con NACO de pacientes con fibrilación auricular no valvular (FANV) en España. Estudio RE-CONOCE
 - Register: BOE-NOA-2017-01
 - Principal investigators: Bruguera Cortada, Jordi; Jiménez López, Jesús Ignacio
- Estudio Onyx ONE; un estudio aleatorizado y controlado con el stent Resolute Onyx y tratamiento de doble antiagregación plaquetaria [DAPT] de un mes para pacientes con alto riesgo de sangrado
 - Register: ONYX ONE
 - Principal investigator: Vaquerizo Montilla, Beatriz
- Administración repetida de perfusiones de levosimendan en pacientes con insuficiencia cardíaca crónica severa
 - Register: LeoDOR
 - Principal investigator: Ruíz Bustillo, Sonia
- Ensayo aleatorizado, con grupos paralelos, controlado con placebo, doble ciego y multicéntrico para evaluar la eficacia y la seguridad del estimulador oral de la GCs vericiguat en la mejora del funcionamiento físico en las actividades cotidianas en pacientes con insuficiencia cardíaca y fracción de eyección conservada (VITALITY HFpEF)
 - Register: BAY1021189/19334
 - Principal investigator: Belarte Tornero, Laia Carla

- Six-month endothelial and microvascular function of the bioactive sirolimus-eluting combo stent vs the polymer-free biolimus-eluting biofreedom stent in patients with st-segment elevation myocardial infarction
 - Register: HCA/01/2018
 - Principal investigator: Vaquerizo Montilla, Beatriz
- Ensayo fase III, internacional, doble ciego, aleatorizado y controlado con placebo, para evaluar el efecto de dapagliflozina en la reducción de la mortalidad cardiovascular o el empeoramiento de la insuficiencia cardíaca en pacientes con insuficiencia cardíaca con fracción de eyección preservada
 - Register: D169CC00001
 - Principal investigator: Farré López, Núria
- Second-generation drUg-elutinG stents in diAbetes: a Randomized trial (the SUGAR trial)
 - Register: SEC-SUG-2016-01
 - Principal investigator: Vaquerizo Montilla, Beatriz
- Xience 28 Global Study
 - Register: 17-311
 - Principal investigator: Vaquerizo Montilla, Beatriz

Theses

- Ribas N. Influència pronòstica del Codi Infart en els pacients amb infart agut de miocardi amb elevació del segment ST. Anàlisi del control dels factors de risc cardiovascular. Universitat Autònoma de Barcelona
 - Directors: Elosua R, Garcia C.
 - Date of defense: 13/11/2018
- Garcimartín P. Adaptación cultural y validación al español del cuestionario “Patient empowerment in long-term conditions”. University of Barcelona
 - Directors: Comín Colet, Josep; Delgado-Hito MP
 - Date of defense: 20/11/2018

Other

- Anna Garcia-Elias Heras. Award for the best communication. Congrés de la Societat Catalana de Cardiologia (SCC). 18/05/2018.



Cell Research on Inflammation and Cartilage

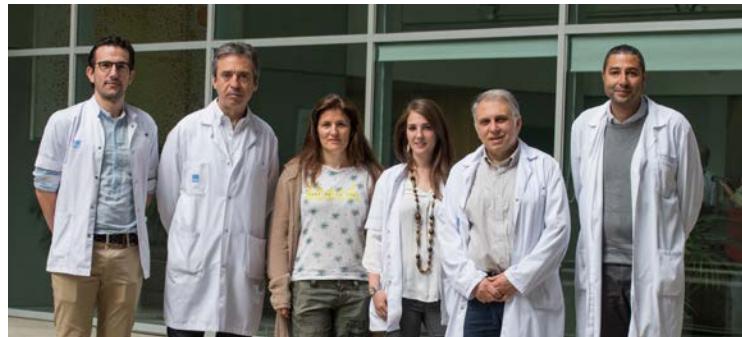
RESEARCH GROUP



Group Leader

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Members

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Tarek Carlos Salman Monte (Researcher)
Laura Tío Barrera (Researcher)
Raúl Torres Claramunt (Researcher)
Raquel Arredondo García (Technician)
Francisco Castro Domínguez (Technician)
Jone Llorente Onaindia (Technician)
Luciano Polino (Technician)

Our group comprises multidisciplinary researchers with skills in orthopedic surgery, rheumatology psychology and biology, with broad experience in clinical and biomedical research in the field of clinical surgery and degenerative diseases. Our research focuses mainly on three areas:

- Study of immune-mediated inflammatory diseases: the studies focus mainly on the search for prognostic markers, improvement of diagnostic imaging techniques to allow earlier diagnosis and to increase knowledge of the pathophysiology of lupus, fibromyalgia and osteoporosis.
- Knee joint disorders: our group focuses on the study of new approaches in the surgical treatment of knee disorders. The principal areas are biomaterial engineering

for partial meniscal and bone replacement, with or without stem cells, and the improvement of surgical approaches to ligament reconstruction, osteotomy and joint prosthesis.

- Study of osteoarthritis physiopathology: our group aims to contribute to expanding knowledge of the processes that take place in the development and progress of the disease by studying the cartilage extracellular matrix and its degradation. We are also involved in developing a new classification of the osteoarthritic patient according to phenotype (clinical, physical, behavior and imaging characteristics) to allow for more personalized therapy. Finally, the group is a pioneer in the study of the central sensitization to pain in this type of patient.

Main Publications

- Ortiz-Fernández L, Carmona FD, López-Mejías R, González-Escribano MF, Lyons PA, Morgan AW, Sawalha AH, Smith KGC, González-Gay MA, Martín J, Spanish GCA Study Group, UK GCA Consortium, Turkish Takayasu Study Group, Vasculitis Clinical Research Consortium, IgAV Study Group, AAV Study group (...Monfort J, Tío L...). Cross-phenotype analysis of Immunochip data identifies KDM4C as a relevant locus for the development of systemic vasculitis. *Ann Rheum Dis* 2018; 77(4): 589-595. IF 12.35. D1.
- MASFERRER-PINO A, MONLLAU JC, IBÁÑEZ M, ERQUICIA JI, PELFORT X, GELBER PE. Capsulodesis Versus Bone Trough Technique in Lateral Meniscal Allograft Transplantation: Graft Extrusion and Functional Results. *Arthroscopy* 2018; 34(6): 1879-1888. IF 4.33. D1.
- MONLLAU JC, POGGIOLE F, ERQUICIA J, RAMÍREZ E, PELFORT X, GELBER P, TORRES R. Magnetic Resonance Imaging and Functional Outcomes After a Polyurethane Meniscal Scaffold Implantation: Minimum 5-Year Follow-up. *Arthroscopy* 2018; 34(5): 1621-1627. IF 4.33. D1.
- TAHOON MF, TEY M, MAS J, ABD-ELSATTAR EID, MONLLAU JC. Arthroscopic Repair of Acetabular Cartilage Lesions by Chitosan-Based Scaffold: Clinical Evaluation at Minimum 2 Years Follow-up. *Arthroscopy* 2018; 34(10): 2821-2828. IF 4.33. D1.
- FARRÁN A, VALVERDE-FRANCO G, TÍO L, LUSSIER B, FAHMI H, PELLETIER JP, BISHOP PN, MONFORT J, MARTEL-PELLETIER J. In vivo effect of opicin deficiency in cartilage in a surgically induced mouse model of osteoarthritis. *Sci Rep* 2018; 8(1): 457. IF 4.122. Q1.
- CARRERA I, GELBER PE, CHARY G, GÓMEZ-MASDEU M, GONZÁLEZ-BALLESTER MA, MONLLAU JC, NOAILLY J. An intact fibula may contribute to allow early weight bearing in surgically treated tibial plateau fractures. *Knee Surg Sports Traumatol Arthrosc* 2018; 26(3): 756-761. IF 3.21. Q1.

- Pérez-Prieto D, Portillo ME, Torres-Claramunt R, Pelfort X, Hinarejos P, Monllau JC. Contamination occurs during ACL graft harvesting and manipulation, but it can be easily eradicated. *Knee Surg Sports Traumatol Arthrosc* 2018; 26(2): 558-562. IF 3.21. Q1.

Ongoing Research Projects

- Valoració pronòstica dels valors dels Productes Finals de la Glicació (AGEs) a malalties inmunomediates i comparació amb població general
 - Financing institution: Societat Catalana de Reumatologia
 - Period: from 2018-2020
 - Principal investigator: Pérez García, Carolina
- Caracterización clínica, radiológica y analítica del paciente con artrosis de rodilla y necesidad de artroplastia
 - Financing institution: Ministerio de Economía y Competitividad (DPI2016-80283-C2-2-R)
 - Period: from 2016 to 2019
 - Principal investigator: Monllau García, Juan Carlos
- Estudio de la vascularización del menisco medial en sus diferentes zonas anatómicas mediante la clasificación de Smigelsky et al.
 - Financing institution: Asociación Española de Artroscopia (AEA)
 - Period: from 2016 to 2018
 - Principal investigator: Torres Claramunt, Raúl
- Estudi de la cinètica articular després de la reconstrucció del rodet acetabular mitjançant un implant macroporós de poliuretà. Estudi biomecànic en un model cadavèric
 - Financing institution: Societat Catalana de Cirurgia Ortopèdica i Traumatologia
 - Period: from 2018 to 2019
 - Principal investigator: Capurro Soler, Bruno Michele
- Análisis cuantitativo sobre la formación de biofilm en plastias de ligamento cruzado anterior. Estudio in vitro comparativo
 - Financing institution: Sociedad Española de la Rodilla (SEROD)
 - Period: from 2018 to 2020
 - Principal investigator: Pérez Prieto, Daniel

Group's Recognitions

- Our group is part of the Unitat de Recerca en Fisiopatologia Òssia i Articular (URFOA), officially recognised as a consolidated research group by the Generalitat de Catalunya (2017-2020)
 - Agència de Gestió d'Ajuts Universitaris i de Recerca (SGR 502)
 - Principal investigator: Nogués Solan, Francesc Xavier

Clinical Trials Signed in 2018

- Estudio multicéntrico, aleatorizado, doble ciego y controlado con placebo para evaluar la seguridad y la eficacia de upadacitinib en pacientes con espondilitis anquilosante activa
 - Register: M16-098
 - Principal investigator: Beltrán Catalán, Emma
- Eficacia y seguridad de 3 dosis de S201086/GLPG1972 administrado de forma oral una vez al día en pacientes con artrosis de rodilla. Estudio de 52 semanas, internacional, multiregional, multicéntrico, aleatorizado, doble ciego, controlado con placebo, de búsqueda de dosis
 - Register: CL2-201086-002
 - Principal investigator: Monfort Faure, Jordi
- Evaluación de la respuesta clínica y ecográfica a Apremilast mediante evaluación clínica y mediante un índice ecográfico articular-periarticular-ungueal en pacientes con artritis psoriásica activa
 - Register: PSA-PI-006421
 - Principal investigator: Pérez García, Carolina
- Estudio observacional de cohortes multicéntrico y prospectivo para evaluar la seguridad y efectividad en la práctica clínica real de Erelzi™, un biosimilar de etanercept (COMPACT)
 - Register: GP15-501
 - Principal investigator: Pérez García, Carolina
- BIODABASER: Registro español de acontecimientos adversos de terapias biológicas y biosimilares en enfermedades reumáticas. Fase III
 - Register: FER-ADA-2015-01
 - Principal investigator: Pérez García, Carolina
- Estudio RELESSER-PROS "Evolución del Lupus Eritematoso Sistémico en España"
 - Register: RELESSER-PROS
 - Principal investigator: Salman Monte, Tarek Carlos

- Estudio de cohortes observacional y prospectivo (ECOP) sobre el lupus eritematoso sistémico (LES). Estudio observacional y prospectivo de cohortes de pacientes con LES de moderado a grave para determinar la actividad transversal y longitudinal de la enfermedad, las pautas y la eficacia del tratamiento, los resultados y las comorbilidades, la utilización de recursos sanitarios y el impacto del LES en la calidad de vida según la expresión génica del interferón de tipo I
 - Register: D3461R00001
 - Principal investigator: Salman Monte, Tarek Carlos
- Efectos de abatacept en la progresión a artritis reumatoidea en pacientes con reumatismo palindrómico
 - Register: PALABA
 - Principal investigator: Pérez García, Carolina

Theses

- Valera M. La coxartrosi en l'adult jove: estudi de criteris diagnòstics i factors biomecànics. Universitat Autònoma de Barcelona
 - Directors: Monllau, Juan Carlos; Proubasta, I; Lamas, C
 - Date of defense: 04/04/2018.



Critical Illness

RESEARCH GROUP



Group Leader

Joan Ramon Masclans Enviz

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Members

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Thais Guri López (Technician)
Rosana Muñoz Bermúdez (Technician)
Marta Gas Amat (Research Assistant)

The Critical Illness Research Group (GREPAC) aims at contributing to elucidate the mechanism involved in the onset and progression of different illnesses that cause a reversible dysfunction to one or more organs placing the patient's life at risk. To do this, our research includes clinical research on patients, and also experimental models. These models allow us to study the molecular mechanisms involved in these processes and to identify therapeutic targets and new strategies against these illnesses and, whenever possible, to anticipate ourselves to these cascades to avoid more illnesses and multi-organ dysfunction.

The Critical Illness Research Group conceived Intensive Medicine research from a translational, clinical and multi-disciplinary approach; hence, another important objective is to further study new strategies and treatments by conducting controlled clinical trials and observational projects with a high interest, participating at all possible levels of commitment: as promoters, lead researchers, collaborators in multi-center projects and developing our own projects.

Main Publications

- Collet MO, Caballero J, Sonnevile R, Bozza FA, Nydahl P, Schandl A, Wøien H, Citerio G, van den Boogaard M, Hästbacka J, Haenggi M, Colpaert K, Rose L, Barbateskovic M, Lange T, Jensen A, Krog MB, Egerod I, Nibro HL, Wetterslev J, Perner A, AID-ICU cohort study co-authors (...Masclans JR, Marín J...). Prevalence and risk factors related to haloperidol use for delirium in adult intensive care patients: the multinational AID-ICU inception cohort study. *Int Care Med* 2018; 44(7): 1081-1089. IF 15.008. D1.
- Moreno G, Rodríguez A, Reyes LF, Gómez J, Solé-Violan J, Díaz E, Bodí M, Trefler S, Guardiola J, Yébenes JC, Soriano A, Garnacho-Montero J, Socias L, Del Valle Ortíz M, Correig E, Marín J, Vallverdú-Vidal M, Restrepo MI, Torres A, Martín-Loeches I, on Behalf GETGAG Study Group. Corticosteroid treatment in critically ill patients with severe influenza pneumonia: a propensity score matching study. *Int Care Med* 2018; 44(9): 1470-1482. IF 15.008. D1.
- Vincent JL, Lefrant JY, Kotfis K, Nanchal R, Martín-Loeches I, Wittebole X, Sakka SG, Pickkers P, Moreno R, Sakr Y, SOAP investigators (...Álvarez-Lerma F...). Comparison of European ICU patients in 2012 (ICON) versus 2002 (SOAP). *Int Care Med* 2018; 44(3): 337-344. IF 15.008. D1.
- Welte T, Dellinger RP, Ebelt H, Ferrer M, Opal SM, Singer M, Vincent JL, Werdan K, Martín-Loeches I, Almirall J, et al. Efficacy and safety of trimodulin, a novel polyclonal antibody preparation, in patients with severe community-acquired pneumonia: a randomized, placebo-controlled, double-blind, multicenter, phase II trial (CIGMA study). *Int Care Med* 2018; 44(4): 438-448. IF 15.008. D1.
- Álvarez-Lerma F, Palomar-Martínez M, Sánchez-García M, Martínez-Alonso M, Álvarez-Rodríguez J, Lorente L, Arias-Rivera S, García R, Gordo F, Añón JM, Jam-Gatell R, Vázquez-Calatayud M, Agra Y. Prevention of Ventilator-Associated Pneumonia: The Multimodal Approach of the Spanish ICU “Pneumonia Zero” Program. *Crit Care Med* 2018; 46(2): 181-188. IF 6.63. Q1.
- Álvarez-Lerma F, Grau S, Echeverría-Esnal D, Martínez-Alonso M, Gracia-Arnillas MP, Horcajada JP, Masclans JR. A Before-and-After Study of the Effectiveness of an Antimicrobial Stewardship Program in Critical Care. *Antimicrob Agents Chemother* 2018; 62(4): e01825-17. IF 4.255. Q1.
- Álvarez-Lerma F, Olaechea-Astigarraga P, Palomar-Martínez M, Catalán M, Nuvials X, Gimeno-Costa R, Gracia-Arnillas MP, Seijas-Betolaza I, ENVIN-HELICS Study Group.

Invasive device-associated infections caused by *Pseudomonas aeruginosa* in critically ill patients: evolution over 10 years. *J Hosp Infect* 2018; 100(3): e204-e208. IF 3.354. Q1.

- Hazard D, Schumacher M, Palomar-Martínez M, Álvarez-Lerma F, Olaechea-Astigarraga P, Wolkewitz M. Improving nested case-control studies to conduct a full competing-risks analysis for nosocomial infections. *Infect Control Hosp Epidemiol* 2018; 39(10): 1196-1201. IF 3.084. Q1.
- Wolkewitz M, Mandel M, Palomar-Martínez M, Álvarez-Lerma F, Olaechea-Astigarraga P, Schumacher M. Methodological challenges in using point-prevalence versus cohort data in risk factor analyses of nosocomial infections. *Ann Epidemiol* 2018; 28(7): 475-480.e1. IF 2.804. Q1.

Ongoing Research Projects

- Mecanismos moleculares de disfunción muscular respiratoria tras la utilización de diferentes estrategias de ventilación mecánica
 - Financing institution: Fundación Española de Enfermo Crítico
 - Period: from 2017 to 2019
 - Principal investigator: Marín Corral, Judith; ColP: Masclans Enviz, Joan Ramon
- Papel del eje IL-33 /ST2 en el diagnóstico, pronóstico y tratamiento del síndrome de distrés respiratorio agudo
 - Financing institution: Fondo de Investigación Sanitaria. ISCIII (PI14/01420)
 - Period: from 2015 to 2019
 - Principal investigator: Masclans Enviz, Joan Ramon
- Estudio multicéntrico del impacto del microbioma respiratorio y gastrointestinal en el pronóstico de los pacientes críticos
 - Financing institution: Sociedad Española de Neumología y Cirugía Torácica (SEPAR)
 - Period: from 2018 to 2021
 - Principal investigator: Marín Corral, Judith

Participation in Research Networks

- CIBERES: CIBER of Respiratory Diseases
- CISA: Ibero-American cooperation in high flow support
- HISPAFLOW: Spanish group of experts in high flow oxygen therapy
- Acute Respiratory Failure, Section Translational Biology Group (European Society of Intensive Care Medicine, ESICM)
- Acute Respiratory Failure, Spanish Critical Care Society (SEMICYUC)
- GETGAG: Spanish Working Group in Severe Influenza A

Group's Recognitions

- Officially recognized as an emerging research group by the Generalitat de Catalunya:
Grup de Recerca en Patología Crítica (GREPAC) (2017-2020)
 - Agència de Gestió d'Ajuts Universitaris i de Recerca (SGR 200)
 - Principal investigator: Marín Corral, Judith

Clinical Trials Signed in 2018

- Estudio de fase III, aleatorizado, doble ciego, controlado con placebo, multicéntrico para evaluar la eficacia y seguridad de baloxavir marboxil en combinación con el tratamiento estándar inhibidor de neuraminidasa en pacientes hospitalizados con influenza grave
 - Register: CP40617
 - Principal investigator: Marín Corral, Judith
- A randomized, double-blind, multi-center study to establish the efficacy and safety of ceftobiprole medocaril compared to daptomycin in the treatment of *Staphylococcus aureus* bacteremia, including infective endocarditis
 - Register: BPR-CS-009
 - Principal investigator: Marín Corral, Judith

Theses

- Antònia Vázquez. Golpe de calor. Experiencia en el Hospital del Mar de Barcelona. Estudio clínico-epidemiológico, de mediadores inflamatorios y hemostasia. Universitat Autònoma de Barcelona.
 - Director: Masclans, Joan Ramon; Nolla, Joan
 - Date of defense: 20/11/2018

Other

- Grant for the training in foreign research centers of the specialized medical staff of the Parc de Salut Mar
 - Hospital del Mar
 - Principal investigator: Marín Corral, Judith

- Impact of antibiotic treatment and its plasma levels on the respiratory and intestinal microbiome of patients with severe community pneumonia. Jordi Gras Research Grant 2018 for residents of the Parc de Salut MAR
 - Parc de Salut MAR
 - Principal researcher: Muñoz Bermúdez, Rosana
- Fisher & Paykel scholarship for personnel financing
 - Fisher & Paykel
 - Principal investigator: Masclans Enviz, Joan Ramon



Hepatologic Research

RESEARCH GROUP



Group Leader

Ricard Solà Lamoglia



Members

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Montserrat García Retortillo (Researcher)
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Ana Viu Soto (Technician)
Diego Lázaro Agudo (Research Assistant)

Since 2000, our work group has followed various lines of clinical research: The natural history of decompensated cirrhosis, ascites, renal insufficiency and infections; The virological response and viral kinetics during hepatitis C treatment in patients with or without HIV coinfection; The adherence to hepatitis C treatment and the study, prevention and treatment of the psychiatric pathology associated with the interferon and the progression of fibrosis in Hepatitis C with or without HIV coinfection. Recently we have also initiated different studies in Hepatitis B (particularly adherence to the treatment and reactivation, treatment and predictors of curation), hepatocellular carcinoma (natural history and impact of different etiologies) and non-alcoholic steatohepatitis (NASH).

Main Publications

- Esteban R, Pineda JA, Calleja JL, Casado M, Rodríguez M, Turnes J, Morano LE, Morillas RM, Forns X, Pascasio-Acevedo JM, et al. Efficacy of Sofosbuvir and Velpatasvir, With and Without Ribavirin, in Patients With HCV genotype 3 Infection and Cirrhosis. *Gastroenterology* 2018; 155(4): 1120-1127. IF 20.773. D1.
- Oriolo G, Egmond E, Mariño Z, Cavero M, Navines R, Zamarrenho L, Solà R, Pujol J, Bargallo N, Forns X, Martín-Santos R. Systematic review with meta-analysis: neuroimaging in hepatitis C chronic infection. *Aliment Pharm Therap* 2018; 47(9): 1238-1252. IF 7.357. D1.
- Cacoub P, Buggisch P, Carrión JA, Cooke GS, Zignego AL, Beckerman R, Younossi Z. Direct Medical Costs Associated with the Extrahepatic Manifestations of Hepatitis C Infection in Europe. *J Viral Hepatitis* 2018; 25(7): 811-817. IF 4.237. Q1.

Ongoing Research Projects

- Cuantificación del HBsAg en pacientes con Hepatitis B HBeAg-negativo, portadores inactivos o en tratamiento, para predecir la pérdida del HBsAg y correlación con los marcadores de fibrosis
 - Financing institution: Fondo de Investigación Sanitaria. ISCIII (PI14/00540)
 - Period: from 2015 to 2019.
 - Principal investigator: Carrión Rodríguez, José Antonio.

Clinical Trials Signed in 2018

- Manejo de pacientes con Carcinoma HepatoCelular irreseccable (CHCi) tras confirmación radiológica de progresión de la enfermedad a la primera línea de tratamiento sistémico
 - Register: HERACLES
 - Principal investigator: Carrión Rodríguez, José Antonio
- REFINE: Estudio observacional de regorafenib en carcinoma hepatocelular
 - Register: BAY-REG-2018-01
 - Principal investigator: Carrión Rodríguez, José Antonio



Immunity and Infection

RESEARCH GROUP



Group Leader

José Miguel López-Botet Arbona

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Members

Elisenda Alari Pahissa (Researcher)
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Aura Muntasell Castellví (Researcher)
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Michelle Ataya Fernández (PhD Student)
Mariona Cabo Ester (PhD Student)
Gemma Heredia Díaz (Technician)
Sara Raquel Santana Hernández (Technician)
Carme Sánchez Galiano (Research Assistant)

The group integrates researchers from IMIM and Pompeu Fabra University (UPF, <https://www.upf.edu/web/nkiller>) with extensive experience in the study of human Natural Killer (NK) cell biology. We currently collaborate on the development of two main research areas:

- “Characterization of NK cell receptors and their involvement in the response to human cytomegalovirus (HCMV)” (M. López-Botet). We originally reported that human cytomegalovirus (HCMV) infection promotes to a variable extent a persistent reconfiguration of the human NK cell compartment. We are currently exploring the mechanisms that drive the development of this adaptive NK cell response, addressing its involvement in antiviral defense and putative implications in different settings (e.g. kidney transplantation, cancer, multiple sclerosis), in collaboration with clinical teams.
- “NK cells in cancer immunotherapy” (A. Muntasell). NK cells can recognize and eliminate transformed cells while shaping the development of tumor-specific adaptive immunity. Several mechanisms decreasing NK cell function have been described in

cancer patients. Our current projects are aimed at the identification of targetable checkpoints enhancing NK cell anti-tumor responses as well as at exploring the value of phenotypic, genetic and functional NK cell-related variables as biomarkers of response/resistance to treatment in breast and colorectal cancer patients, in collaboration with clinical teams.

Main Publications

- Deza G, Bertolín-Colilla M, Sánchez-Serrano S, Soto D, Pujol RM, Gimeno R, Giménez-Arnau AM. Basophil Fc ϵ RI expression is linked to time to omalizumab response in chronic spontaneous urticaria. *J Allergy Clin Immunol* 2018; 141(6): 2313-2316.e1. IF 13.258. D1.
- Tamborero D, Rubio-Pérez C, Muñoz F, Sabarinathan R, Piulats JM, Muntasell A, Dienstmann R, López-Bigas N, González-Pérez A. A pan-cancer landscape of interactions between solid tumors and infiltrating immune cell populations. *Clin Cancer Res* 2018; 24(15): 3717-3728. IF 10.199. D1.
- Hardy-Werbin M, Arpí O, Taus A, Rocha P, Joseph-Pietras D, Nolan L, Danson S, Griffiths R, López-Botet M, Rovira A, Albanell J, Ottensmeier CH, Arriola E. Assessment of neuronal autoantibodies in patients with small cell lung cancer treated with chemotherapy with or without ipilimumab. *Oncolmmunology* 2018; 7(2): e1395125. IF 5.503. Q1.
- Alari E, Moreira A, Zabalza A, Álvarez-Lafuente R, Munteis E, Vera A, Arroyo R, Álvarez-Cermeño JC, Villar LM, López-Botet M, Martínez-Rodríguez JE. Low cytomegalovirus seroprevalence in early multiple sclerosis: A case for the “hygiene hypothesis”? *Eur J Neurol* 2018; 25(7): 925-933. IF 4.621. Q1.
- Sisinni L, Gasior M, de Paz R, Querol S, Bueno D, Fernández L, Marsal J, Sastre A, Gimeno R, Alonso L, Badell I, López-Granados E, Torres J, Medina L, Torrent M, Díaz de Heredia C, Escudero A, Pérez-Martínez A. Unexpected High Incidence of Human Herpesvirus-6 Encephalitis After Naive T Cell-Depleted Graft of Haploidentical Stem Cell Transplantation in Pediatric Patients. *Biol Blood Marrow Transplant* 2018; 24(11): 2316-2323. IF 4.484. Q1.

Ongoing Research Projects

- Development of molecular tools to enhance NK cell-mediated ADCC responses elicited by trastuzumab against breast cancer
 - Financing institution: Worldwide Cancer Research (15-1146)
 - Period: from 2015 to 2018.
 - Principal investigators: López-Botet Miguel, Muntasell Aura

- Targeting Natural Killer cells Against CYtomegalovirus (TANKACY)
 - Financing institution: Ministerio de Economía y Competitividad (PCIN-2015-191-C02-01). EC Infect Era Program
 - Period: from 2015 to 2018
 - Principal investigators: Hengel, Hartmut (coordinator); López-Botet, Miguel; Vilches, Carlos; Di Santo, James; Stern-Ginossar, Noam
- Uncovering resistance to monoclonal antibodies in colorectal and breast cancer
 - Financing institution: Fondo de Investigación Sanitaria. ISCIII (PIE15/00008)
 - Period: from 2015 to 2019
 - Principal investigators: Albanell, Joan (coordinator); López-Botet, Miguel; García de Herreros, Antonio; Espinosa, Lluís; Furlong, Laura; Bellosillo, Beatriz

Participation in Research Networks

- Red Española de Esclerosis Múltiple (REEM)
 - Fondo de Investigación Sanitaria. ISCIII. Subprograma RETICS. RD16/0015/0011
 - Principal investigators: López-Botet, Miguel

Group's Recognitions

- Officially recognized as a consolidated research group by Generalitat de Catalunya: Comunicació en el Sistema Immunitari
 - Agència de Gestió d'Ajuts Universitaris i de Recerca (SGR 888) (associated to UPF)
 - Principal investigators: López-Botet, Miguel (IMIM/UPF coordinator); Muntasell, Aura (IMIM); Aramburu, José (UPF); López-Rodríguez, Cristina (UPF)

Theses

- Costa-Garcia M. Interplay of human adaptive NKG2C+ NK cells with specific antibodies and T cells in the response to cytomegalovirus infection. Pompeu Fabra University
 - Directors: Muntasell, A; López-Botet, Miguel
 - Date of defense: 11/06/2018



Infectious Pathology and Antimicrobials

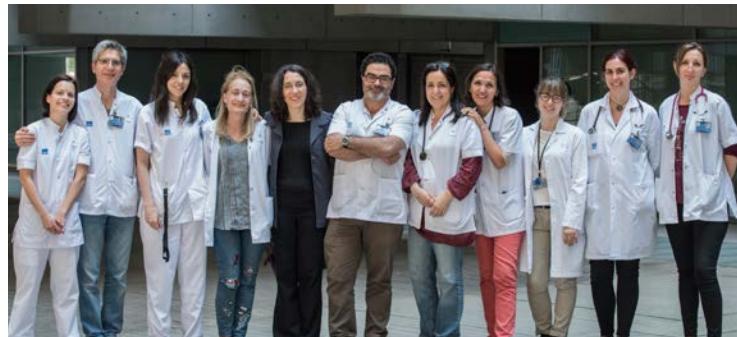
RESEARCH GROUP



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Inmaculada López Montesinos (Technician)
Pablo Sebastián Velli (Technician)

The group is geared towards the clinical and epidemiological study of the most prevalent or transcendental infectious diseases in the community, such as HIV, pneumonia, urinary tract infections and tuberculosis. In the HIV arena the group is centered in comorbidities, inflammation and microbioma. It also focuses on infections related to healthcare activities, including those caused by multidrug-resistant

microorganisms, osteoarticular and prosthetic infections, and bacteraemia. A large proportion of the research done by the group focuses on antimicrobial therapy with new and old antibiotics, studying the pharmacokinetics and pharmacodynamics of these drugs and also studying new antimicrobial therapy strategies through clinical trials and observational studies carried out in the group, as main researchers, and collaborators in projects run by the group or multicenter projects.

Main Publications

- Kaye KS, Bhowmick T, Metallidis S, Bleasdale SC, Sagan OS, Stus V, Vázquez J, Zaitsev V, Bidair M, Chorvat E, et al. Effect of Meropenem-Vaborbactam vs Piperacillin-Tazobactam on Clinical Cure or Improvement and Microbial Eradication in Complicated Urinary Tract Infection: The TANGO I Randomized Clinical Trial. *JAMA* 2018; 319(8): 788-799. IF 47.661. D1.
- Orkin C, Molina JM, Negredo E, Arribas JR, Gathe J, Eron JJ, Van Landuyt E, Lathouwers E, Hufkens V, Petrovic R, Vanveggel S, Opsomer M, EMERALD study group (...Knobel H...). Efficacy and safety of switching from boosted protease inhibitors plus emtricitabine and tenofovir disoproxil fumarate regimens to single-tablet darunavir, cobicistat, emtricitabine, and tenofovir alafenamide at 48 weeks in adults with virologically suppressed HIV-1 (EMERALD): a phase 3, randomised, non-inferiority trial. *Lancet HIV* 2018; 5(1): e23-e34. IF 11.355. D1.
- Kunutsor SK, Whitehouse MR, Blom AW, Board T, Kay P, Wroblewski BM, Zeller V, Chen SY, Hsieh PH, Masri BA, et al. One- and two-stage surgical revision of peri-prosthetic joint infection of the hip: a pooled individual participant data analysis of 44 cohort studies. *Eur J Epidemiol* 2018; 33(10): 933-946. IF 7.023. D1.
- Maseda E, Grau S, Luque S, Castillo-Mafla MP, Suárez-de-la-Rica A, Montero-Feijoo A, Salgado P, Giménez MJ, García-Bernedo CA, Gilsanz F, Roberts JA. Population pharmacokinetics/pharmacodynamics of micafungin against *Candida* species in obese, critically ill, and morbidly obese critically ill patients. *Crit Care* 2018; 22: 94. IF 6.425. Q1.
- López-Medrano F, Fernández-Ruiz M, Silva JT, Carver PL, van Delden C, Merino E, Pérez-Sáez MJ, Montero M, Coussetment J, de Abreu Mazzolin M, et al. Multinational retrospective case-control study of risk factors for the development of late invasive pulmonary aspergillosis following kidney transplantation. *Clin Microbiol Infec* 2018; 24(2): 192-198. IF 5.394. D1.
- Papst L, Beovic B, Pulcini C, Durante-Mangoni E, Rodríguez-Baño J, Kaye KS, Daikos GL, Raka L, Paul M, on behalf of ESGAP, ESGBIS, ESGIE and the CRGNB treatment survey study group (...Horcajada JP...). Antibiotic treatment of infections caused by carbapenem-resistant Gram-negative bacilli: an international ESCMID cross-sectional survey among infection diseases specialists practicing in large hospitals. *Clin Microbiol Infec* 2018; 24(10): 1070-1076. IF 5.394. D1.

- Güerri-Fernández R, Lerma-Chippirraz E, Fernández-Marrón A, García-Giralt N, Villar-García J, Soldado J, González-Mena A, Guelar A, Díez-Pérez A, Brown TT, Knobel H. Bone density, microarchitecture and tissue quality after 1 year of treatment with tenofovir disoproxil fumarate. *AIDS* 2018; 32(7): 913-920. IF 4.914. Q1.
- Escolà-Vergé L, Rodríguez-Pardo D, Lora-Tamayo J, Morata L, Murillo O, Vílchez H, Sorli L, Carrión LG, Barbero JM, Palomino-Nicás J, et al. Candida periprosthetic joint infection: a rare and difficult-to-treat infection. *J Infection* 2018; 77(2): 151-157. IF 4.603. Q1.
- Coussement J, Maggiore U, Manuel O, Scemla A, López-Medrano F, Nagler EV, Aguado JM, Abramowicz D, et al. (...Crespo M, Horcajada JP, Pascual J, Pérez-Sáez MJ, Redondo D...). Diagnosis and management of asymptomatic bacteriuria in kidney transplant recipients: a survey of current practice in Europe. *Nephrol Dial Transplant* 2018; 33(9): 1661-1668. IF 4.6. Q1.
- Pérez-Sáez MJ, Herrera-Fernández S, Prieto-Alhambra D, Vilaplana L, Nogués X, Vera M, Redondo D, Mir M, Güerri-Fernández R, Crespo M, Díez-Pérez A, Pascual J. Maintenance low dose systemic glucocorticoids have limited impact on bone strength and mineral density among incident renal allograft recipients: A pilot prospective cohort study. *Bone* 2018; 116: 290-294. IF 4.455. Q1.

Ongoing Research Projects

- Impacto clínico y microbiológico de los nuevos antipseudomónicos ceftolozano-tazobactam y ceftazidima-avibactam en las infecciones por *Pseudomonas aeruginosa* extremadamente resistente
 - Financing institution: Fondo de Investigación Sanitaria. ISCIII (PI17/00251)
 - Period: from 2018 to 2020
 - Principal investigator: Horcajada Gallego, Juan Pablo
- Impacto clínico y microbiológico de los nuevos antipseudomónicos ceftolozano-tazobactam y ceftazidima-avibactam en las infecciones por *Pseudomonas aeruginosa* extremadamente resistente. Correlación con resultados in vitro mediante un modelo dinámico PK/PD hollow-fiber. ESTUDIO PseudoNOVA
 - Financing institution: Societat Catalana de Malalties Infeccioses i Microbiologia Clínica
 - Period: from 2018 to 2020
 - Principal investigator: López Montesinos, Inmaculada
- Análisis de la actividad de diferentes opciones terapéuticas frente a “clones de alto riesgo” de *Pseudomonas aeruginosa* extremadamente resistente (XDR) aisladas en hospitales españoles mediante modelos PK-PD mono y bicompartimentales (Hollow fiber)
 - Financing institution: Fondo de Investigación Sanitaria. ISCIII (PI16/00669)
 - Period: from 2017 to 2019
 - Principal investigator: Montero, María Milagro

- Estudio de la toxicidad ósea asociada al tratamiento antirretroviral por microindentación y el papel de los miRNA como biomarcadores de afectación ósea
 - Financing institution: Fondo de Investigación Sanitaria. ISCIII (PI16/01860)
 - Period: from 2017 to 2019
 - Principal investigator: Güerri Fernández, Roberto Carlos

Participation in Research Networks

- Red Española de Investigación en Patologías Infecciosas
 - Fondo de Investigación Sanitaria-ISCIII. Subprograma RETICS (RD16/0016/0015)
 - Period: from 2017 to 2021
 - Principal investigator: Horcajada Gallego, Juan Pablo

Group's Recognitions

- Officially recognized as a consolidated research group by the Generalitat de Catalunya: Infectious Pathology and Antimicrobial Research Group (IPAR) (2017-2020)
 - Agència de Gestió d'Ajuts Universitaris i de Recerca (SGR 797)
 - Principal investigator: Horcajada Gallego, Juan Pablo

Clinical Trials Signed in 2018

- Estudio de Fase Ib, aleatorizado, doble ciego, controlado con placebo, de dosis múltiples ascendentes, para investigar la seguridad, la tolerabilidad y la farmacocinética de DSTA4637S en pacientes con bacteriemia por staphylococcus aureus que reciben tratamiento antibiótico convencional
 - Register: GV39131
 - Principal investigator: Horcajada Gallego, Juan Pablo
- Estudio en fase III, randomizado, doble ciego y multicéntrico para evaluar la eficacia, la seguridad y la tolerabilidad de cefepima-AAI101, en comparación con piperacilina/tazobactam, en el tratamiento de las infecciones complicadas de las vías urinarias, incluida la pielonefritis aguda, en adultos
 - Register: AT-301
 - Principal investigator: Horcajada Gallego, Juan Pablo

- Ensayo clínico randomizado sobre la necesidad de tratamiento antibiótico frente la bacteriemia de catéter de bajo riesgo por estafilococos coagulasa-negativa
 - Register: INF-BACT-2017
 - Principal investigator: Gómez-Zorrilla Martín, Silvia Inés
- Estudio comparativo en Fase III, prospectivo, aleatorizado, multicéntrico, abierto pero enmascarado para el evaluador principal y de grupos paralelos para determinar la eficacia, seguridad y tolerabilidad de aztreonam-avibactam (ATM-AVI) ± metronidazol (MTZ) en comparación con meropenem ± colistina (MER ± COL) en el tratamiento de infecciones graves por bacterias gramnegatives, incluidos los patógenos multirresistentes que producen metalo-β-lactamasa (MBL), para las que hay pocas o ninguna opción de tratamiento
 - Register: ATM-AV1 C3601002
 - Principal investigator: Horcajada Gallego, Juan Pablo



Inflammatory and Neoplastic Dermatological Diseases

RESEARCH GROUP



Group Leader

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Members

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Luis Gustavo Deza Vargas (Researcher)
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María Inmaculada Hernández Muñoz (Researcher)
Gemma Martín Ezquerra (Researcher)
Sonia Segura Tigell (Researcher)
Evelyn Andrades López (Technician)
Clara Ribas Llauradó (Technician)
Silvia Sánchez Serrano (Technician)

The Research Group on Inflammatory and Neoplastic Dermatological Diseases is composed of dermatologists, biologists and immunologists, connecting the bedside with the bench, which is a clear example of translational research. The group includes two different lines of investigation:

- The study of inflammatory dermatological diseases, mainly psoriasis, urticaria and bullous diseases. A) In psoriasis, we have developed a new in-vitro model which allows us to study the pathogenic mechanisms involved in early stages of the disease in different psoriasis phenotypes, consisting of the coculture of circulating CLA+ T cells (with cutaneous tropism), together with autologous epidermic cells from psoriatic patients, activated with *Streptococcus pyogenes* (SP) extract, a well-known psoriasis trigger. In addition, we focus on the characterization of T cell response in psoriasis. B) In urticaria, the ongoing projects are related to the definition of clinical phenotypes of the diseases along with transcriptome analysis of severe chronic spontaneous urticaria (CSU) and cold urticaria, and the detection of potential biomarkers of clinical

evolution and response to treatment. C) In autoimmune bullous diseases, the studies focus on the role of the innate immune system in the pathogenetic mechanisms of acquired epidermolysis bullosa.

- Research into the pathogenetic mechanisms of progression and immunological response to nonmelanoma skin cancer. Our group also studies the link between inflammation and cutaneous squamous cell carcinoma (SCC). Our preliminary results show that metastatic SCC displays enhanced Polycomb levels (an epigenetic repressor family) and that Polycomb represses cytokine/chemokine expression in SCC cells. Our working hypothesis is that Polycomb repression of cytokine/chemokine expression in SCC blocks differentiation and function of the myeloid inflammatory component and favors a protumoral immune response.

Main Publications

- Deza G, Bertolín-Colilla M, Sánchez-Serrano S, Soto D, Pujol RM, Gimeno R, Giménez-Arnau AM. Basophil Fc ϵ RI expression is linked to time to omalizumab response in chronic spontaneous urticaria. *J Allergy Clin Immunol* 2018; 141(6): 2313-2316.e1. IF 13.258. D1.
- Deza G, Ricketti PA, Giménez-Arnau AM, Casale TB. Emerging Biomarkers and Therapeutic Pipelines for Chronic Spontaneous Urticaria. *J Allergy Clin Immunol* 2018; 6: 1108-1117. IF 13.258. D1.
- Gallardo F, Bertran J, López-Arribillaga E, González J, Menéndez S, Sánchez I, Colomo L, Iglesias M, Garrido M, Santamaría-Babí LF, Torres F, Pujol RM, Bigas A, Espinosa L. Novel phosphorylated TAK1 species with functional impact on NF- κ B and β -catenin signaling in human Cutaneous T-cell lymphoma. *Leukemia* 2018; 32(10): 2211-2223. IF 10.023. D1.
- Ferrer M, Giménez-Arnau AM, Saldana D, Janssens N, Balp MM, Khalil S, Risson V. Predicting Chronic Spontaneous Urticaria Symptom Return after Omalizumab Treatment Discontinuation: Exploratory Analysis. *J Allergy Clin Immunol Pract* 2018; 6(4): 1191-1197.e5. IF 6.966. Q1.
- Descalzo MA, Carretero G, Ferrández C, Rivera R, Daudén E, Gómez-García FJ, de la Cueva P, Herrera-Ceballos E, Belinchón I, López-Estebaranz JL, et al. Change over time in the rates of adverse events in patients receiving systemic therapy for psoriasis: a cohort study. *J Am Acad Dermatol* 2018; 78(4): 798-800. IF 6.898. D1.
- López-Lerma I, Peñate Y, Gallardo F, Martí RM, Mitxelena J, Bielsa I, Velasco-Tamariz V, Yanguas-Bayona JI, Sánchez-Sambucety P, García-Patos V, Ortiz-Romero PL, Pujol RM, Estrach T. Subcutaneous panniculitis-like T-cell lymphoma: Clinical features, therapeutic approach, and outcome in a case series of 16 patients. *J Am Acad Dermatol* 2018; 79(5): 892-898. IF 6.898. D1.

- Ruiz-Romeu E, Ferran M, de Jesús-Gil C, García P, Sagristà M, Casanova JM, Fernández JM, Chiriac A, Hóllo P, Celada A, Pujol RM, Santamaría-Babí LF. Microbe-dependent induction of IL-9 by CLA+ T cells in psoriasis and relationship with IL-17A. *J Invest Dermatol* 2018; 138(3): 580-587. IF 6.448. D1.
- Curto-Barredo L, Spertino J, Figueras-Nart I, Expósito-Serrano V, Guilbert A, Melé-Ninot G, Cubiró X, Bonfill-Ortí M, Garcías-Ladaria J, Villar M, García-Navarro X, Bielsa-Marsol I, Vilavella M, Aparicio G, Baliu-Piqué C, Álvarez A, Lamas-Domenech N, Duran-Jordà X, Serra-Baldrich E, Giménez-Arnau AM. Omalizumab updosing allows disease activity control in refractory patients with chronic spontaneous urticaria. *Br J Dermatol* 2018; 179(1): 210-212. IF 6.129. D1.
- Sussman G, Abuzakouk M, Bérard F, Canonica W, Oude-Elberink H, Giménez-Arnau AM, Grattan C, Hollis K, Hunter S, Knulst A, Lacour JP, Lynde C, Marsland A, McBride D, Maurer M, Nakonechna A, Ortiz-de Frutos J, Reynolds M, Sweeney C, Tian H, Weller K, Wolin D, Balp MM. Angioedema in Chronic Spontaneous Urticaria Is Underdiagnosed and Has a Substantial Impact: Analyses From ASSURE-CSU. *Allergy* 2018; 73(8): 1724-1734. IF 6.048. Q1.
- Zuberbier T, Aberer W, Asero R, Abdul Latiff AH, Baker D, Ballmer-Weber B, Bernstein JA, Bindlev-Jensen C, Brzoza Z, Buense Bedrikow R, et al. The EAACI/GA²LEN/EDF/WAO Guideline for the Definition, Classification, Diagnosis and Management of Urticaria. The 2017 Revision and Update. *Allergy* 2018; 73(7): 1393-1414. IF 6.048. Q1.

Ongoing Research Projects

- Inmunofenotipificación y caracterización genética de la urticaria crónica por contacto al frío o “urticaria a frigore”
 - Financing institution: Fondo de Investigación Sanitaria. ISCIII (PI17/00198)
 - Period: from 2018 to 2020
 - Principal investigator: Giménez Arnau, Ana María
- Caracterización de la respuesta immune frente a *Streptococcus pyogenes* a través de los linfocitos T CLA+ en la psoriasis guttata y en la psoriasis en placas
 - Financing institution: Fondo de Investigación Sanitaria. ISCIII (PI16/00532)
 - Period: from 2017 to 2019
 - Principal investigator: Pujol Vallverdú, Ramon Maria
- Regulación epigenética de la función inflamatoria del componente epitelial en la progresión metastática del carcinoma escamoso cutáneo (CEC)
 - Financing institution: Fondo de Investigación Sanitaria. ISCIII (PI15/00236)
 - Period: from 2016 to 2019
 - Principal investigator: Toll Abelló, Agustí

Group's Recognitions

- Officially recognised as a consolidated research group by the Generalitat de Catalunya: Grup de Recerca en malalties dematalògiques inflamatòries i neoplàsiques (2017-2020)
 - Agència de Gestió d'Ajuts Universitaris i de Recerca (SGR 840)
 - Principal investigator: Pujol Vallverdú, Ramon Maria

Clinical Trials Signed in 2018

- Pautas de tratamiento y resultados en condiciones reales en Italia y España de la terapia sistémica para el linfoma cutáneo de linfocitos T (LCLT) recidivante/resistente al tratamiento: estudio retrospectivo de historiales clínicos
 - Register: TAK-QUI-2017-01
 - Principal investigator: Pujol Vallverdú, Ramon Maria
- A Multicenter, Randomized, Double-Blind, Placebo-Controlled Study Comparing the Efficacy and Safety of LY3074828 to Secukinumab and Placebo in Patients with Moderate-to-Severe Plaque Psoriasis
 - Register: I6T-MC-AMAJ
 - Principal investigator: Pujol Vallverdú, Ramon Maria
- A multi-center, randomized, double-blind, active and placebo-controlled study to investigate the efficacy and safety of ligelizumab (QGE031) in the treatment of Chronic Spontaneous Urticaria (CSU) in adolescents and adults inadequately controlled with H1-antihistamines
 - Register: CQGE031C2302
 - Principal investigator: Giménez Arnau, Anna Maria
- Estudio observacional prospectivo para evaluar los beneficios para el paciente asociados al tratamiento de la psoriasis en placas con apremilast tras otros tratamientos sistémicos en condiciones de práctica clínica habitual en España (estudio "APPROPRIATE")
 - Register: CEL-APR-2017-01
 - Principal investigator: Pujol Vallverdú, Ramon Maria
- Estudio observacional, no intervencionista, transversal y retrospectivo, multicéntrico para evaluar la calidad de vida en condiciones de práctica clínica real en pacientes con psoriasis moderada-grave tratados con metotrexato en España
 - Register: CAIN457AES11//NOV-MET-2018-01
 - Principal investigator: Ferran Farrés, Marta

- Estudio de fase III, multicéntrico, aleatorizado, doble ciego, controlado con placebo y un comparador activo para evaluar la eficacia y seguridad de BMS-986165 en pacientes con psoriasis en placas de moderada a grave
 - Register: IM011046
 - Principal investigator: Ferran Farrés, Marta
- Phase II trial of atezolizumab (Anti-PD-L1) in the treatment of stage IIB-IV mycosis fungoides/sezary syndrome patients relapsed/refractory after a previous systemic treatment (PARCT)
 - Register: 1652-CLTF (VHP1227 (VHP2018005)
 - Principal investigator: Pujol Vallverdú, Ramon Maria
- Ensayo de extensión a largo plazo, multicéntrico, abierto y de un solo brazo, para evaluar la seguridad y eficacia de tralokinumab en pacientes con dermatitis atópica que participaron previamente en ensayos clínicos con tralokinumab
 - Register: LP0162-1337
 - Principal investigator: Pujol Vallverdú, Ramon Maria

Other

Awards

- Luis Gustavo Deza Vargas. Caracterización imunofenotípica y genética de la urticaria a frigore. Societat Catalana de Dermatologia (SCD-ACMSC). Date: 18/05/2018.



Kidney Disease

RESEARCH GROUP



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Laura Llinàs Mallol (PhD Student)
Vanessa Palau González (PhD Student)
Sara Álvarez Morales (Technician)
David Benito Guasch (Technician)
Anna Buxeda Porras (Technician)
Anna Faura Vendrell (Technician)
Montserrat Folgueiras López (Technician)
Eva Rodríguez García (Technician)
Maria Vera Casanova (Technician)

The Kidney Research Group (GREN) at IMIM belongs to the Nephrology Department of Parc de Salut Mar, Barcelona, Spain. The Nephrology Department covers structured assistance to the renal patient in four areas: clinical nephrology, kidney transplantation, chronic kidney disease and hypertension-cardiovascular risk. The department has made a particular effort in the area of kidney transplantation, covering all transplant modalities (deceased donor, living donor, sensitized patients, ABO-incompatible, etc).

GREN also has a basic-translational lab, in which a number of biologists (pre and postdoc) work together with nephrology physicians to achieve research objectives in different specialized areas. It belongs to the Red de Investigación Renal (renal research network - REDinREN) and is recognized by AGAUR. The group aims to clarify mechanisms involved in the onset and progression of kidney diseases through preclinical research into in vivo and in vitro models. This makes it possible to study the molecular mechanisms involved, and will thus help us to identify the treatment targets and new strategies against kidney disease. We also aim to study new treatment targets and strategies in depth by performing controlled clinical trials and observational projects of great interest, while securing all levels of possible commitment: promoters, main researchers, collaboration in multicenter projects and own projects. Our research focuses mainly on three research areas: diabetic kidney disease and early markers of chronic kidney disease (C. Barrios PI16/00620), resistant hypertension (A. Oliveras EC11-426 and PI16/01356) and new pathogenetic and therapeutic targets in the field of kidney transplantation (J. Pascual and M. Crespo PI13/00598, PI16/00617).

Main Publications

- Pascual J, Berger SP, Witzke O, Tedesco H, Mulgaonkar S, Qazi Y, Chadban S, Oppenheimer F, Sommerer C, Oberbauer R, Watarai Y, Legendre C, Citterio F, Henry M, Srinivas TR, Luo WL, Martí A, Bernhardt P, Vincenti F, on behalf of the TRANSFORM Investigators. Everolimus with Reduced Calcineurin Inhibitor Exposure in Renal Transplantation. *J Am Soc Nephrol* 2018; 29(7): 1979-1991. IF 8.655. D1.
- Montero N, Favà A, Rodríguez-García E, Barrios C, Cruzado JM, Pascual J, Soler MJ. Treatment for hepatitis C virus-associated mixed cryoglobulinaemia. *Cochrane Database Syst Rev* 2018; 5: CD011403. IF 6.754. D1.
- Moreso F, Crespo M, Ruiz JC, Torres A, Gutiérrez-Dalmau A, Osuna A, Perelló M, Pascual J, Torres IB, Redondo-Pachón D, Rodrigo E, López-Hoyos M, Seron D. Treatment of chronic antibody mediated rejection with intravenous immunoglobulins and rituximab: a multicenter, prospective, randomized, double blind clinical trial. *Am J Transplant* 2018; 18(4): 927-935. IF 6.493. D1.
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- Pérez-Sáez MJ, Herrera-Fernández S, Prieto-Alhambra D, Vilaplana L, Nogués X, Vera M, Redondo D, Mir M, Güerri-Fernández R, Crespo M, Díez-Pérez A, Pascual J. Maintenance low dose systemic glucocorticoids have limited impact on bone strength and mineral density among incident renal allograft recipients: A pilot prospective cohort study. *Bone* 2018; 116: 290-294. IF 4.455. Q1.
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- Montero N, Redondo D, Pérez-Sáez MJ, Crespo M, Cruzado JM, Pascual J. Dual kidney transplantation as a strategy to use expanded criteria donors: A systematic review. *Transpl Int* 2018; 31(8): 838-860. IF 3.196. Q1.
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Ongoing Research Projects

- Convocatoria de beques 2018 per a la recerca de la Fundació Catalana de Trasplantament
 - Financing institution: Fundació Catalana de Trasplantament (FCT)
 - Duration: 2018
 - Principal investigator: Llinàs Mallol, Laura
- Adherencia terapéutica en Hipertensión Arterial no controlada: detección selectiva y eficacia y efectividad de un programa para mejorar el cumplimiento (Athan)
 - Financing institution: Fondo de Investigación Sanitaria. ISCIII (PI16/01356)
 - Period: from 2017 to 2019
 - Principal investigator: Oliveras Serrano, Anna

- Anticuerpos HLA y no HLA en el rechazo del trasplante renal y mecanismos de lesión
 - Financing institution: Fondo de Investigación Sanitaria. ISCIII (PI16/00617)
 - Period: from 2017 to 2019
 - Principal investigator: Pascual Santos, Julio
- Estudio de metabolómica y glicómica para la identificación de biomarcadores de función y daño renal en la diabetes mellitus tipo 2
 - Financing institution: Fondo de Investigación Sanitaria. ISCIII (PI16/00620)
 - Period: from 2017 to 2019
 - Principal investigator: Barrios Barrera, Clara
- Estudi multicèntric, aleatoritzat per avaluar l'eficàcia de la individualització del risc immunològic basat en biomarcadors selectius (Disparitat d'Eplets HLA i Elispot IFN- γ), per optimitzar el tractament immunsupressor en pacients transplantats renals de donant viu (BIOIMMUN)
 - Financing institution: Departament de Salut de la Generalitat de Catalunya (SLT002/16/00183)
 - Period: from 2017 to 2019
 - Principal investigator: Crespo Barrio, Marta
- Análisis prospectivo de la respuesta humoral y celular en el trasplante renal y su impacto en la disfunción crónica del injerto
 - Financing institution: Fondo de Investigación Sanitaria. ISCIII (PI13/00598)
 - Period: from 2014 to 2018
 - Principal investigator: Pascual Santos, Julio

Participation in Research Networks

- Red de Investigación Renal (REDINREN)
 - Fondo de Investigación Sanitaria-ISCIII. Subprograma RETICS. RD16/0009/0013
 - Principal investigator: Pascual Santos, Julio

Group's Recognitions

- Officially recognized as a consolidated research group by the Generalitat de Catalunya: Grup de Recerca en Nefropaties (GREN) (2017-2020)
 - Agència de Gestió d'Ajuts Universitaris i de Recerca (SGR 430)
 - Principal investigator: Pascual Santos, Julio

Clinical Trials Signed in 2018

- Evaluación de la consistencia clínica y la solidez analítica de Immunobiogram® como herramienta BIOTecnológica de diagnóstico in vitro para ayudar a la toma de decisiones en el ajuste del tratamiento inmunodepresor del TRASplante renal. Estudio TRANSBIO
 - Register: BHP-IBG-2017-01
 - Principal investigator: Crespo Barrio, Marta
- Estudio de fase III, aleatorizado, doble ciego y controlado con un comparador activo para evaluar la eficacia y la seguridad de MK-8228 (letermovir) frente a valganciclovir para la prevención de la enfermedad por el citomegalovirus (CMV) humano en pacientes adultos que han recibido un trasplante renal
 - Register: MK-8228-002
 - Principal investigator: Crespo Barrio, Marta
- Registro de trasplantes SENIOR: Registro europeo de trasplantes de pacientes transplantados renales mayores (≥ 65 años) que recibieron como tratamiento inmunosupresor inicial tacrolimus una vez al día, micofenolato y esteroides
 - Register: CHA-INM-2017-01
 - Principal investigator: Pascual Santos, Julio
- REDUCE - Multicenter, prospective, randomized study investigating the efficacy and safety of a reduced immunosuppressive therapy with tacrolimus once daily in comparison to standard triple immunosuppression in senior renal transplant recipients
 - Register: REDUCE
 - Principal investigator: Pascual Santos, Julio
- Estudio posautorización de seguridad multicéntrico y no intervencionista de 6 años de duración realizado en pacientes a los que se ha recetado JINARC® debido a poliquistosis renal autosómica dominante
 - Register: OPE-TOL-2017-01B
 - Principal investigator: Sans Atxer, Laia
- Estudio fase 3 multicéntrico, ciego, aleatorizado, de grupos paralelos, con aprocitentán en pacientes con hipertensión arterial resistente (HAR)
 - Register ID-080A301
 - Principal investigator: Oliveras Serrano, Anna
- Estudio randomizado, doble ciego y controlado con placebo para evaluar la eficacia y seguridad de Nefcon en pacientes con nefropatía por IgA primaria en riesgo de progresión a enfermedad renal terminal (NeflgArd)
 - Register: Nef-301
 - Principal investigator: Rodríguez García, Eva

- A Randomized, Multicenter, Double-blind, Parallel, Active-control Study of the Effects of Sparsentan, a Dual Endothelin Receptor and Angiotensin Receptor Blocker, on Renal Outcomes in Patients with Primary Focal Segmental Glomerulosclerosis (FSGS)
 - Register: 021FSGS16010
 - Principal investigator: Rodríguez García, Eva
- Impacto de los niveles de tacrolimus en la prevención del rechazo en pacientes de edad avanzada receptores de trasplante renal de novo: estudio observacional prospectivo en las condiciones de la práctica
 - Register: CHI-TAC-2018-01
 - Principal investigator: Crespo Barrio, Marta
- A Randomized, Multicenter, Double-blind, Parallel-group, Active-control Study of the Efficacy and Safety of Sparsentan for the Treatment of Immunoglobulin A Nephropathy
 - Register: 021IGAN17001
 - Principal investigator: Rodríguez García, Eva
- Estudio multicéntrico, aleatorizado, parcialmente ciego, con control activo, de 12 meses de duración para evaluar la eficacia, seguridad, tolerabilidad, farmacocinética (PK) y farmacodinámica (PD) de un anticuerpo monoclonal anti-CD40, CFZ533, en receptores de trasplante de riñón de novo y de mantenimiento (CIRRUS I)
 - Register: CCFZ533A2201
 - Principal investigator: Crespo Barrio, Marta

Theses

- Redondo D. Monitorización sérica e histológica del rechazo mediado por anticuerpos en trasplante renal. Autonomous University of Barcelona
 - Directors: Crespo Barrio, Marta; Pascual Santos, Julio
 - Date of defense: 06/06/2018



Muscle Wasting and Cachexia in Chronic Respiratory Diseases and Lung Cancer

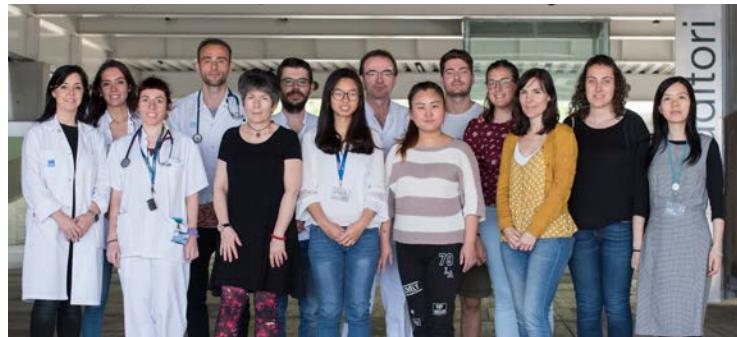
RESEARCH GROUP



Group Leader

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Albert Sánchez Font (Researcher)

Anna Salazar Degracia (PhD Student)

Our research is based on the use of patients from clinical settings, animal models of disease, and in vitro primary cultures. We use all kinds of biochemical and cellular and molecular biology techniques (RT-PCR, immunoblotting, immunohistochemistry, 2-D electrophoresis, proteomics analysis, ELISA, activity assays, mitochondrial respiration, flow cytometry, etc.) in order to explore the target mechanisms of our research. The most relevant achievements of our research have been the following: demonstrating that oxidative and nitrosative stress, ubiquitin-proteasome system, NF- κ B and FoxO signaling, alterations of epigenetic regulation, and loss of muscle-specific proteins are important players in COPD- and lung cancer-associated cachexia, whereas muscle inflammation does not play a role in this process. Moreover, in the last five years, we have started a new avenue of research focusing on the underlying biology that accounts for the greater susceptibility of patients with chronic respiratory diseases (e.g. COPD) to developing lung tumors. We have demonstrated that increased oxidative stress, inflammatory cytokines and disruption of epigenetic regulation are involved in the greater susceptibility of patients with COPD to developing lung cancer. Finally, we are currently undertaking a new line of research in muscle regeneration. Our first relevant achievement in this area has been the demonstration that there is a decline in the number of satellite cells (SC) following hindlimb immobilization in mice together with an

upregulation of markers of SC activation, suggesting that fusion to existing myofibers takes place during unloading. Muscle recovery induces a significant rise in muscle precursor cells and regeneration events along with reduced SC-activation expression markers and a concomitant rise in terminal muscle differentiation expression.

Main Publications

- Jaitovich A, Barreiro E. Skeletal Muscle Dysfunction in Chronic Obstructive Pulmonary Disease (COPD): What We Know and Can Do for Our Patients. *Am J Respir Crit Care Med* 2018; 198(2): 175-186. IF 15.239. D1.
- Mateu-Jiménez M, Curull V, Rodríguez-Fuster A, Aguiló R, Sánchez-Font A, Pijuan L, Gea J, Barreiro E. Profile of epigenetic mechanisms in lung tumors of patients with underlying chronic respiratory conditions. *Clin Epigenetics* 2018; 10: 7. IF 6.091. Q1.
- Millares L, Barreiro E, Cortes R, Martínez-Romero A, Balcells C, Cascante M, Enguita AB, Álvarez C, Rami-Porta R, Sánchez De Cos J, Seijo L, Monsó E, Grupo Colaborativo en Cáncer de Pulmón CIBERES- CIBERONC- SEPAR - Plataforma Biobanco Pulmonar. Tumor-associated metabolic and inflammatory responses in early stage non-small cell lung cancer: Local patterns and prognostic significance. *Lung Canc* 2018; 122: 124-130. IF 4.486. Q1.
- Tényi Á, Cano I, Marabita F, Kiani N, Kalko SG, Barreiro E, Cascante M, Gómez-Cabrero D, Roca J. Network modules uncover mechanisms of skeletal muscle dysfunction in COPD patients. *J Transl Med* 2018; 16: 34. IF 4.197. Q1.
- Guitart M, Lloreta J, Mañas-García L, Barreiro E. Muscle regeneration potential and satellite cell activation profile during recovery following hindlimb immobilization in mice. *J Cell Physiol* 2018; 233(5): 4360-4372. IF 3.923. Q1.
- Sánchez-Font A, Chalela R, Martín-Ontiyuelo C, Albero R, Dalmases A, Longarón R, Alonso-Espinaco V, Curull V, Bellosillo B, Pijuan L. Molecular analysis of peripheral lung adenocarcinoma in brush cytology obtained by EBUS plus fluoroscopy-guided bronchoscopy. *Cancer Cytophatol* 2018; 126(10): 860-871. IF 3.866. Q1.
- Clavé S, Pijuan L, Casadevall D, Taus A, Gimeno J, Hernández-Llodrà S, Rodríguez M, Lorenzo M, Menéndez S, Albanej J, Espinet B, Arriola E, Salido M. CD274 (PDL1) and JAK2 genomic amplifications in pulmonary squamous-cell and adenocarcinoma patients. *Histopathology* 2018; 72(2): 259-269. IF 3.267. Q1.
- Barreiro E, Puig-Vilanova E, Salazar-Degracia A, Pascual S, Casadevall C, Gea J. The Phosphodiesterase-4 inhibitor roflumilast reverts proteolysis in skeletal muscle cells of patients with COPD cachexia. *J Appl Physiol* 2018; 125(2): 287-303. IF 3.256. Q1.
- Greising SM, Ottenheijm CAC, O'Halloran KD, Barreiro E. Diaphragm Plasticity in Aging and Disease: Therapies for Muscle Weakness go from Strength to Strength. *J Appl Physiol* 2018; 125(2): 243-253. IF 3.256. Q1.

Ongoing Research Projects

- Implicaciones de la respuesta a proteínas desplegadas/ mal desplegadas en la atrofia y disfunción muscular de pacientes con EPOC
 - Financing institution: Sociedad Española de Neumología y Cirugía Torácica
 - Period: from 2016 to 2019
 - Principal investigator: Barreiro Portela, Esther
- Epigenética, microambiente celular y molecular y estroma en la predisposición al cáncer de pulmón en la EPOC: influencia en la supervivencia y valor pronóstico
 - Financing institution: Fondo de Investigación Sanitaria. ISCIII (PI14/00713)
 - Period: from 2015 to 2019
 - Principal investigator: Barreiro Portela, Esther
- Potencial regenerativo de los músculos en pacientes con EPOC y caquexia: papel de las células satélite y su nicho
 - Financing institution: SEPAR
 - Period: 2018-2020
 - Principal investigator: Barreiro Portela, Esther
- Papel del estrés del retículo endoplásmico y PARP en el potencial regenerativo muscular en la sarcopenia asociada a la EPOC y la caquexia cancerosa: implicaciones terapéuticas
 - Financing institution: Fondo de Investigaciones Sanitarias. ISCIII (PI18/00075)
 - Period: 2019-2021
 - Principal investigator: Barreiro Portela, Esther

Participation in Research Networks

- Centro de Investigación en Red de Enfermedades Respiratorias (CIBERES)
 - Fondo de Investigación Sanitaria. Subprograma CIBER CB06/06/0043
 - Collaborating investigator: Barreiro Portela, Esther
 - Principal investigator: Gea Guiral, Joaquim

Group's Recognitions

- Officially recognised as a consolidated research group by the Generalitat de Catalunya: Unitat de Recerca en Múscul i Aparell Respiratori (URMAR) (2017-2020)
 - Agència de Gestió d'Ajuts Universitaris i de Recerca (SGR 442)
 - Principal investigator: Barreiro Portela, Esther

Clinical Trials Signed in 2018

- Protocolo RIBRON - Registro Español Informatizado de pacientes con Bronquiectasias
 - Register: Protocolo RIBRON
 - Principal investigator in our center: Barreiro Portela, Esther

Theses

- Chalela R. Somatic genomic alterations in lung adenocarcinoma: non-invasive molecular diagnosis and prognosis impact of driver mutations in non-tumoral airway cells. Pompeu Fabra University
 - Directors: Gea Guiral, Joaquim; Curull Serrano, Víctor
 - Date of defense: 27/11/2018



Musculoskeletal Research

RESEARCH GROUP



Group Leader

Francesc Xavier Nogués Solan

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Members

Adolf Díez Pérez (Researcher)

Leonardo Mellibovsky Saidler (Researcher)

Guillem Saló Bru (Researcher)

Isabel Aymar Fabrega (Technician)

Abora Rial Villavecchia (Technician)

Our research focuses on the study of bone disorders and the underlying mechanisms of bone pathophysiology. The group covers three main areas of research: genetics, epidemiology and bone quality. In the genetic field, we are exploring the genetic basis of bone disorders at the population level. In this regard, we have two cohorts, BARCOS and B-ABLE, currently involved in ongoing studies related to bone health. The BARCOS cohort also belongs to the international GEFOS consortium, which has performed several genome-wide studies and metaanalyses. B-ABLE is a cohort of postmenopausal women with early breast cancer treated with aromatase inhibitors. Our research also encompasses a number of diseases and therapies that affect bone metabolism as a secondary outcome. These include HIV infection and antiretroviral therapies, atypical fractures and osteonecrosis of the jaw associated with bisphosphonate treatment (the gold standard for osteoporosis), acromegaly, etc. Our group is a leading investigator in the development of a novel, hand-held Reference Point Indentation (RPI) instrument, Osteoprobe®, which measures bone quality. Epidemiological studies using population databases at local and international levels are also developed in our Unit. Along these lines, we are exploring mortality, musculoskeletal and cardiovascular events in women with breast cancer treated with aromatase inhibitors in the SIDIAP database. Moreover we are leading the creation of a frailty cohort into the CIBERFES with the aim of finding trajectories to explain the worsening process of frailty. Finally, our group is also working on the design of biomaterials and scaffolds for promoting the biointegration of implants in osseous and soft tissues.

Main Publications

- Alonso N, Estrada K, Albagha OME, Herrera L, Reppe S, Olstad OK, Gautvik KM, Ryan NM, Evans KL, Nielson CM, et al. Identification of a novel locus on chromosome 2q13, which predisposes to clinical vertebral fractures independently of bone density. *Ann Rheum Dis* 2018; 77(3): 378-385. IF 12.35. D1.
- McClung MR, Brown JP, Díez-Pérez A, Resch H, Caminis J, Meisner P, Bolognese MA, Goemaere S, Bone HG, Zanchetta JR, Maddox J, Bray S, Grauer A. Effects of 24 months of treatment with romosozumab followed by 12 months of denosumab or placebo in postmenopausal women with low bone mineral density: A randomized, double-blind, phase 2, parallel group study. *J Bone Miner Res* 2018; 33(8): 1397-1406. IF 6.314. D1.
- Roca-Ayats N, Ng PY, García-Giralt N, Falcó-Mascaró M, Cozar M, Abril JF, Quesada JM, Prieto-Alhambra D, Nogués X, Dunford JE, Russell RG, Baron R, Grinberg D, Balcells S, Díez-Pérez A. Functional characterization of a GGPPS variant identified in atypical femoral fracture patients and delineation of the role of GGPPS in bone-relevant cell types. *J Bone Miner Res* 2018; 33(12): 2091-2098. IF 6.314. D1.
- Tebé C, Martínez-Laguna D, Moreno V, Cooper C, Díez-Pérez A, Collins GS, Prieto-Alhambra D. Differential mortality and the excess rates of hip fracture associated with type 2 diabetes: accounting for competing risks in fracture prediction matters. *J Bone Miner Res* 2018; 33(8): 1417-1421. IF 6.314. D1.
- Vilardell AM, Cinca N, García-Giralt N, Dosta S, Cano IG, Nogués X, Guilemany JM. Functionalized coatings by cold spray: An in vitro study of micro- and nanocrystalline hydroxyapatite compared to porous titanium. *Mater Sci Eng C Mater Biol Appl* 2018; 87: 41-49. IF 5.08. Q1.
- Vilardell AM, Cinca N, García-Giralt N, Müller C, Dosta S, Sarret M, Cano IG, Nogués X, Guilemany JM. In-vitro study of hierarchical structures: Anodic oxidation and alkaline treatments onto highly rough titanium cold gas spray coatings for biomedical applications. *Mater Sci Eng C Mater Biol Appl* 2018; 91: 589-596. IF 5.08. Q1.
- Gürri-Fernández R, Lerma-Chippirraz E, Fernández-Marrón A, García-Giralt N, Villar-García J, Soldado J, González-Mena A, Guelar A, Díez-Pérez A, Brown TT, Knobel H. Bone density, microarchitecture and tissue quality after 1 year of treatment with tenofovir disoproxil fumarate. *AIDS* 2018; 32(7): 913-920. IF 4.914. Q1.
- Pérez-Sáez MJ, Herrera-Fernández S, Prieto-Alhambra D, Vilaplana L, Nogués X, Vera M, Redondo D, Mir M, Gürri-Fernández R, Crespo M, Díez-Pérez A, Pascual J. Maintenance low dose systemic glucocorticoids have limited impact on bone strength and mineral density among incident renal allograft recipients: A pilot prospective cohort study. *Bone* 2018; 116: 290-294. IF 4.455. Q1.
- Pineda-Moncusí M, Servitja S, Casamayor G, Cos L, Rial A, Rodríguez-Morera J, Tusquets I, Díez-Pérez A, García-Giralt N, Nogués X. Bone health evaluation one year after aromatase inhibitors completion. *Bone* 2018; 117: 54-59. IF 4.455. Q1.

- Martínez-Gil N, Roca-Ayats N, Monistrol-Mula A, García-Giralt N, Díez-Pérez A, Nogués X, Mellibovsky L, Grinberg D, Balcells S. Common and rare variants of WNT16, DKK1 and SOST and their relationship with bone mineral density. *Sci Rep* 2018; 8: 10951. IF 4.122. Q1.

Ongoing Research Projects

- Análisis objetivo mediante geolocalización del perímetro de la marcha en pacientes con estenosis del canal lumbar
 - Financing institution: Sociedad para el Estudio de las Enfermedades del Raquis (GEER)
 - Period: from 2018 to 2020
 - Principal investigator: Saló Bru, Guillem
- Diagnóstico genético de fracturas atípicas de fémur asociadas al tratamiento con bisfosfonatos
 - Financing institution: Fundación Española de Investigación Ósea y del Metabolismo Mineral (FEIOMM)
 - Period: from 2017 to 2019
 - Principal investigator: García Giralt, Natalia
- Estudio para la mejora de la calidad de vida en mujeres con cáncer de mama tratadas con inhibidores de aromatasa: cohorte B-ABLE
 - Financing institution: Fondo de Investigación Sanitaria. ISCIII (PI16/00818)
 - Period: from 2017 to 2019
 - Principal investigator: Nogués Solan, Francesc Xavier
- Determinantes clínicos y genéticos de eventos musculoesqueléticos en mujeres posmenopáusicas tratadas con inhibidores de la aromatasa por cáncer de mama. Cohorte prospectiva B-ABLE
 - Financing institution: Fondo de Investigación Sanitaria. ISCIII (PI13/00444)
 - Period: from 2014 to 2018
 - Principal investigator: Nogués Solan, Francesc Xavier

Participation in Research Networks

- CIBER Fragilidad y Envejecimiento Saludable
 - Fondo de Investigación Sanitaria-ISCIII. CIBER (CB16/10/00245)
 - Principal investigator: Diéz Pérez, Adolf

Group's Recognitions

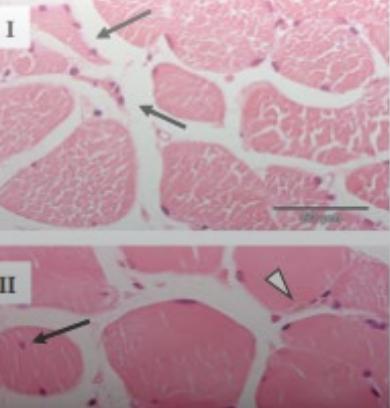
- Officially recognised as a consolidated research group by the Generalitat de Catalunya: Unitat de Recerca en Fisiopatologia Òssia i Articular (URFOA) (2017-2020)
 - Agència de Gestió d'Ajuts Universitaris i de Recerca (SGR 502)
 - Principal investigator: Nogués Solan, Francesc Xavier

Theses

- Veronica Medialdea Dzitzko. Análisis de los efectos a corto y largo plazo de los efectos de una cura termal en pacientes con enfermedades crónicas. Autonomous University of Barcelona
 - Director: Nogués, Francesc Xavier
 - Date of defense: 30/11/2018

Other

- Francesc Xavier Nogués Solan. Prize for the best clinical oral communication at the congress of the Spanish Society for Bone Research and Mineral Metabolism (SEIOMM). Date: 09/11/2018.
- Consensus guides: Peyman Hadji; Matti S Aapro; Jean-Jacques Body; Michael Gnant; Maria Luisa Brandi; Jean Yves Reginster; M Carola Zillikens; Claus-C Glüer; Tobie de Villiers; Rod Baber; G David Roodman; Cyrus Cooper; Bente Langdahl; Santiago Palacios; John Kanis; Nasser Al Daghri; Xavier Nogues; Erik Fink Eriksen; Andreas Kurth; Rene Rizzoli; Robert E Coleman. Management of Aromatase Inhibitor-Associated Bone Loss (AIBL) in postmenopausal women with hormone sensitive breast cancer: Joint position statement of the IOF, CABS, ECTS, IEG, ESCEO IMS, and SIOG. Journal of Bone Oncology. 7, pp. 1 - 12. 23/03/2017. ISSN 2212-1366



Myogenesis, Inflammation & Muscle Function

RESEARCH GROUP



Group Leader

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Diego Agustín Rodríguez Chiaradia (Researcher)
Mireia Admetlló Papiol (Technician)
Lucilla Piccari (Technician)

Our ongoing research is focused on the role played by proinflammatory cytokines as a signaling molecules in the repairing-remodeling processes in muscles of patients with different processes with a relevant systemic inflammatory component, which share muscle dysfunction and/or loss of muscle mass. The strategic outcome is to identify potential molecular targets of therapies against muscle dysfunction and muscle cachexia. Our research is mainly addressed to lung diseases such as Chronic Obstructive Pulmonary Disease (COPD) and lung cancer, but also muscle problems in aging, fibromyalgia and scoliosis and includes clinical assessment, *in vivo* and *in vitro* physiological studies, and molecular biology procedures.

More recently, we have initiated a line for the identification of molecular markers of different circumstances present in COPD patients (e.g. gravity, activity, comorbidities, systemic manifestations), using both conventional and 'omics' methodologies (transcriptomics, proteomics and metabolomics).

Main Publications

- Shigemura M, Lecuona E, Angulo M, Homma T, Rodríguez DA, González-González FJ, Welch LC, Amarelle L, Kim SJ, Kaminski N, Budinger GRS, Solway J, Sznajder JI. Hypercapnia increases airway smooth muscle contractility via caspase-7-mediated miR-133a-RhoA signaling. *Sci Transl Med* 2018; 10(457): eaat1662. IF 16.71. D1.
- Arbillaga-Etxarri A, Gimeno-Santos E, Barberán-García A, Balcells E, Benet M, Borrell E, Celorio N, Delgado A, Jané C, Marín A, et al. Long-term efficacy and effectiveness of a behavioural and community-based exercise intervention (Urban Training?) to increase physical activity in patients with COPD. A randomised controlled trial. *Eur Respir J* 2018; 52(4): 1800063. IF 12.242. D1.
- Martínez C, Casanova C, de-Torres JP, Marín JM, de Lucas P, Fuster A, Cosío BG, Calle M, Peces-Barba G, Solanes I, Agüero R, Feu-Collado N, Alfageme I, Romero A, Balcells E, De Diego A, Marín M, Moreno A, Llunell A, Galdiz JB, Golpe R, Lacárcel Bautista, Cabrera C, Marín A, Soriano JB, López-Campos JL, CHAIN study investigators. Changes and clinical consequences of smoking cessation in COPD patients: a prospective analysis from the CHAIN cohort. *Chest* 2018; 154(2): 274-285. IF 7.652. Q1.
- Mateu-Jiménez M, Curull V, Rodríguez-Fuster A, Aguiló R, Sánchez-Font A, Pijuan L, Gea J, Barreiro E. Profile of epigenetic mechanisms in lung tumors of patients with underlying chronic respiratory conditions. *Clin Epigenetics* 2018; 10: 7. IF 6.091. Q1.
- Sánchez-Font A, Chalela R, Martín-Ontiyuelo C, Albero R, Dalmases A, Longarón R, Alonso-Espinaco V, Curull V, Bellosillo B, Pijuan L. Molecular analysis of peripheral lung adenocarcinoma in brush cytology obtained by EBUS plus fluoroscopy-guided bronchoscopy. *Cancer Cytopathol* 2018; 126(10): 860-871. IF 3.866. Q1.
- Barreiro E, Puig-Vilanova E, Salazar-Degracia A, Pascual S, Casadevall C, Gea J. The Phosphodiesterase-4 inhibitor roflumilast reverts proteolysis in skeletal muscle cells of patients with COPD cachexia. *J Appl Physiol* 2018; 125(2): 287-303. IF 3.256. Q1.
- Izquierdo-García JL, Nin N, Jiménez-Clemente J, Horcajada JP, Arenas-Miras MM, Gea J, Esteban A, Ruiz-Cabello J, Lorente JA. Metabolomic Profile of ARDS by Nuclear Magnetic Resonance Spectroscopy in Patients with H1N1 Influenza Virus Pneumonia. *Shock* 2018; 50(5): 504-510. IF 3.005. Q1.

Ongoing Research Projects

- Biomarcadores y perfiles clínicos personalizados en la Enfermedad Pulmonar Obstructiva Crónica
 - Ministerio de Economía y Competitividad (SAF2014-54371-R)
 - Period: from 2015 to 2019
 - Principal investigator: Gea Guiral, Joaquim

- Deficiencia de hierro en pacientes con EPOC: Impacto de la reposición con hierro. FACE study (Ferinject Assessment in patients with COPD and iron deficiency to improve Exercise tolerance)
 - Fondo de Investigación Sanitaria (PI17/00649)
 - Period: from 2018 to 2020
 - Principal investigator: Rodríguez Chiaradia, Diego Agustín

Participation in Research Networks

- CIBERESP: Enfermedades Respiratorias
 - Fondo de Investigación Sanitaria. Subprograma CIBER (CB06/06/0043)
 - Principal investigator: Gea Guiral, Joaquim

Clinical Trials Signed in 2018

- Estudio observacional prospectivo para EValuAar la carga médica y su AsociacióN al uso de corTicosteroides orales en pacientes con asma grave en España" (Estudio LEVANTE)
 - Register: AST-COR-2017-02 / D3250R00031
 - Principal investigator: Ausín Herrero, Pilar
- Estudio observacional para la validación de un cuestionario para la actividad física de pacientes con EPOC en la práctica clínica: cuestionario SAQ-COPD (Spanish Activity Questionnaire in COPD)
 - Register: AST-SAQ-2017-01/D2287R00R5
 - Principal investigator: Gea Guiral, Joaquim
- Estudio observacional del impacto socioeconómico de la FPI en España. Estudio OASIS-IPF
 - Register: BOE-MAC-2017-01
 - Principal investigator: Balcells Vilarnau, Eva
- ¿Puede el oxígeno de alto flujo optimizar los beneficios de la Rehabilitación Respiratoria en enfermos con Enfermedad Pulmonar Intersticial Difusa (EPID) que desaturan al esfuerzo?
 - Register: IIBSP-OXI-2017-18
 - Principal investigator: Balcells Vilarnau, Eva
- Efectividad clínica de Furoato de Fluticasona/Bromuro de Umeclidinio /Vilanterol en un solo inhalador (TRELEGY® ELLIPTA®) en comparación con terapias triples en varios dispositivos no-ELLIPTA, en pacientes con EPOC en la práctica clínica habitual
 - Register: 206854
 - Principal investigator: Pascual Guardia, Sergi

- Estudio de fase IIa aleatorizado, controlado con placebo, doble ciego (abierto para el promotor), para evaluar la eficacia clínica, seguridad y tolerabilidad de Nemiralisib (GSK2269557) en participantes con EPOC sintomática e historial de exacerbaciones
 - Register: 205739
 - Principal investigator: Pascual Guardia, Sergi

Theses

- Chalela R. Somatic genomic alterations in lung adenocarcinoma: non-invasive molecular diagnosis and prognosis impact of driver mutations in non-tumoral airway cells. Pompeu Fabra University
 - Director: Gea Guiral, Joaquim; Curull Serrano, Víctor
 - Date of defense: 27/11/2018



Neuroimmunology

RESEARCH GROUP



Group Leader

Jose Enrique Martínez
Rodríguez

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Mireia Llop Trujillano (Technician)
Antia Moreira Villanueva (Technician)
Andrea Vera Barrón (Technician)
Ana Zabalza de Torres (Technician)

The Neuroimmunology group was created in 2018 after initially being developed within the IMIM's Immunity and Infection group. The group is coordinated by Jose E. Martínez Rodríguez (CV, ORCID) and studies alterations of the immune system in neurological diseases using a translational approach centered on the patient's clinical features.

The neuroimmunology group is particularly interested in multiple sclerosis (MS) as a paradigmatic illness within the autoimmune pathologies of the central nervous system.

The group's current areas of research focus on the following:

The study of chronic herpes virus infections in MS (Epstein-Barr virus, Cytomegalovirus) and their imprint on the Natural Killer (NK) cell compartment, evaluating the potential development of biomarker predictors of activity and progression.

The immunophenotypic and functional analysis of adaptive NK cell populations and their role in the immunopathology of MS.

Phenotypic and functional study of subpopulations of T and B lymphocytes in the peripheral blood of MS patients, evaluating their relationship with clinical characteristics and treatments that modify the clinical course of the disease.

The group currently receives funding from the Spanish Ministry of Science and Innovation (ISCIII Health Research Fund), and is part of the Spanish Network of Multiple Sclerosis (REEM). In addition, the Neuroimmunology group has extensive experience in implementing phase II and III clinical trials using diverse immunomodulatory therapies on MS patients. The team comprises a principal investigator, three clinical researchers, and an advanced clinical practice nurse, who coordinates the clinical trials.

Main Publications

- Ois A, Zabalza A, Moreira A, Cuadrado E, Jiménez-Conde J, Giralt E, Rodríguez-Campello A, Soriano C, Roquer J. Long-term cardiovascular prognosis after transient ischemic attack: Associated predictors. *Neurology* 2018; 90(7): e553-e558. IF 7.609. D1.
- Spatola M, Sabater L, Planagumà J, Martínez-Hernández E, Armangué T, Prüss H, Iizuka T, Caparó RL, Antoine JC, Li R, Heaney N, Tubridy N, Munteis E, Rosenfeld MR, Graus F, Dalmau J. Encephalitis with mGluR5 antibodies: Symptoms and antibody effects. *Neurology* 2018; 90(22): e1964-e1972. IF 7.609. D1.
- Vivanco R, Wellenius G, Basagaña X, Cirach M, Gómez-González A, de Ceballos P, Zabalza A, Jiménez-Conde J, Soriano C, Giralt E, Alastuey A, Querol X, Sunyer J, Roquer J. Short-term exposure to traffic-related air pollution and ischemic stroke onset in Barcelona, Spain. *Environ Res* 2018; 162: 160-165. IF 4.732. D1.
- Alari E, Moreira A, Zabalza A, Álvarez-Lafuente R, Munteis E, Vera A, Arroyo R, Álvarez-Cermeño JC, Villar LM, López-Botet M, Martínez-Rodríguez JE. Low cytomegalovirus seroprevalence in early multiple sclerosis: A case for the "hygiene hypothesis"? *Eur J Neurol* 2018; 25(7): 925-933. IF 4.621. Q1.
- Avellaneda-Gómez, C C, Serra-Martínez M, Rodríguez-Campello A, Ois A, Cuadrado E, Giralt E, Vivanco R, Jiménez-Conde J, Gómez-González A, de Ceballos P, Zabalza A, Mola M, Soriano C, Roquer J. Alcohol overuse and intracerebral hemorrhage: Characteristics and long-term outcome. *Eur J Neurol* 2018; 25(11): 1358-1364. IF 4.621. Q1.
- Quirant-Sánchez B, Hervás-García JV, Teniente-Serra A, Brieva L, Moral-Torres E, Cano A, Munteis E, Mansilla MJ, Presas-Rodríguez S, Navarro-Barriuso J, Ramo-Tello C, Martínez-Cáceres EM. Predicting therapeutic response to fingolimod treatment in multiple sclerosis patients. *CNS Neurosci Ther* 2018; 24(12): 1175-1184. IF 3.495. Q1.

Ongoing Research Projects

- Estudio del valor pronóstico en la Esclerosis Múltiple de un nuevo biomarcador asociado a la infección por citomegalovirus
 - Financing institution: Fondo de Investigación Sanitaria. ISCIII (PI14/00177)
 - Period: from 2015 to 2018
 - Principal investigator: Martínez Rodríguez, José Enrique
- Respuesta adaptativa mediada por células Natural Killer en la Esclerosis Múltiple
 - Financing institution: Fondo de Investigación Sanitaria. ISCIII (PI17/00254)
 - Period: from 2018 to 2020
 - Principal investigator: Martínez Rodríguez, José Enrique

Participation in Research Networks

- Red Española de Esclerosis Múltiple (REEM)
 - Fondo de Investigación Sanitaria-ISCIII. Subprograma RETICS. RD16/0015/0011
 - Principal investigator: López-Botet, Miguel

Clinical Trials Signed in 2018

- Multicenter, non-comparative extension of study AC-058B301, to investigate the long-term safety, tolerability, and control of disease of ponesimod 20 mg in subjects with relapsing multiple sclerosis.
 - Register: AC-058B303
 - Principal investigator: Martínez Rodríguez, José Enrique
- Randomised, double-blind, placebo-controlled, 3-arm, 36 weeks parallel-group study to evaluate the safety and tolerability of ORY-2001 in patients with Relapsing-Remitting Multiple Sclerosis (RRMS) and Secondary Progressive Multiple Sclerosis (SPMS)
 - Register: CL02-ORY-2001MS
 - Principal investigator: Martínez Rodríguez, José Enrique
- Estudio de extensión abierto, de brazo único y multicéntrico para evaluar la seguridad, tolerabilidad y eficacia a largo plazo de ofatumumab, en pacientes con esclerosis múltiple que cursa con brotes
 - Register: COMB157G2399
 - Principal investigator: Martínez Rodríguez, José Enrique



Neurovascular

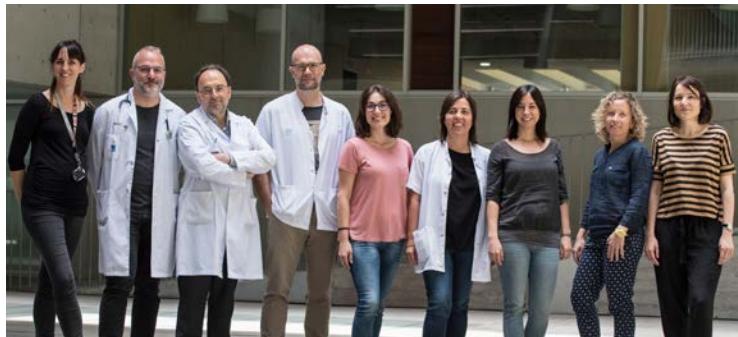
RESEARCH GROUP



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Carolina Soriano Tárraga (Researcher)
Carla Avellaneda Gómez (Technician)
Uxue Lazcano Dobao (Technician)
Gemma Romeral Ballester (Technician)
Miguel Ángel Rubio Pérez (Technician)
Rosa María Vivanco Hidalgo (Technician)

This is a clinical group involved in stroke research. Currently our group is included in the Red de Enfermedades Vasculares Cerebrales (INVICTUS PLUS) that is one of the main Spanish research networks. The strengths of our group are: first, our ongoing database named BASICMAR, that contains extensive demographic, epidemiological, clinical, and outcome data about all stroke patients ($n=8,300$) admitted to our hospital, and second, our large collection of blood sample of stroke patients for genetic and biomarkers studies ($n=6,000$). The two main research lines are:

1. Clinical research and biomarkers in stroke: epidemiology, natural history and vascular risk factors, stroke biomarkers, environmental and stroke, diet and stroke, neurosonology and neuro-imaging.
2. Genetic and stroke research: our unit is part of the International Stroke Genetics Consortium, which includes many international (USA, Europe) and national groups and of the GENESTROKE Consortium working to develop GWAS and EWAS studies and projects.

Main Publications

- Malik R, Chauhan G, Traylor M, Sargurupremraj M, Okada Y, Mishra A, Rutten-Jacobs L, Giese AK, van der Laan SW, Gretarsdottir S, et al. Multiancestry genome-wide association study of 520,000 subjects identifies 32 loci associated with stroke and stroke subtypes. *Nat Genet* 2018; 50(4): 524-537. IF 27.125. D1.
- Ois A, Zabalza A, Moreira A, Cuadrado E, Jiménez-Conde J, Giralt E, Rodríguez-Campello A, Soriano C, Roquer J. Long-term cardiovascular prognosis after transient ischemic attack: Associated predictors. *Neurology* 2018; 90(7): e553-e558. IF 7.609. D1.
- Marini S, Devan WJ, Radmanesh F, Miyares L, Poterba T, Hansen BM, Norrving B, Jiménez-Conde J, Giralt E, Elosua R, et al. 17p12 Influences Hematoma Volume and Outcome in Spontaneous Intracerebral Hemorrhage. *Stroke* 2018; 49(7): 1618-1625. IF 6.239. D1.
- Ntaios G, Lip GYH, Lambrou D, Michel P, Perlepe K, Eskandari A, Nannoni S, Sirimarco G, Strambo D, Vemmos K, et al. Renal Function and Risk Stratification of Patients With Embolic Stroke of Undetermined Source. *Stroke* 2018; 49(12): 2904-2909. IF 6.239. D1.
- Cuadrado E, Dwivedi P, Sharma S, Ois A, Roquer J, Balcells M, Laird J, Turk M, Suri HS, Nicolaides A, Saba L, Khanna NN, Suri JS. Cerebral Small Vessel Disease: A Review Focusing on Pathophysiology, Biomarkers, and Machine Learning Strategies. *J Stroke* 2018; 20: 302-320. IF 4.75. Q1.
- Vivanco R, Wellenius G, Basagaña X, Cirach M, Gómez-González A, de Ceballos P, Zabalza A, Jiménez-Conde J, Soriano C, Giralt E, Alastuey A, Querol X, Sunyer J, Roquer J. Short-term exposure to traffic-related air pollution and ischemic stroke onset in Barcelona, Spain. *Environ Res* 2018; 162: 160-165. IF 4.732. D1.
- Avellaneda-Gómez, C C, Serra-Martínez M, Rodríguez-Campello A, Ois A, Cuadrado E, Giralt E, Vivanco R, Jiménez-Conde J, Gómez-González A, de Ceballos P, Zabalza A, Mola M, Soriano C, Roquer J. Alcohol overuse and intracerebral hemorrhage: Characteristics and long-term outcome. *Eur J Neurol* 2018; 25(11): 1358-1364. IF 4.621. Q1.
- Giralt E, Medrano-Martorell S, Soriano C, Mola M, Rasal R, Cuadrado E, Rodríguez-Campello A, Ois A, Capellades J, Jiménez-Conde J, Roquer J. Brainstem leukoaraiosis independently predicts poor outcome after ischemic stroke. *Eur J Neurol* 2018; 25(8): 1086-1092. IF 4.621. Q1.
- Roquer J, Vivanco R, Capellades J, Ois A, Cuadrado E, Giralt E, Soriano C, Mola M, Serra M, Avellaneda-Gómez C, Jiménez-Conde J, Rodríguez-Campello A. Ultra-early hematoma growth in antithrombotic pretreated patients with intracerebral hemorrhage. *Eur J Neurol* 2018; 25(1): 83-89. IF 4.621. Q1.
- Soriano C, Giralt E, Mola M, Ois A, Rodríguez-Campello A, Cuadrado E, Fernández-Cadenas I, Cullell N, Roquer J, Jiménez-Conde J. Biological Age is a predictor of mortality in Ischemic Stroke. *Sci Rep* 2018; 8(1): 4148. IF 4.122. Q1.

Ongoing Research Projects

- The Chemical Optimization of Cerebral Embolectomy (CHOICE) Trial
 - Financing institution: Fundació La Marató de TV3 (20170732)
 - Period: from 2018 to 2021
 - Principal investigator: Cuadrado Godia, Elisa
- Impacto de la polución ambiental aérea (carbón negro y material particulado) en el ictus isquémico
 - Financing institution: Fondo de Investigación Sanitaria. ISCIII (PI15/00445)
 - Period: from 2016 to 2019
 - Principal investigator: Roquer González, Jaume
- Estudio de Epigenome Wide Association en Leucoaraiosis. Contribución de la epigenética en el envejecimiento cerebral. International Stroke Genetic Consortium (ISGC)
 - Financing institution: Fondo de Investigación Sanitaria. ISCIII (PI15/00451)
 - Period: from 2016 to 2019
 - Principal investigator: Jiménez Conde, Jordi

Participation in Research Networks

- Red de Enfermedades Vasculares Cerebrales. INVICTUS PLUS
 - Fondo de Investigación Sanitaria-ISCIII. Subprograma RETICS (RD16/0019/0002)
 - Principal investigator: Roquer González, Jaume

Group's Recognitions

- Officially recognized as a consolidated research group by the Generalitat de Catalunya: Grup de Recerca Neurovascular (NEUVAS) (2017-2020)
 - Agència de Gestió d'Ajuts Universitaris i de Recerca (SGR 28)
 - Principal investigator: Roquer González, Jaume

Clinical Trials Signed in 2018

- Estudio internacional, multicéntrico, abierto y de grupos paralelos, para evaluar la eficacia en la reducción de cLDL y presión arterial y la seguridad de la polipildora cardiovascular Fuster-CNIC-Ferrer versus tratamiento habitual en pacientes con enfermedad cardiovascular aterotrombótica. Estudio APOLO
 - Register: FMD-TRI-2017-01
 - Principal investigator: Rodríguez Campello, Ana María
- Optimización química de la embolectomía cerebral en pacientes con un ictus agudo tratados con trombectomía mecánica (ESTUDIO CHOICE)
 - Register: CHOICE
 - Principal investigator: Cuadrado Godia, Elisa
- Estudio en fase III, aleatorizado, doble ciego, controlado con placebo, de grupos paralelos para evaluar la eficacia y la seguridad de BIIB093 por vía intravenosa (glibenclamida) para el edema cerebral grave tras infarto hemisférico maligno
 - Register: 252LH301
 - Principal investigator: Rodríguez Campello, Ana María



Rehabilitation

RESEARCH GROUP



Group Leader

Esther Duarte Oller

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Ferran Escalada Recto (Researcher)

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Ester Marco Navarro (Researcher)

Josep Maria Muniesa Portoles (Researcher)

Mercè Piqueras Céspedes (Researcher)

María Dolores Carmen Sánchez Rodríguez (Researcher)

Marta Tejero Sánchez (Researcher)

The main research areas of the group are:

- Neurological Rehabilitation: brain plasticity and motor recovery by developing new technologies as Virtual Reality and Music Supported Therapy in stroke patients.
- Sarcopenia and malnutrition: ultrasound assessment, exercise and nutritional interventions.
- Effects of physical training and exercise on cardiovascular disease, chronic respiratory disease, cancer and ageing.
- Dysphagia: assessment and therapeutic strategies.
- Development of telerehabilitation systems applied to neurological, pulmonary and cardiorespiratory diseases.

The group's purpose is to enhance the interaction between basic and clinical sciences, and health services, with potential translational application, providing innovative and potentially effective treatment alternatives.

Main Publications

- Belmonte R, Messaggi-Sartor M, Ferrer M, Pont A, Escalada F. Prospective study of shoulder strength, shoulder range of motion, and lymphedema in breast cancer patients from pre-surgery to 5 years after ALND or SLNB. *Support Care Cancer* 2018; 26(9):3277-3287. IF 2.676. Q1.

Ongoing Research Projects

- Brain-Connects: Brain Connectivity during stroke rehabilitation
 - Financing institution: Fundació La Marató de TV3
 - Period: from 2018 to 2020
 - Principal investigators: Josep Puig Alcántara; Cathy Stinear; Esther Duarte Oller; Gustavo Deco; Gottfried Schlaug
- Estudio RETORNUS-2: Impacto del entrenamiento respiratorio en la función deglutoria en pacientes con disfagia secundaria a ictus
 - Financing institution: Fondo de Investigación Sanitaria. ISCIII (PI16/01081)
 - Period: from 2017 to 2019
 - Principal investigator: Guillén Solà, Anna
- The PSSMAR Study. Postacute Sarcopenia: Nutritional Supplementation with B-hydroxy-Methyl-butyrate after Resistance training: Study protocol of a randomized, double-blind controlled trial.
 - Financing institution: Nutricia Research Foundation
 - Period: from 2017 to 2019
 - Principal investigator: Sánchez Rodríguez, María Dolores Carmen

Group's Recognitions

- Officially recognised as an emerging research group by the Generalitat de Catalunya: Rehabilitation Research Group (2017-2020)
 - Agència de Gestió d'Ajuts Universitaris i de Recerca (SGR 112)
 - Principal investigator: Duarte Oller, Esther

Theses

- Almenara M. Modelo teórico-práctico para la implementación del diseño centrado en el usuario en el desarrollo, la validación y la aceptación de los productos de apoyo para personas con enfermedades de origen neurológico. Autonomous University of Barcelona
 - Directors: Duarte, Esther; Medina, Josep
 - Date of defense: 19/07/2018

Other

- Award to the best presentation of the Catalan Society of Physical Medicine and Rehabilitation Congress 2018: "Malnutrición en pacientes con enfermedad pulmonar obstructiva crónica estable remitidos a un programa de rehabilitación respiratoria: relación con la mortalidad y hospitalizaciones a los dos años de seguimiento."
- Award to the best presentation of the 17th Theoretical-Practical Course of the Society of Cardiorespiratory Rehabilitation 2018: "Relación del flujo espiratorio máximo de la tos con la sarcopenia en pacientes con enfermedad pulmonar obstructiva crónica derivados a Rehabilitación".
- Award to the third best presentation of the 17th Theoretical-Practical Course of the Society of Cardiorespiratory Rehabilitation 2018: "Criterios de malnutrición de la ESPEN en pacientes con enfermedad pulmonar obstructiva crónica estable: asociación con mortalidad y uso de recursos sanitarios a los dos años."

Neurosciences



13

Research groups



146

Professionals



49

Research projects



174

Publications



Programme Director

Rafael de la Torre

RESEARCH GROUPS

Addiction

Marta Torrens

Anxiety, Affective Disorders and Schizophrenia

Antoni Bulbena

Doping Control Research Group

Rosa Ventura

Epilepsy

Rodrigo Alberto Rocamora

Integrative Pharmacology and Systems

Neuroscience

Rafael de la Torre

Mental Health

Víctor Pérez and Francesc Colom

Neurofunctionality and Brain Language

Jordi Peña Casanova

Neuroimaging of Mental Disorders

Oscar Vilarroya

Perioperative Medicine and Pain

Lluís Gallart

ASSOCIATED GROUPS

Behavioral Neurobiology

Olga Valverde

Cellular and Systems Neurobiology

Mara Dierssen

Genetics

Luis Alberto Pérez Jurado

Laboratory of Neuropharmacology

Rafael Maldonado

The mission of the Neurosciences Programme (NP) at the Hospital del Mar Medical Research Institute is to support clinical research that will lead to a better understanding of mental and neurodegenerative illnesses and the development of novel therapeutic approaches. The combined basic and clinical investigations of research groups contribute to achieve program objectives.

The pathologies studied by the NP include:

- Addictions/substance abuse pharmacology
- Mental health (anxiety, depression, schizophrenia, bipolar disorder, eating disorders)
- Chronic pain
- Intellectual disabilities/rare diseases
- Life style factors and cognitive decline and age-related metabolic comorbidities
- Epilepsy

The NP has several technological resources to carry out this mission:

- Animal models of diseases (intellectual disabilities, pain, affective and eating disorders, drug abuse, and state-of-the-art in vivo electrophysiology systems in freely-moving mice) to study the neurobiology of diseases, and the cognitive and affective responses to drugs or to other therapeutic approaches.
- Complex analyses of neural activity (big data).
- Clinical metabolomics (targeted metabolomics studies of neurotransmission systems, steroids and endocannabinoids and drug exposure)
- Neuroepithelial olfactory cells as proxy model of proneurons
- Neuroimaging techniques in humans
- Clinical Research Unit (accredited for Phase I studies by the Catalan Government)

General objectives

- To promote and support excellence in basic and clinical research, including co-morbidities with other health problems, and to provide opportunities for transversal and collaborative research with other IMIM research programs and Parc de Salut Mar clinical departments.
- To encourage multidisciplinary research, including the opportunities provided within the IMIM framework at the Barcelona Biomedical Research Park (PRBB) in order to facilitate the transfer of knowledge and improve treatment and health services.
- To guarantee the promotion of holistic research among students and clinicians through their training in all aspects of neuroscience, mental health and addictions.



Addiction

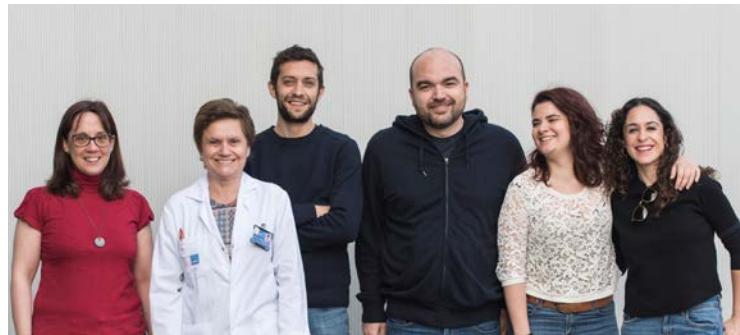
RESEARCH GROUP



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Claudio Guillermo Castillo Buenaventura (Researcher)
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Ana Martín Sánchez (Researcher)
Gerard Mateu Codina (Researcher)
Juan Ignacio Mestre Pintó (Researcher)
María Robles Martínez (Researcher)
Gabriel Vallecillo Sánchez (Researcher)
María Alías Ferri (Technician)
Fernando Nicolás Dinamarca Cáceres (Technician)
Alexandra Garcia Guix (Technician)
María Soriano Valera (Technician)

This is a multidisciplinary team of health professionals (psychiatrists, psychologists, internist, nurses...) that share clinical, research and teaching activities. In the research area, the main aim is to study addiction to substances from different perspectives to improve secondary prevention and treatment. Main lines of research are: 1) clinical and therapeutic aspects of substance use disorders (opiates, cocaine, alcohol, cannabis...); 2) Psychiatric and somatic (i.e. HIV, HCV) comorbidity in substance use disorders (diagnostic tools, neurobiology, factors associated, treatment...); 3) New psychoactive substances of abuse (detection of abuse, potential neurotoxicity) and 4) Gender perspective of Addictions.

Main Publications

- Tan M, O'Doherty L, Gilchrist G, Taft A, Feder G, Tirado-Muñoz J, Chondros P, Sadowski L, Hegarty K. Psychological therapies for women who experience intimatepartner violence. Cochrane Database Syst Rev 2018; 5: CD013017. IF 6.754. D1.
- Tirado-Muñoz J, Mestre J, Farré M, Fonseca F, Torrens M. Comprehensive interventions for reducing cannabis use. Curr Opin Psychiatr 2018; 31(04): 315-323. IF 4.266. Q1.
- Grebely J, Drolet M, Nwankwo C, Torrens M, Kastelic A, Walcher S, Somaini L, Mulvihill E, Ertl J, Liebert R, Litwin AH. Perceptions and self-reported competency related to testing, management and treatment of hepatitis C virus infection among physicians prescribing opioid agonist treatment: The C-SCOPE study. Int J Drug Policy 2018; 63: 29-38. IF 4.244. Q1.
- Papaseit E, Farré M, Pérez-Mañá C, Torrens M, Ventura-Vilamala M, Pujadas-Bastardes M, de la Torre R, González D. Acute Pharmacological Effects of 2C-B in Humans: An Observational Study. Front Pharmacol 2018; 9: 206. IF 3.831. Q1.
- Pérez-Mañá C, Papaseit E, Fonseca F, Farré A, Torrens M, Farré M. Drug Interactions With New Synthetic Opioids. Front Pharmacol 2018; 9: 1145. IF 3.831. Q1.
- Vallecillo G, Robles MJ, Duran X, Lerma E, Horcajada JP, Torrens M. Trends in AIDS Mortality, Retention in Opioid Agonist Therapy, and HIV RNA Suppression in HIV-Infected People Who Injected Drugs from 2000 to 2015. AIDS Behav 2018; 22(9): 2766-2772. IF 3.017. D1.
- Olmos A, Tirado-Muñoz J, Farré M, Torrens M. The efficacy of computerized interventions to reduce cannabis use: A systematic review and meta-analysis. Addict Behav 2018; 79: 52-60. IF 2.686. Q1.
- Vallecillo G, Robles MJ, Torrens M, Samos P, Roquer A, Sanvisens A, Muga R, Pedro-Botet J. Metabolic syndrome among individuals with heroin use disorders on methadone therapy: prevalence, characteristics, and related factors. Subst abus. 2018; 39(1): 46-51. IF 2.669. Q1.

Ongoing Research Projects

- Analysis, Knowledge Dissemination, Justice Implementation and Special Testing of Novel Synthetic Opioids
 - Financing institution: European Commission
 - Period: from 2018-2020
 - Principal investigator: Torrens Mèlich, Marta

- Biomarcadores de la Depresión Inducida: BIODEP
 - Financing institution: Fondo de Investigación Sanitaria. ISCIII (PI16/00603)
 - Period: from 2017 to 2019
 - Principal investigator: Torrens Mèlich, Marta
- Adaptación de los instrumentos de diagnóstico de patología dual a los criterios DSM-5
 - Financing institution: Fondo de Investigación Sanitaria. ISCIII (PI14/00178)
 - Period: from 2015 to 2019
 - Principal investigator: Mestre Pintó, Juan Ignacio

Participation in Research Networks

- Red de Trastornos Adictivos
 - Fondo de Investigación Sanitaria. Subprograma RETICS (RD16/0017/0010)
 - Principal investigator: Torrens Mèlich, Marta

Group's Recognitions

- Officially recognised as a consolidated research group by the Generalitat de Catalunya: Grup de Recerca en Addiccions (GRAD) (2017-2020)
 - Agència de Gestió d'Ajuts Universitaris i de Recerca (SGR 530)
 - Principal investigator: Torrens Mèlich, Marta

Clinical Trials Signed in 2018

- Estudio aleatorizado, enmascarado a sujetos e investigadores, controlado con placebo, de grupos paralelos para investigar si AFQ056 reduce el consumo de cocaína en pacientes diagnosticados con trastorno por consumo de cocaína (TCC)
 - Register: CAFQ056X2201
 - Principal investigator: Torrens Mèlich, Marta

Theses

- Valera MR. Efectividad de una Intervención enfermera sobre abordaje al tabaquismo en diferentes servicios de la Red de Salud Mental. Murcia University
 - Directors: Flores, MD; Fonseca Casals, María Francina; González Cuello, AM
 - Date of defense: 20/11/2018

Other

- 2018 EMCDDA scientific award for the publication: Tirado-Muñoz J, Gilchrist G, Fischer G, Taylor A, Moskalewicz J, Giannarchi C, Köchl B, Munro A, Dąbrowska K, Shaw A, Di Furia L, Leeb I, Hopf C, Torrens M. Psychiatric comorbidity and intimate partner violence among women who inject drugs in Europe: a cross-sectional study. Arch Womens Ment Health. 2018 21:259-269. IF 2.565, Q2.



Anxiety, Affective Disorders and Schizophrenia

RESEARCH GROUP



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María José Tribó Boixareu (Researcher)
Esperanza González Fernández (Research Assistant)

The group is made up of different researchers involved in clinical work either in hospital or primary care. Although the backbone of the group is the original description (and derivative) of the association between anxiety and Joint Hypermobility Syndrome (JHS), current lines of research include bipolar illness, schizophrenia, first-episode psychosis, cognitive psychotherapy for anxiety, obsessive compulsive disorder, psychiatric emergency services, Hikikomori syndrome and also the expert patient. A very active group in ethological research also joined the group and has done pioneering research on the Noah Syndrome (animal hoarding), but is also remaining active on areas such as pet grief, human-animal interaction, etc.

Main Publications

- Via E, Fullana MA, Goldberg X, Tinoco-González D, Martínez-Zalacaín I, Soriano-Mas C, Davey CG, Menchón JM, Straube B, Kircher T, Pujol J, Cardoner N, Harrison BJ. Ventromedial prefrontal cortex activity and pathological worry in generalised anxiety disorder. *Br J Psychiatry* 2018; 213(1): 437-443. IF 5.867. Q1.
- Gassó P, Mas S, Bioque M, Cabrera B, Lobo A, González-Pinto A, Díaz-Caneja CM, Corripio I, Vieta E, Castro-Fornieles J, Sarró S, Mané A, Sanjuan J, Llerena A, Lafuente A, Saiz-Ruiz J, Bernardo M, PEPs Group (...Bergé D, Bulbena A...). Impact of NTRK2, DRD2 and ACE polymorphisms on prolactin levels in antipsychotic-treated patients with first-episode psychosis. *J Psychopharmacol* 2018; 32(6): 702-710. IF 4.738. Q1.
- Mallorquí-Bagué N, Lozano-Madrid M, Toledo E, Corella D, Salas-Salvadó J, Cuenca A, Vioque J, Romaguera D, Martínez JA, Warnberg J, et al. Type 2 diabetes and cognitive impairment in an older population with overweight or obesity and metabolic syndrome: baseline cross-sectional analysis of the PREDIMED-plus study. *Sci Rep* 2018; 8(1): 16128. IF 4.122. Q1.
- Mezquida G, Savulich G, García-Rizo C, García-Portilla MP, Toll A, García-Álvarez L, Bobes J, Mané A, Bernardo M, Fernández-Egea E. Inverse association between negative symptoms and body mass index in chronic schizophrenia. *Schizophr Res* 2018; 192: 69-74. IF 3.958. Q1.
- Bulbena-Cabré A, Rojo C, Pailhez G, Burón E, Martín-López LM, Bulbena A. Joint hypermobility is also associated with anxiety disorders in the elderly population. *Int J Geriatr Psych* 2018; 33(1): e113-e119. IF 2.94. Q1.

Ongoing Research Projects

- Rehabilitación cognitiva combinada con ejercicio físico en el tratamiento de la esquizofrenia: estudio controlado aleatorizado
 - Financing institution: Fondo de Investigación Sanitaria. ISCIII (PI15/00453)
 - Period: from 2016 to 2019
 - Principal investigator: Mané Santacana, Anna

Group's Recognitions

- Officially recognised as a consolidated research group by the Generalitat de Catalunya: Unitat de Recerca en Psiquiatria (2017-2020)
 - Agència de Gestió d'Ajuts Universitaris i de Recerca (SGR 52)
 - Principal investigator: Bulbena Vilarrasa, Antonio

Clinical Trials Signed in 2018

- Estudio de fase II, aleatorizado, doble ciego, controlado con placebo y de grupos paralelos para evaluar la eficacia y la seguridad de 4 dosis orales de BI 425809 una vez al día durante un periodo de tratamiento de 12 semanas en pacientes con esquizofrenia.
 - Register: 1346.9
 - Principal investigator: Mané Santacana, Anna

Theses

- Burón E. Estudi sobre la funció olfactòria en el trastorn d'angoixa. Autonomous University of Barcelona
 - Director: Bulbena, Antoni
 - Date of defense: 20/03/2018
- Guerrero, Jesús David. La impulsividad en adultos sanos: rasgos antropométricos y exploración estructural de la corteza cerebral. Autonomous University of Barcelona
 - Directors: Blas Navarro, José; Bulbena, Antoni
 - Date of defense: 25/07/2018
- Evangelidou, Stylianí. Somatización, cultura e inmigración en entornos de atención primaria de salud: el caso de España. Autonomous University of Barcelona
 - Directors: Qureshi, Adil; Fornieles, Albert; Bulbena, Antoni
 - Date of defense: 11/12/2018



Doping Control Research Group

RESEARCH GROUP



Group Leader

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Members

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Alejandro Terrero González (Technician)

Marta Vicén Morales (Technician)

Daria Navarra Alcrudo (Research Assistant)

The Doping Control Research Group performs scientific research to contribute to the progress of doping control in sports, with the objective of ensuring doping-free sport and protecting the health of athletes. It is formed of personnel belonging to the Catalan Antidoping Laboratory.

The research group was recognized by AGAUR (Agència de Gestió d'Ajuts Universitaris i de Recerca, Generalitat de Catalunya) as a consolidated research group (2017 SGR 81).

The research focuses on the development and improvement of analytical methods to detect the misuse of doping agents and on the study of new markers to improve the detection of substances and methods prohibited in sport. In addition, the group works on new mass spectrometry techniques for detecting and quantifying drugs and their metabolites, and endogenous metabolites in biological fluids to study pharmacokinetics, metabolism and pharmacodynamics. The team also collaborates with other research groups in determining environmental pollutants in biological samples.

The group's main areas of interest in research are the following:

- Metabolism of anabolic androgenic steroids (long-term metabolites).
- Detection of the administration of endogenous steroids.
- Study of the factors influencing the endogenous steroid profile.
- Discrimination of prohibited and permitted uses of glucocorticoids.
- Discrimination of prohibited and permitted used β2-agonists.
- Detection of the use of blood transfusions.
- Detection of growth hormone releasing peptides.
- Use of dried blood spots in doping control.

Moreover, members of the Doping Control Research Group are actively involved in training programs in chemistry and toxicology for graduate and undergraduate students (Pompeu Fabra University, University of Barcelona, Basque Country University).

Main Publications

- Coll S, Matabosch X, Garrostas L, Monfort N, Pérez-Mañá C, Pizarro N, Mateus JA, Ezzel M, de la Torre R, Ventura R. The effect of tea consumption on the steroid profile. Drug Test Anal 2018; 10(9): 1438-1447. IF 2.993. Q1.
- Coll S, Matabosch X, Garrostas L, Pérez-Mañá C, Ventura R. Effect of glucocorticoid administration on the steroid profile. Drug Test Anal 2018; 10(6): 947-955. IF 2.993. Q1.
- Esquivel A, Alechaga E, Monfort N, Ventura R. Direct quantitation of endogenous steroid sulfates in human urine by liquid chromatography-electrospray tandem mass spectrometry. Drug Test Anal 2018; 10(11-12): 1734-1743. IF 2.993. Q1.

- Kotronoulas A, Gómez-Gómez A, Fabregat A, Segura J, Yang S, Xing Y, Moutian W, Marcos J, Joglar J, Ventura R, Pozo O. Evaluation of markers out of the steroid profile for the screening of testosterone misuse. Part I: transdermal administration. Drug Test Anal 2018; 10(5): 821-831. IF 2.993. Q1.
- Kotronoulas A, Gómez-Gómez A, Fabregat A, Segura J, Yang S, Xing Y, Moutian W, Marcos J, Joglar J, Ventura R, Pozo O. Evaluation of markers out of the steroid profile for the screening of testosterone misuse. Part II: intramuscular administration. Drug Test Anal 2018; 10(5): 849-859. IF 2.993. Q1.
- Reverter-Branchat G, Ventura R, Ezzel M, Mateus JA, Pedro C, Segura J. Detection of Erythropoiesis Stimulating Agents in One Single Dried Blood Spot. Drug Test Anal 2018; 10(10): 1496-1507. IF 2.993. Q1.

Ongoing Research Projects

- Studies on intra-articular and peri-articular administrations of glucocorticoids.
 - Financing institution: World Anti-Doping Agency (16C11RV)
 - Period: from 2017 to 2020
 - Principal investigator: Ventura Alemany, Rosa
- Aplicación de los avances recientes en espectrometría de masas al análisis de drogas y fármacos en fluidos biológicos
 - Financing institution: Ministerio de Economía y Competitividad (CTQ2015-63968-C2-2-P)
 - Period: from 2016 to 2018
 - Principal investigator: Ventura Alemany, Rosa
- Improving detection of anabolic steroids: new screening based on the direct analysis of phase II metabolites using LC-Q-HRMS
 - Financing institution: World Anti-Doping Agency (15A15RV)
 - Period: from 2016 to 2019
 - Principal investigator: Ventura Alemany, Rosa
- Evaluation of alternative glucocorticosteroid metabolites for the discrimination between legal and forbidden administration routes
 - Financing institution: World Anti-Doping Agency (13D22RV)
 - Period: from 2014 to 2019
 - Principal investigator: Ventura Alemany, Rosa

Group's Recognitions

- Officially recognised as a consolidated research group by the Generalitat de Catalunya: Grup de Recerca en Control del Dopatge en l'Esport (2017-2020)
 - Agència de Gestió d'Ajuts Universitaris i de Recerca (SGR 81)
 - Principal investigator: Ventura Alemany, Rosa
- The Group runs the Catalonian Anti-doping Laboratory, which has obtained the renewal of the following accreditations during 2018:
 - World Anti-Doping Agency, performing of anti-doping analyses in athletes
 - ISO17025, to perform antidoping and toxicology assays
 - Association of Official Racing Chemists, performing of antidoping analyses in animals

Theses

- Esquivel A. Control of anabolic steroids misuse in sport: potential of direct detection of phase II metabolites. Pompeu Fabra University
 - Director: Ventura Alemany, Rosa
 - Date of defense: 14/12/2018



Epilepsy

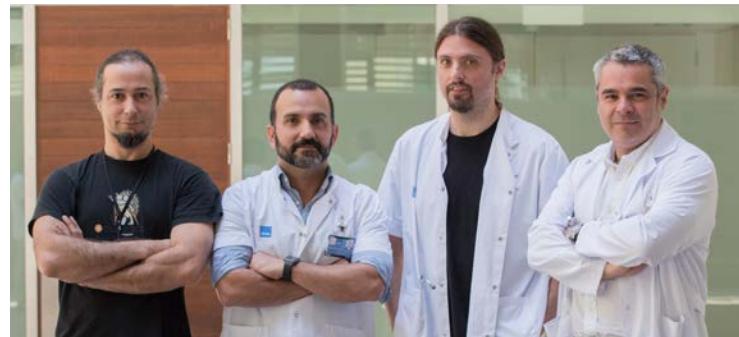
RESEARCH GROUP



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Members

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Alessandro Principe (Researcher)
Carmen Pérez Enríquez (Technician)
Laura Serrano Pérez (Technician)

The research of this group focuses primarily on cognitive aspects and their correlation with surgical and electrophysiological procedures, as well as the pharmacotherapy of epilepsy and genetic diagnosis. To facilitate this they have established collaborations with national and international centres, including the Epilepsy Centre at the University of Freiburg, the Bonn Epilepsy Surgery Centre, and the Grenoble Epilepsy Centre. Nationally, there is ongoing cooperation with the Centre for Brain and Cognition (CBC), The Synthetic Perceptive, Emotive and Cognitive Systems group (SPECS), and the Centre for Genomic Regulation (CRG) at Pompeu Fabra University (UPF).

The Epilepsy Unit primarily focuses its research on specific aspects of diagnosing the location of epileptic focus, as well as the electrophysiological and cognitive correlates of cerebral records obtained using invasive electrophysiological techniques. They have also undertaken research into clinical pharmacology and comorbidities associated with epilepsy, especially in the field of psychiatry, sleep disorders and sudden death in epilepsy.

Main Publications

- Tauste A, Principe A, Ley M, Rocamora R, Deco G. Degenerate time-dependent network dynamics anticipate seizures in human epileptic brain. PLoS Biol 2018; 16(4): e2002580. IF 9.163. D1.
- Cruzat J, Deco G, Tauste A, Principe A, Costa A, Kringelbach ML, Rocamora R. The dynamics of human cognition: Increasing global integration coupled with decreasing segregation found using iEEG. Neuroimage 2018; 172: 492-505. IF 5.426. D1.
- Principe A, Ley M, Conesa G, Rocamora R. Prediction error connectivity: A new method for EEG state analysis. Neuroimage 2018; 188: 261-273. IF 5.426. D1.
- Trebaul L, Deman P, Tuyisenge V, Jedynak M, Hugues E, Rudrauf D, Bhattacharjee M, Tadel F, Chanteloup-Foret B, Saubat C, et al. Probabilistic functional tractography of the human cortex revisited. Neuroimage 2018; 181: 414-429. IF 5.426. D1.

Ongoing Research Projects

- SYLVIUS: A novel multimodal integrative computer platform to model Language and improve neurosurgical planning and treatment outcome
 - Financing institution: Fundació "La Caixa"
 - Period: from 2014 to 2019
 - Principal investigator: Conesa Bertran, Gerard

Group's Recognitions

- Officially recognised as an emerging research group by the Generalitat de Catalunya: Grup d'Epilèpsia (GE) (2017-2020)
 - Agència de Gestió d'Ajuts Universitaris i de Recerca (SGR 455)
 - Principal investigator: Principe, Alessandro

Clinical Trials Signed in 2018

- Estudio de dos partes de ZX008 en niños y adultos con síndrome de Lennox-Gastaut (LGS); Parte 1: Ensayo aleatorizado, con doble ciego y controlado con placebo de dos dosis fijas de solución oral de ZX008 (clorhidrato de fenfluramina) como tratamiento complementario para crisis epilépticas en niños y adultos con LGS, seguido de la Parte 2: Ampliación abierta para evaluar la seguridad a largo plazo del ZX008 en niños y adultos con LGS.
 - Register: ZX008-1601
 - Principal investigator: Rocamora Zúñiga, Rodrigo Alberto

- Estudio aleatorizado, doble ciego, controlado con placebo, de búsqueda de dosis para evaluar la eficacia y la seguridad de padsevonil como tratamiento adyuvante de crisis focales en sujetos adultos con epilepsia fármacoresistente
 - Register: EP0091
 - Principal investigator: Rocamora Zúñiga, Rodrigo Alberto



Integrative Pharmacology and Systems Neuroscience

RESEARCH GROUP



Group Leader

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Members

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The group's main line of research is the development of pharmacological and nonpharmacological (cognitive/electrical stimulation) approaches for the treatment of neurodevelopmental and psychiatric disorders (including Down syndrome, drug addiction, depression and schizophrenia). Our emphasis is on understanding the underlying mechanisms of action and on developing biomarkers of exposure, efficacy and toxicity.

Moreover, the Integrated Pharmacology and Systems Neurosciences Research Group is responsible for providing instruction in pharmacology, chemistry and toxicology to graduate and undergraduate students of both human biology and medicine (Pompeu Fabra University, Autonomous University of Barcelona), and training to junior postdoctoral researchers.

Research areas of the group include:

- Pharmacology of psychoactive substances and non-pharmacological cognitive enhancing approaches.
- Development of biomarkers of exposure, efficacy and toxicity.
- Health benefits of nutrition in cognitive performance.
- Neurophysiology and pharmacology of cognition in psychiatric and neurodevelopmental disorders
- Integrated behavioral pharmacology of mental disorders including drug addiction, schizophrenia and depression
- Metabolomic approaches in health and disease.

Main Publications

- Forcano L, Mata F, de la Torre R, Verdejo-García A. Cognitive and Neuromodulation Strategies for Unhealthy Eating and Obesity: Systematic Review and Discussion of Neurocognitive Mechanisms. *Neurosci Biobehav Rev* 2018; 87: 161-191. IF 8.037. D1.
- Antón M, Rodríguez-González A, Rodríguez-Rojo IC, Pastor A, Correas Á, Serrano A, Ballesta A, Alén F, Gómez de Heras R, de la Torre R, Rodríguez de Fonseca F, Orio L. Increased plasma oleoylethanolamide and palmitoleoylethanolamide levels correlate with inflammatory changes in alcohol binge drinkers: the case of HMGB1 in women. *Addict Biol* 2018; 23(6): 1242-1250. IF 5.578. Q1.
- Galindo L, Moreno E, López F, Guinart D, Cuenca A, Izquierdo-Serra M, Xicota L, Fernández-Avilés C, Menoyo E, Fernández-Fernández JM, Benítez-King G, Canela EI, Casadó V, Pérez V, de la Torre R, Robledo P. Cannabis Users Show Enhanced Expression of CB1-5HT2A Receptor Heteromers in Olfactory Neuroepithelium Cells. *Mol Neurobiol* 2018; 55(8): 6347-6361. IF 5.076. Q1.

- Rodríguez-Morató J, Matthan NR, Liu J, de la Torre R, Chen CO. Cranberries attenuate animal-based diet-induced changes in microbiota composition and functionality: a randomized crossover controlled feeding trial. *J Nutr Biochem* 2018; 62: 76-86. IF 4.414. Q1.
- Berrendero F, Flores Á, Robledo P. When Orexins Meet Cannabinoids: Bidirectional Functional Interactions. *Biochem Pharmacol* 2018; 157: 43-50. IF 4.235. Q1.
- Faundez V, De Toma I, Bardoni B, Bartesaghi R, Nizetic D, de la Torre R, Cohen Kadosh, Herault Y, Dierssen M, Potier MC, Down Syndrome and Other Genetic Developmental Disorders ECNP Network. Translating molecular advances in Down syndrome and Fragile X syndrome into therapies. *Eur Neuropsychopharmacol* 2018; 28(6): 675-690. IF 4.129. Q1.
- Portero-Tresserra M, Gracia-Rubio I, Cantacorps L, Pozo O, Gómez-Gómez A, Pastor A, López-Arnau R, de la Torre R, Valverde O. Maternal separation increases alcohol-drinking behaviour and reduces endocannabinoid levels in the mouse striatum and prefrontal cortex. *Eur Neuropsychopharmacol* 2018; 28(4): 499-512. IF 4.129. Q1.
- Kuypers KPC, de la Torre R, Farré M, Xicota L, de Sousa Fernandes Perna EB, Theunissen EL, Ramaekers JG. Depressive mood ratings are reduced by MDMA in female polydrug ecstasy users homozygous for the I-allele of the serotonin transporter. *Sci Rep* 2018; 8(1): 1061. IF 4.122. Q1.
- Mallorquí-Bagué N, Lozano-Madrid M, Toledo E, Corella D, Salas-Salvadó J, Cuenca A, Vioque J, Romaguera D, Martínez JA, Warnberg J, et al. Type 2 diabetes and cognitive impairment in an older population with overweight or obesity and metabolic syndrome: baseline cross-sectional analysis of the PREDIMED-plus study. *Sci Rep* 2018; 8(1): 16128. IF 4.122. Q1.
- Papaseit E, Farré M, Pérez-Mañá C, Torrens M, Ventura-Vilamala M, Pujadas-Bastardes M, de la Torre R, González D. Acute Pharmacological Effects of 2C-B in Humans: An Observational Study. *Front Pharmacol* 2018; 9: 206. IF 3.831. Q1.

Ongoing Research Projects

- Salut Mental, Nutrició i Cognició: Estudi de seguiment de l'Impacte d'una Intervenció en Dieta Mediterrània i Promoció de l'Activitat Física en Gent Gran amb Sobrepès i Obesitat
 - Financing institution: Departament de Salut. Generalitat de Catalunya (SLT006/17/00246)
 - Period: from 2018 to 2020
 - Principal investigator: De la Torre Fornell, Rafael

- Prevención del deterioro cognitivo en personas con Quejas Subjetivas de Memoria o Deterioro Cognitivo Leve tras una intervención con Dieta Mediterránea
 - Financing institution: Fondo de Investigación Sanitaria. ISCIII (PI17/00223)
 - Period: from 2018 to 2020
 - Principal investigator: De la Torre Fornell, Rafael
- Formación de Hidroxitirosol e ingesta de cerveza: implicaciones para la salud
 - Financing institution: Centro de Información Cerveza y Salud (CICS)
 - Period: from 2018 to 2019
 - Principal investigator: Soldevila Domènech, Natàlia
- Novel Biomarkers in Recombinant Human Growth Hormone Abuse Detection, LC-MRM-MS method for Fibronectin Quantification in Anti-Doping Routine
 - Financing institution: World Anti-Doping Agency (17A07GR)
 - Period: 2018
 - Principal investigator: Reverter Branchat, Gemma
- Development of new fatty acid conjugates for the treatment of the non-alcoholic steatohepatitis (NASH)
 - Financing institution: BIOCAT
 - Period: 2018
 - Principal investigator: De la Torre Fornell, Rafael
- Screening Emerging Stimulants by Analytical and Metabolic Evaluations
 - Financing institution: Partnership for Clean Competition (PCC)-USADA
 - Period: 2018
 - Principal investigator: Pozo Mendoza, Óscar
- Caracterització dels determinants genètics dels fenotips de neuroimatge associats a la malaltia d'Alzheimer en participants de la cohort ALFA
 - Financing institution: Departament de Salut. Generalitat de Catalunya (SLT002/16/00201)
 - Period: from 2017 to 2019
 - Principal investigator: De la Torre Fornell, Rafael
- Desarrollo de nuevos conjugados de ácidos grasos para el tratamiento de las esteatohepatitis
 - Financing institution: Fondo de Investigación Sanitaria. ISCIII (DTS16/00035)
 - Period: from 2017 to 2019
 - Principal investigator: De la Torre Fornell, Rafael

- Role of serotonin in the rescuing effects of cognitive therapies: in vivo study of neural network dynamics in mouse models of Down syndrome and schizophrenia
 - Financing institution: Ministerio de Economía y Competitividad (SAF2016-80726-R)
 - Period: from 2016 to 2019
 - Principal investigator: Puig Velasco, María Victoria
- Medida de biomarcadores específicos del uso de cigarrillos electrónicos (propilenglicol) y tabaco (nicotina, carcinógenos) en una cohorte de usuarios de cigarrillos electrónicos
 - Financing institution: Fondo de Investigación Sanitaria. ISCIII (PI15/00434)
 - Period: from 2016 to 2019
 - Principal investigator: Pascual Esteban, José Antonio
- Evaluation of dose and source of green tea extracts as contributing factors to treatment efficacy and hepatotoxicity. Therapeutic implications in Down syndrome
 - Financing institution: Fondation Jérôme Lejeune (1493)
 - Period: from 2016 to 2019
 - Principal investigator: Pizarro Lozano, Nieves
- Neural activity patterns of cognitive normalization mediated by environmental enrichment and epigallocatechin-3-gallate in a murine model of Down syndrome
 - Financing institution: Fondation Jérôme Lejeune
 - Period: from 2016 to 2018
 - Principal investigator: Puig Velasco, María Victoria
- Ultra-sensitive mass spectrometric detection of a rEPO specific O-glycopeptide as an unambiguous proof of doping-Follow up (GOpep2)
 - Financing institution: World Anti-Doping Agency (15A31JP)
 - Period: from 2016 to 2018
 - Principal investigator: Pascual Esteban, José Antonio
- Bls-Conjugates in the Endogenous Profile of Steroids (BICEPS)
 - Financing institution: World Anti-Doping Agency (15A29OP)
 - Period: from 2016 to 2018
 - Principal investigator: Pozo Mendoza, Óscar
- Immunorecognition of specific markers of blood storage. Customization and testing of already developed antibodies
 - Financing institution: World Anti-doping Agency (ISF16M04JP)
 - Period: from 2016 to 2018
 - Principal investigator: Pascual Esteban, José Antonio

- Remodelando el desarrollo cerebral: potenciación de la plasticidad neuronal para mejorar el rendimiento cognitivo en síndromes que causan discapacidad intelectual
 - Financing institution: Fundación Mutua Madrileña (AP157312015)
 - Period: from 2015 to 2019
 - Principal investigator: De la Torre Fornell, Rafael
- Neural Substrates of Atypical Antipsychotic Drug Action: Role of Serotonin 5-HT1A and 5-HT2A Receptors in Neural Network Dynamics in the Mouse Prefrontal Cortex and Hippocampus during Executive Function
 - Financing institution: Brain & Behavior Research Foundation (23014)
 - Period: from 2015 to 2018
 - Principal investigator: Puig Velasco, María Victoria
- Characterization of novel suppressors of neurodegeneration in myotonic dystrophy type 1 (DM1)
 - Financing institution: Fundació La Marató de TV3 (20143530)
 - Period: from 2015 to 2018
 - Principal investigator: Robledo Montoya, Patricia
- El consumo moderado de vino promueve la generación endógena del antioxidante natural hidroxitirosol. Implicaciones en la prevención de enfermedades cardiovasculares
 - Financing institution: Fondo de Investigación Sanitaria. ISCIII (PI14/00072)
 - Period: from 2015 to 2018
 - Principal investigator: De la Torre Fornell, Rafael
- Implicación de los heterómeros CB1-5-HT2A en las alteraciones cognitivas y conductuales de la esquizofrenia y su interacción con el consumo de cannabis: un enfoque translacional
 - Financing institution: Fondo de Investigación Sanitaria. ISCIII (PI14/00210)
 - Period: from 2015 to 2018
 - Principal investigator: Robledo Montoya, Patricia
- Estudio metabolómico en pacientes con Porfiria Aguda Intermitente: caracterización de los desajustes hormonales y catabólicos asociados a la enfermedad y efectos del tratamiento con hemina
 - Financing institution: Fondo de Investigación Sanitaria. ISCIII (PI14/00147)
 - Period: from 2015 to 2018
 - Principal investigator: Pozo Mendoza, Óscar
- Proyecto Ramón y Cajal
 - Financing institution: Ministerio de Economía y Competitividad (RYC-2012-10042)
 - Period: from 2014 to 2018
 - Principal investigator: Puig Velasco, María Victoria

Group's Recognitions

- Officially recognized as a consolidated research group by the Generalitat de Catalunya: Grup de Recerca Clínica en Farmacología i Desenvolupament de Biomarcadors i Nous Fàrmacs (2017-2020)
 - Agència de Gestió d'Ajuts Universitaris i de Recerca (SGR 138)
 - Principal investigator: De la Torre Fornell, Rafael
- Officially recognized as a emergent research group by the Generalitat de Catalunya: Grup de recerca en neuroquímica i neurofisiologia de la cognició en malalties psiquiàtriques i del desenvolupament (2017-2020)
 - Agència de Gestió d'Ajuts Universitaris i de Recerca (SGR 210)
 - Principal investigator: Puig Velasco, María Victoria

Theses

- Kossatz de Mello E. Neuroprotective mechanisms of CB2 cannabinoid receptors and PPAR- α in hypoxia/ischemia-induced brain damage. Pompeu Fabra University
 - Directors: Robledo Montoya, Patricia; Maldonado López, Rafael
 - Date of defense: 08/06/2018
- Olestí E. Approaches to evaluate the pharmacology of new psychoactive substances. Pompeu Fabra University
 - Directors: De la Torre Fornell, Rafael; Pozo Mendoza, Óscar
 - Date of defense: 29/11/2018



RESEARCH GROUP



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Aitana García Estela (Technician)

Bridget Hogg (Technician)

Eva Luque Asín (Research Assistant)

The Mental Health Research Group is a multidisciplinary team formed by researchers from several fields of mental health. Currently, the group has three main areas of research:

- E-mental Health: our group pioneers the design, research and implementation of online tools devised to provide a user-friendly, accessible, efficient, scalable and cheaper treatment of mood and anxiety disorders. Several outstanding projects are ongoing in this area:
 - "Ifightdepression": this is an online CBT-inspired treatment aimed at dealing with mild and moderate depression. Our group is running the largest efficiency trial with this tool, advocating for its implementation and training ad-hoc therapists.
 - "SIMPLe": an Android and IOS app designed by our researchers that aims to provide online psychoeducation, symptom monitoring, adherence enhancement and crisis prevention in bipolar disorder. An RCT is currently under way.
 - We currently have several brand-new tools on our work benches, including e-EMDR, a subthreshold anxiety management online kit and others.
- Personalized interventions for treatment-refractory patients: our group uses novel and groundbreaking pharmacological and psychotherapeutic approaches to deal with treatment-refractory patients. Similarly, the group works with several large consortiums aiming to identify new biomarkers of treatment response. The following are some examples:
 - Impact of trauma and the efficacy of EMDR with: PTSD, bipolar disorders, schizophrenia, alcohol dependence, immigration related trauma, etc.
 - Psychosurgery in refractory anorexia.
 - Psilocybin and ketamine in refractory depression.
 - Neuroimaging and pharmacogenetics in the prediction of response to lithium.
- Neuroimaging. Our group studies the brain and behavior correlations using anatomical and functional MRI. Significant contributions have been made in the field of obsessive-compulsive disorder, anxiety, chronic pain, psychopathy and rare genetic disorders.

Main Publications

- Amare AT, Schubert KO, Hou L (...Colom F...), Mitchell PB, Bauer M, Alda M, Rietschel M, McMahon FJ, Schulze TG, Baune BT, International Consortium on Lithium Genetics (ConLi+Gen). Association of Polygenic Score for Schizophrenia and HLA Antigen and Inflammation Genes With Response to Lithium in Bipolar Affective Disorder: A Genome-Wide Association Study. *JAMA Psychiatry* 2018; 75(1): 65-74. IF 16.642. D1.
- Alemany S, Vilor-Tejedor N, García-Estebe R, Bustamante M, Dadvand P, Esnaola M, Mortamais M, Forns J, van Drooge BL, Álvarez-Pedrerol M, Grimalt JO, Rivas I, Querol X, Pujol J, Sunyer J. Traffic-Related Air Pollution, APOE Status, and Neurodevelopmental Outcomes among School Children Enrolled in the BREATHE Project (Catalonia, Spain). *Environ Health Perspect* 2018; 126(8): 087001. IF 8.309. D1.

- Dadvand P, Pujol J, Macià D, Martínez-Vilavella G, Blanco-Hinojo L, Mortamais M, Álvarez-Pedrerol M, Fenoll R, Esnaola M, Dalmau-Bueno A, López-Vicente M, Basagaña X, Jerrett M, Nieuwenhuijsen M, Sunyer J. The Association between Lifelong Greenspace Exposure and 3-Dimensional Brain Magnetic Resonance Imaging in Barcelona Schoolchildren. *Environ Health Perspect* 2018; 126(2): 027012. IF 8.309. D1.
- Vilor-Tejedor N, Alemany S, Cáceres A, Bustamante M, Pujol J, Sunyer J, González JR. Strategies for integrated analysis in Imaging Genetics studies. *Neurosci Biobehav Rev* 2018; 93: 57-70. IF 8.037. D1.
- Oriolo G, Egmond E, Mariño Z, Cavero M, Navines R, Zamarrenho L, Solà R, Pujol J, Bargallo N, Forns X, Martín-Santos R. Systematic review with meta-analysis: neuroimaging in hepatitis C chronic infection. *Aliment Pharm Therap* 2018; 47(9): 1238-1252. IF 7.357. D1.
- Suñol M, Contreras-Rodríguez O, Macià D, Martínez-Vilavella G, Martínez-Zalacaín I, Subirà M, Pujol J, Sunyer J, Soriano-Mas C. Brain Structural Correlates of Subclinical Obsessive-Compulsive Symptoms in Healthy Children. *J Am Acad Child Psy* 2018; 57: 41-47. IF 6.25. D1.
- Via E, Fullana MA, Goldberg X, Tinoco-González D, Martínez-Zalacaín I, Soriano-Mas C, Davey CG, Menchón JM, Straube B, Kircher T, Pujol J, Cardoner N, Harrison BJ. Ventromedial prefrontal cortex activity and pathological worry in generalised anxiety disorder. *Br J Psychiatry* 2018; 213(1): 437-443. IF 5.867. D1.
- Galindo L, Moreno E, López F, Guinart D, Cuenca A, Izquierdo-Serra M, Xicota L, Fernández-Avilés C, Menoyo E, Fernández-Fernández JM, Benítez-King G, Canela EI, Casadó V, Pérez V, de la Torre R, Robledo P. Cannabis Users Show Enhanced Expression of CB1-5HT2A Receptor Heteromers in Olfactory Neuroepithelium Cells. *Mol Neurobiol* 2018; 55(8): 6347-6361. IF 5.076. Q1.
- Hidalgo-Mazzei D, Reinares M, Mateu A, Nikolova VL, Bonnín CDM, Samalin L, García-Estela A, Pérez V, Young AH, Strejilevich S, Vieta E, Colom F. OpenSIMPLe: A real-world implementation feasibility study of a smartphone-based psychoeducation programme for bipolar disorder. *J Affect Disorders* 2018; 241: 436-445. IF 3.786. Q1.

Ongoing Research Projects

- Optimizing response to Li treatment through personalized evaluation of individuals with bipolar I disorder: the R-LiNK initiative
 - Financing institution: European Commission (10972)
 - Period: from 2018 to 2022
 - Principal investigator: Colom Victoriano, Francesc

- Estudi simple cec, aleatoritzat i controlat per comparar l'eficàcia de l'EMDR vs. TAU en pacients amb trastorn per ús de substàncies i història de trauma psicològic
 - Financing institution: Departament de Salut, Generalitat de Catalunya (SLT006/17/00038)
 - Period: from 2018 to 2020
 - Principal investigator: Amann, Benedikt Lorenz
- Evaluació de l'efectivitat i cost-efectivitat d'un programa de prevenció, detecció i abordatge dels trastorns mentals a petites i mitjanes empreses
 - Financing institution: Departament de Salut, Generalitat de Catalunya (SLT006/17/00354)
 - Period: from 2018 to 2020
 - Principal investigator: Justicia Díaz, Azucena
- Cognició social i biaixos cognitius en persones amb primers episodis psicòtics en comparació amb esquizofrènia crònica i controls sans
 - Financing institution: Departament de Salut, Generalitat de Catalunya (SLT006/17/00231)
 - Period: from 2018 to 2020
 - Principal investigator: Legido Gil, Teresa
- Prevalence of psychological trauma in patients with a recent diagnosis of HIV and the efficacy of EMDR therapy versus TAU in a pilot RCT in clinical symptoms and biological markers of HIV
 - Financing institution: EMDR Europe
 - Period: from 2018 to 2020
 - Principal investigator: Amann, Benedikt Lorenz
- Pilot single blind, randomized controlled study of EMDR versus TAU in inpatients with severe mental disorders and psychological trauma
 - Financing institution: EMDR Europe
 - Period: from 2018 to 2020
 - Principal investigator: Moreno Alcázar, Ana
- Estimulación cerebral profunda en el cíngulo subgeniculado y el núcleo accumbens como tratamiento a pacientes con anorexia nerviosa crónica, severa y refractaria
 - Financing institution: Fondo de Investigación Sanitaria. ISCIII (PI16/00382)
 - Period: from 2017 to 2019
 - Principal investigator: Pérez Sola, Víctor
- Single-blind, Randomized Controlled Comparison of EMDR Versus Supportive Therapy in Affective Relapse Prevention in Bipolar Patients With a History of Trauma
 - Financing institution: Brain & Behavior Research Foundation (24397)
 - Period: from 2017 to 2020
 - Principal investigator: Amann, Benedikt Lorenz

- Estudio simple ciego, randomizado y controlado para comparar la eficacia de EMDR vs terapia de apoyo en la prevención de recaídas afectivas en bipolares con evento traumático previo
 - Financing institution: Fondo de Investigación Sanitaria. ISCIII (PI15/02242)
 - Period: from 2016 to 2020
 - Principal investigator: Amann, Benedikt Lorenz
- SIMPLEBand: Monitorización pasiva de signos en pacientes con trastorno bipolar en estadios avanzados mediante smartbands para la prevención de recaídas
 - Financing institution: Fondo de Investigación Sanitaria. ISCIII (PI15/00588)
 - Period: from 2016 to 2020
 - Principal investigator: Colom Victoriano, Francesc
- Estudio del estado de activación del factor Nrf2 en cultivo primario de pro-neuronas a partir de epitelio olfatorio en el Trastorno Depresivo Mayor
 - Financing institution: Fondo de Investigación Sanitaria. ISCIII (PI15/00398)
 - Period: from 2016 to 2020
 - Principal investigator: Álvarez López, Pilar
- Eficacia del programa online iFightDepression para el tratamiento de la depresión leve y moderada
 - Financing institution: Fondo de Investigación Sanitaria. ISCIII (PI13/00171)
 - Period: from 2014 to 2018
 - Principal investigator: Pérez Sola, Víctor

Participation in Research Networks

- CIBERSAM – Centro de Investigación Biomédica en Red de Salud Mental
 - Fondo de Investigación Sanitaria. Subprograma CIBER. (CB07/09/0010).
 - Principal investigator: Pérez Sola, Víctor
- ConLiGen- Consortium for Lithium Genetics
 - Principal investigator: Colom Victoriano, Francesc
- European Alliance Against Depression (EAAD)
 - Principal investigator: Pérez Sola, Víctor

Group's Recognitions

- Officially recognized as a consolidated research group by the Generalitat de Catalunya: Grup de Salut Mental (2017-2020)
 - Agència de Gestió d'Ajuts Universitaris i de Recerca (SGR 134)
 - Principal investigator: Colom Victoriano, Francesc

- Officially recognized as an emergent research group by the Generalitat de Catalunya:
Unitat de Recerca Centre Fòrum (2017-2020)
 - Agència de Gestió d'Ajuts Universitaris i de Recerca (SGR 46)
 - Principal investigator: Moreno Alcázar, Ana

Clinical Trials Signed in 2018

- Cohorte de depresión resistente al tratamiento en Europa
 - Register: 54135419DEP4001
 - Principal investigator: Pérez Sola, Víctor
- Seguridad y eficacia de la psilocibina en participantes con depresión refractaria al tratamiento (P-TRD)
 - Register: COMP 001
 - Principal investigator: Pérez Sola, Víctor

Theses

- Estrada X. Utilidad de la arquitectura del sueño para el diagnóstico del trastorno bipolar pediátrico. Autonomous University of Barcelona
 - Directors: Romero-Cela, S; Pérez Sola, Víctor; Álvarez-Martínez, E.
 - Date of defense: 29/06/2018

Other

- Francesc Colom Victoriano. Hestia 2018 Awards for Excellence in Healthcare and Mental Health Research. International University of Catalonia. Date: 08/03/2018.
- Jesús Pujol. Award Ramon Turró for the article When does human brain development end? Evidence of corpus callosum growth up to adulthood. Pujol et al. Annals of Neurology 1993;34;71-75 as the most cited article for 25 years in Experimental Neurobiology. Societat Catalana de Biologia 2018
- Jesús Pujol. Award for the best communication of the 62nd Congress of the Spanish Association of Child and Adolescent Psychiatry (AEPNyA). Palma, Illes Balears, 7-9 June 2018. “¿Son TCL y TDAH diferentes síndromes? análisis estructural y funcional cerebrales de los síntomas TCL.”



Neurofunctionality and Brain Language

RESEARCH GROUP



Group Leader

Jordi Peña Casanova

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Members

Rosa M. Manero Borras (Researcher)
Víctor Manuel Puente Périz (Researcher)
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Aida Fernández Lebrero (Technician)
Greta García Escobar (Technician)
Núria Massuet Pujadas (Technician)
Albert Puig Pijoan (Technician)
Gonzalo Sánchez Benavides (Technician)

The Neurofunctionality and Brain Language Research Group focuses on the study of the relationships between cognition, behavior, emotional states and the brain, with a special interest in language. These relationships are studied in the context of focal and diffuse brain damage, specifically, in neurodegenerative diseases.

The research group's traditional areas of work are aimed at the development, standardization and validation of instruments for diagnosing and measuring cognitive abilities. The group places particular emphasis on the following neurological pathologies: Alzheimer's disease, mild cognitive impairment, vascular dementia, Lew Body dementia.

The master's students in Neuropsychology and Behavioural Neurology from the Psychiatry and Legal Medicine department of the Autonomous University of Barcelona are actively involved in the research group.

The research group collaborates with the Neurosurgery Department (Dr. Gerard Conesa) in functional brain mapping studies, in which electrical stimulation of the cerebral cortex in vigil patients is carried out. These studies make high-level

neurosurgery possible, which brings unquestionable benefits for the patients, given that during the surgical procedure, the cognitive brain regions can be distinguished and protected from physical damage.

Main Publications

- Rodríguez de Dios N, Couñago F, López JL, Calvo P, Murcia M, Rico M, Vallejo C, Luna J, Trueba I, Cigarral C, Farre N, Manero RM, Durán X, Samper P. Treatment Design and Rationale for a Randomized Trial of Prophylactic Cranial Irradiation With or Without Hippocampal Avoidance for SCLC: PREMER Trial on Behalf of the Oncologic Group for the Study of Lung Cancer/Spanish Radiation Oncology Group-Radiation Oncology Clinical Research Group. *Clin Lung Cancer* 2018; 19(5): e693-e697. IF 4.204. Q2.
- Puig-Pijoan A, Giralt E, Zabalza A, Manero RM, Sánchez-Benavides G, García-Escobar G, Pérez-Enríquez C, Gómez-González A, Ois A, Rodríguez-Campello A, Cuadrado E, Jiménez-Conde J, Peña-Casanova J, Roquer J. Underdiagnosis of Unilateral Spatial Neglect in stroke unit. *Acta Neurol Scand* 2018; 138(5): 441-446. IF 3.126. Q2.

Ongoing Research Projects

- NEURONORMA.CAT: Catalan adaptation and normalization of neuropsychological instruments
 - Financing institution: Fundació La Marató de TV3 (20143010)
 - Period: from 2015 to 2018
 - Principal investigator: Peña Casanova, Jordi

Clinical Trials Signed in 2018

- Estudio multicéntrico, doble ciego, aleatorizado y controlado de grupos paralelos para investigar la eficacia y seguridad de BI 425809, administrado oralmente durante un periodo de tratamiento de 12 semanas, comparado con placebo en pacientes con deterioro cognitivo debido a enfermedad de Alzheimer
 - Register: 1346.23
 - Principal investigator: Puig Pijoan, Albert
- Estudio de Fase III, multicéntrico, aleatorizado, doble ciego, controlado con placebo y de grupos paralelos para evaluar la eficacia y seguridad de Gantenerumab en pacientes con enfermedad de alzheimer precoz (de prodrómica a leve)
 - Register WN39658
 - Principal investigator: Puig Pijoan, Albert

Other

- Jordi Peña Casanova: Doctor Honoris Causa. National University “de los Andes”. Cusco, Perú



Neuroimaging of Mental Disorders

RESEARCH GROUP



Group Leader
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Members
Daniel Bergé Baquero (Researcher)
Romina Cortizo Vidal (Researcher)

This group is a multidisciplinary research group with the objective of studying the neuroanatomical and neurofunctional bases of specific mental and neurological disorders, as well as specific cognitive, emotional and motivational functions among the general population, using structural and functional magnetic resonance techniques. At present, the group has the following research lines active in neuroimaging: Attention Deficit Hyperactivity Disorder and other impulsivity disorders, schizophrenia and other psychotic disorders, anxiety disorders, and other studies in the general population.

Main Publications

- Kong XZ, Mathias SR, Guadalupe T, Glahn DC, Franke B, Crivello F, Tzourio-Mazoyer N, Fisher SE, Thompson PM, Francks C, ENIGMA Laterality Working Group (... Vilarroya O...). Mapping cortical brain asymmetry in 17,141 healthy individuals worldwide via the ENIGMA Consortium. Proc Natl Acad Sci USA 2018; 115(22): E5154-E5163. IF 9.504. D1.
- Marcos-Vidal L, Martínez-García M, Pretus C, García-García D, Martínez K, Janssen J, Vilarroya O, Castellanos FX, Desco M, Sepulcre J, Carmona S. Local functional connectivity suggests functional immaturity in children with attention-deficit/hyperactivity disorder. Hum Brain Mapp 2018; 39(6): 2442-2454. IF 4.927. Q1.
- Gassó P, Mas S, Bioque M, Cabrera B, Lobo A, González-Pinto A, Díaz-Caneja CM, Corripio I, Vieta E, Castro-Fornieles J, Sarró S, Mané A, Sanjuan J, Llerena A, Lafuente A, Saiz-Ruiz J, Bernardo M, PEPS Group (...Bergé D, Bulbena A,...). Impact of NTRK2, DRD2 and ACE polymorphisms on prolactin levels in antipsychotic-treated patients with first-episode psychosis. J Psychopharmacol 2018; 32(6): 702-710. IF 4.738. D1.
- Torrent C, Reinares M, Martínez-Arán A, Cabrera B, Amoretti S, Corripio I, Contreras F, Sarró S, González-Pinto A, Lobo A, Cuesta MJ, Sánchez-Torres A, Bergé D, Castro-Fornieles J, Moreno C, Bernardo M, Vieta E, PEPS group. Affective versus first-episode non-affective first-episode psychoses: A longitudinal study. J Affect Disorders 2018; 238: 297-304. IF 3.786. Q1.

Clinical Trials Signed in 2018

- Aripiprazol una vez al mes frente al tratamiento antipsicótico atípico oral una vez al día en pacientes con esquizofrenia de aparición reciente: estudio observacional, no intervencionista
 - Register: ARI-MGD-2016-01
 - Principal investigator: Bergé Baquero, Daniel

Theses

- Güell X. The role of the cerebellum in movement, thought, and emotion. Autonomous University of Barcelona
 - Director: Vilarroya O.
 - Date of defense: 28/05/2018



Périoperative Medicine

RESEARCH GROUP



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Anna Mases Fernández (Researcher)
Lluís Molto Garcia (Researcher)
Antonio Montes Pérez (Researcher)
Francesc Xavier Santiveri Papiol (Researcher)
Maria Teresa Silva Costa Gómez (Researcher)
Jordi Vallés Esteve (Researcher)

We are clinical anesthesiologists who also perform clinical research. Our main topics are: (1) respiratory aspects of anesthesia, namely treatment of perioperative hypoxemia, effects of anesthetics on respiratory function and postoperative pulmonary complications; (2) blood saving strategies, focused to avoid blood transfusion; (3) neuroanaesthesia, mainly monitoring depth of anaesthesia and effects of anaesthetics during neuroanaesthesia; (4) clinical trials related to anaesthetic procedures; (5) pathophysiological mechanisms of neuropathic pain; (6) epidemiology and treatment of postoperative pain.

Main Publications

- Montes A, Sabaté S, Roca G, Canet J. Preoperative Prediction of Chronic Postsurgical Pain after Thoracotomy: Need for Adequately Sized Population-based Samples. *Anesthesiology* 2018; 128(1): 224. IF 6.523. D1.
- Rodríguez A, Guilera N, Mases A, Sierra P, Oliva JC, Colilles C, REGISTRESTENTS group. Management of antiplatelet therapy in patients with coronary stents undergoing noncardiac surgery: association with adverse events. *Br J Anaesth* 2018; 120(1): 67-76. IF 6.499. D1.
- Muñoz M, Acheson AG, Bisbe E, Butcher A, Gómez-Ramírez S, Khalafallah AA, Kehlet H, Kietaibl S, Liumbruno GM, Meybohm P, Rao Baikady R, Shander A, So-Osman C, Spahn DR, Klein AA. An international consensus statement on the management of postoperative anaemia after major surgical procedures. *Anaesthesia* 2018; 73(11): 1418-1431. IF 5.431. Q1.
- Meissner W, Huygen F, Neugebauer EAM, Osterbrink J, Benhamou D, Betteridge N, Coluzzi F, de Andrés J, Fawcett W, Fletcher D, Kalso E, Kehlet H, Morlion B, Montes A, Pergolizzi J, Schäfer M. Management of acute pain in the postoperative setting: the importance of quality indicators. *Curr Med Res Opin* 2018; 34(1): 187-196. IF 2.665. Q1.

Ongoing Research Projects

- Validación externa prospectiva de una escala predictiva de la cronificación de Dolor Crónico Post-Quirúrgico
 - Financing institution: Fondo de Investigación Sanitaria. ISCIII (PI16/00279)
 - Period: from 2017 to 2019
 - Principal investigator: Montes Pérez, Antonio
- Efecto sincrónico de los anestésicos sobre la Resonancia Magnética Funcional, el EEG y las respuestas clínicas. Desarrollo de un sistema de monitorización anestésica más preciso
 - Financing institution: Fondo de Investigación Sanitaria. ISCIII (PI16/00616)
 - Period: from 2017 to 2019
 - Principal investigator: Fernández Candil, Juan Luis



Behavioral Neurobiology

ASSOCIATED GROUP



Group Leader

Olga Valverde Granados

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The Behavioral Neurobiology Research Group was constituted in 2007 and is a recognized team in the study of the neurobiological substrate of psychiatric disorders and neurotoxicity, including drug addiction, affective disorders, psychiatric co-morbidity and schizophrenia.

Our group belongs to the Experimental and Health Sciences Department of Pompeu Fabra University and is located in the Barcelona Biomedical Research Park. Our team is member of the Addictive Disorders Network (Red de Trastornos Adictivos RTA-ISCIII) and was integrated in the Neurosciences Programme of IMIM for the translational research activity undertaken.

Main Publications with IMIM

- De Backer, Monlezun S, Detraux B, Gazan A, Vanopdenbosch L, Cheron J, Cannazza G, Valverde S, Cantacorps L, Nassar M, Venance L, Valverde O, Faure P, Zoli M, De Backer O, Gall D, Schiffmann SN, de Kerchove d'Exaerde A. Deletion of Maged1 in mice abolishes locomotor and reinforcing effects of cocaine. *Embo Rep* 2018; 19(9): e45089. IF 8.749. D1.
- Ferrer-Pérez C, Castro-Zavala A, Luján MÁ, Filarowska J, Ballestín R, Miñarro J, Valverde O, Rodríguez-Arias M. Oxytocin prevents the increase of cocaine-related responses produced by social defeat. *Neuropharmacology* 2018; 146: 50-64. IF 4.249. Q1.
- Luján MÁ, Castro-Zavala A, Alegre-Zurano L, Valverde O. Repeated Cannabidiol treatment reduces cocaine intake and modulates neural proliferation and CB1R expression in the mouse hippocampus. *Neuropharmacology* 2018; 143: 163-175. IF 4.249. Q1.
- Cantacorps L, González-Pardo H, Arias JL, Valverde O, Conejo NM. Altered brain functional connectivity and behaviour in a mouse model of maternal alcohol binge-drinking. *Prog Neuro-Psychopharmacol Biol Psychiatr* 2018; 84(Pt A): 237-249. IF 4.185. Q1.
- Portero-Tresserra M, Gracia-Rubio I, Cantacorps L, Pozo O, Gómez-Gómez A, Pastor A, López-Arnau R, de la Torre R, Valverde O. Maternal separation increases alcohol-drinking behaviour and reduces endocannabinoid levels in the mouse striatum and prefrontal cortex. *Eur Neuropsychopharmacol* 2018; 28(4): 499-512. IF 4.129. Q1.

MORE INFO



Cellular and Systems Neurobiology

ASSOCIATED GROUP



Group Leader

Mara Dierssen Sotos

mara.dierssen@crg.eu



Members

Ilario de Toma (Researcher)

Linus Manubens Gil (Technician)

The Cellular and Systems Neurobiology group is a CRG (Centre for Genomic Regulation) research group associated with IMIM. Our overall goal is to understand how the neuronal architecture and connectivity constrain the mesoscopic network activity and influences the flow and storage of information in neuronal circuits. Alterations in the architectural properties of the neurons are observed in most mental disorders and are assumed to be the cause of the cognitive disturbances. We focus mainly on intellectual disability and neuropsychiatric disorders, using a systems neuroscience approach that combines behavioral, computational and neurobiological analyses in mice, with the results from cellular models. Based on our understanding of the genetic and molecular circuits disturbed in intellectual disability we have participated in several clinical trial in Down syndrome (De la Torre et al, 2016) and fragile X syndrome (FRAXA Foundation).

Main Publications with IMIM

- Faundez V, De Toma I, Bardoni B, Bartesaghi R, Nizetic D, de la Torre R, Cohen Kadosh, Herault Y, Dierssen M, Potier MC, Down Syndrome and Other Genetic Developmental Disorders ECNP Network. Translating molecular advances in Down syndrome and Fragile X syndrome into therapies. Eur Neuropsychopharmacol 2018; 28(6): 675-690. IF 4.129. Q1.

Theses

- Manubens L. Computational and modelling approaches to multi-scale anatomical description of neuronal circuitry. Pompeu Fabra University
 - Directors: Dierssen, Mara; García, J.
 - Date of defense: 18/01/2018
- Ortega M. Elucidation of disease-related protein networks underlying Dyrkia triplication and pro-cognitive therapies in the hippocampus. Pompeu Fabra University
 - Directors: Dierssen, Mara; Sabidó, E.
 - Date of defense 23/01/2018

MORE INFO



Genetics

ASSOCIATED GROUP



Group Leader

Luis Alberto Pérez Jurado



Members

Gemma Aznar Laín (Researcher)

Andrés Medrano Muñoz (Researcher)

Montserrat Pujadas Lorente (Researcher)

The UPF Genetics Unit is a multidisciplinary research group associated with IMIM and comprises physicians, biologists, a biostatistician, a psychologist, information scientists and technicians. The group also belongs to the Network Center for Biomedical Research in Rare Diseases (CIBERER). Our research focuses on genomic structural variation and several neurodevelopmental genetic disorders affecting behavior, language and personality, including mutational mechanisms, evolutionary studies, and the use of animal and cellular models of disease. We also coordinate a collaborative program aimed at providing support to the health care system in diagnosing unsolved rare diseases through the use of genomic and personalized medicine. We aim to translate our research findings directly into clinical practice, by improving clinical protocols and diagnostic tools, and developing novel therapies.

Main Publications with IMIM

- Martos-Moreno GÁ, Travieso-Suárez L, Pozo-Román J, Muñoz-Calvo MT, Chowen JA, Frilander MJ, Pérez-Jurado L, Hawkins FG, Argente J. Response to growth hormone in patients with RNPC3 mutations. *EMBO Mol Med* 2018; 10(7): e9143. IF 10.293. D1.
- Iacono G, Mereu E, Guillaumet-Adkins A, Corominas R, Cuscó I, Rodríguez-Esteban G, Gut M, Pérez-Jurado L, Gut I, Heyn H. bigSCale: an analytical framework for big-scale single-cell data. *Genome Res* 2018; 28(6): 878-890. IF 10.101. D1.
- Argente J, Pérez-Jurado L. Genetic causes of proportionate short stature. *Best Pract Res Cl En* 2018; 32(4): 499-522. IF 4.417. Q1.
- Ortiz-Romero P, Borralleras C, Bosch-Morató M, Guiverau B, Albericio G, Muñoz FJ, Pérez-Jurado L, Campuzano V. Epigallocatechin-3-gallate improves cardiac hypertrophy and short-term memory deficits in a Williams-Beuren syndrome mouse model. *PLoS ONE* 2018; 13(3): e0194476. IF 2.766. Q1.

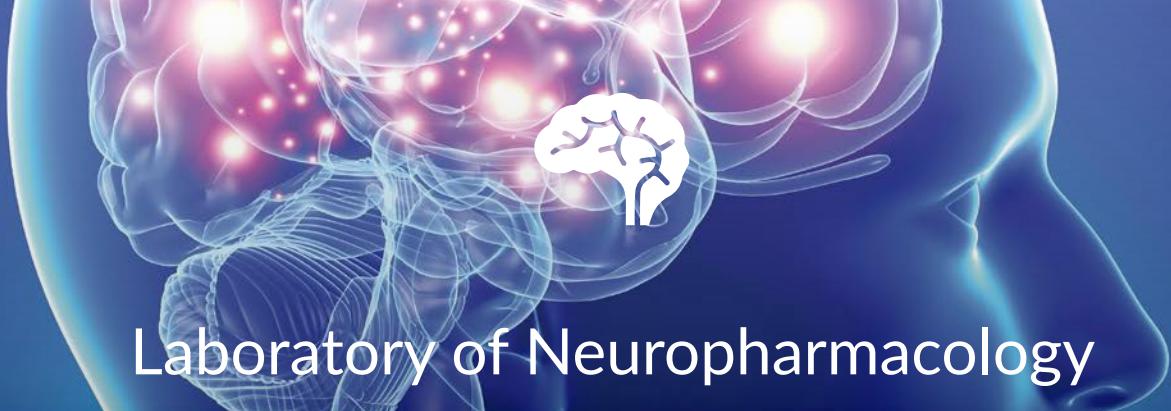
Ongoing Research Projects

- Implementació de la Medicina Personalitzada basada en la Genòmica en Malalties Minoritàries Neurològiques no Diagnosticades. Departament de Salut de la Generalitat de Catalunya (SLT002/16/00174)
 - Period: from 2017 to 2019
 - Principal investigator: Pérez Jurado, Luis Alberto

Theses

- López-Sánchez M. Contribution of unexplored genomic variants to neurodevelopmental disorders. Universitat Pompeu Fabra
 - Director: González, JR, Pérez-Jurado, Luis
 - Date of defense: 05/02/2018

[MORE INFO](#)



Laboratory of Neuropharmacology

ASSOCIATED GROUP



Group Leader

Rafael Maldonado López

rafael.maldonado@upf.edu



Members

Josep Eladi Baños Díez (Researcher)

Andrés Ozaita Mintegui (Researcher)

The Laboratory of Neuropharmacology (NeuroPhar) is a UPF research group associated with the IMIM. NeuroPhar studies the neurobiological substrate of drug addiction, pain, cognitive deficits, affective and eating disorders. The main interest of this research group is the development of research lines aimed at the identification of new therapeutic targets in the central nervous system.

The Laboratory of Neuropharmacology is particularly interested in the involvement of the endogenous opioid and cannabinoid systems in these pathological processes.

Main Publications with IMIM

- Maldonado R, Baños JE, Cabañero D. Usefulness of knockout mice to clarify the role of the opioid system in chronic pain. *Br J Pharmacol* 2018; 175(14): 2791-2808. IF 6.81. D1.
- Gutiérrez-Martos M, Girard B, Mendonça-Netto S, Perroy J, Valjent E, Maldonado R, Martín-Mateo M. Cafeteria diet induces neuroplastic modifications in the nucleus accumbens mediated by microglia activation. *Addict Biol* 2018; 23(2): 735-749. IF 5.578. Q1.
- Manzanares J, Cabañero D, Puente N, García-Gutiérrez MS, Grandes P, Maldonado R. Role of the endocannabinoid system in drug addiction. *Biochem Pharmacol* 2018; 157: 108-121. IF 4.235. Q1.

Ongoing Research Projects with IMIM

- Characterisation of novel suppressors of neurodegeneration in myotonic dystrophy type 1 (DM1)
 - Financing institution: Fundació La Marató TV3 (20143530-31)
 - Period: from 2015 to 2018
 - Principal investigator: Robledo, Patricia
 - Member of the research team: Maldonado, Rafael

Participation in Research Networks

- Complications of stimulant use disorder. Redes temáticas de investigación cooperativa en salud (RETICS)
 - Financing institution: Instituto de Salud Carlos III (RD16/0017/0020) (Red de trastornos adictivos, RTA)
 - Period: from 2017 to 2021
 - Coordinator: Rodríguez de Fonseca, Fernando (Instituto Ibima de Málaga - Hospital Regional Universitario de Málaga)
 - Programme leader: Torrens Marta (IMIM)
 - Principal investigator: Maldonado, Rafael (UPF)

- Medical complications of alcohol use disorder. Redes temáticas de investigación cooperativa en salud (RETICS)
 - Financing institution: Instituto de Salud Carlos III (RD16/0017/0010) (Red de trastornos adictivos, RTA)
 - Period: from 2017 to 2021
 - Coordinator: Rodríguez de Fonseca Fernando (FIMABIS)
 - Programme leader: Rodríguez de Fonseca Fernando (Instituto Ibima de Málaga - Hospital Regional Universitario de Málaga)
 - Principal investigators: Torrens, Marta (IMIM); Maldonado, Rafael (UPF)

Theses

- Kossatz de Mello E. Neuroprotective mechanisms of CB2 cannabinoid receptors and PPAR- α in hypoxia/ischemia-induced brain damage. Pompeu Fabra University
 - Directors: Robledo Montoya, Patricia (IMIM), Maldonado López, Rafael (UPF)
 - Date of defense: 08/06/2018

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Facts and Figures

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CORE FACILITIES



- > Internal Services
- > Common Areas and Laboratories
- > Internal and External Services
- > Other Services

Montserrat Torà Barnadas (head of service)

Magdalena Arnal Segura	Lara Nonell Mazelón
Marta Bódalo Torruella	Eulàlia Puigdecanet Riubugent
Laia Bojar Chicharro	Eulàlia Puigmartí Pich
Miquel Clarós Jorge	Rebeca Rueda Miret
Xavier Duran Jordà	Lidia Ruiz Moya
Montserrat Hidalgo Salgado	Núria Somoza Abelló
Piedad Navarro Moya	

The Scientific and Technical Services (SCT) are a variety of services created with the objective of providing researchers with both scientific and technical support and the infrastructure necessary to carry out experimental research. Each service has a specific highly qualified staff responsible of daily functioning and scientific advisement under a SCT unique general manager that is in charge of coordination and organization.

The services offered are based on:

- Scientific consulting and advisement
- Common laboratories and experimental areas with specific legal and technical requirements
- Highly technological equipment for biomedical research

Services are organized under three main areas:

- Internal Services
- Common Areas and Laboratories
- Internal and External Services

Scientific and Technical Services have the Quality Management System Certification under ISO 9001:2015.

Besides using its Scientific and Technical Services (SCT), IMIM researchers can also have access to those belonging to the CRG and the UPF, located in the same building of the PRBB. These SCT add to and complement the services already available, covering fields such as Genomics, Proteomics, Cytometry and Microscopy.

Internal Services



Consulting Service on Methodology for Biomedical Research

The objective of the Consulting Service on Methodology for Biomedical Research (AMIB) is to offer support on methodology and statistics applied to biomedical research to investigators of Parc de Salut Mar (PSMAR) health care centers and IMIM.

The services offered are:

- Consultation regarding protocol design
- Sample size estimation
- Creation of randomization lists
- Design, management and quality control of data bases
- Statistical analysis
- Report writing
- Consulting on presentations and publications

Activity

Centre	n	%
IMIM (PSMAR)	464	72%
PSMAR (no IMIM)	180	28%
Total	644	100%

Consultation by IMIM research programme 2018

Research programme	n	%
Cancer	150	32%
Epidemiology and Public Health	25	5%
Neurosciences	29	6%
Inflammatory and Cardiovascular Disorders	260	56%
Total	464	100%

Consultations by PSMAR centre 2018

Programme	n	%
Centre Fòrum Hospital del Mar	5	3%
CAEM	7	4%
Institut de Neuropsiquiatria i Addiccions	9	5%
Hospital de l'Esperança	49	27%
Hospital del Mar	110	61%
Total	180	100%

Publications

- Curto-Barredo L, Spertino J, Figueras-Nart I, Expósito-Serrano V, Guilabert A, Melé-Ninot G, Cubiró X, Bonfill-Ortí M, Garcias-Ladaria J, Villar M, García-Navarro X, Bielsa-Marsol I, Vilavella M, Aparicio G, Baliu-Piqué C, Álvarez A, Lamas-Domenech N, Duran-Jordà X, Serra-Baldrich E, Giménez-Arnau A. Omalizumab updosing allows disease activity control in patients with refractory chronic spontaneous urticaria. Br J Dermatol. 2018 Jul;179(1):210-212. IF 6.129. Q1
- Palanca A, Castelblanco E, Perpiñán H, Betriu À, Soldevila B, Valdivielso JM, Bermúdez M, Duran X, Fernández E, Puig-Domingo M, Groop PH, Alonso N, Mauricio D. Prevalence and progression of subclinical atherosclerosis in patients with chronic kidney disease and diabetes. Atherosclerosis. 2018;276:50-57. IF 4.467. Q1
- Vallecillo G, Robles MJ, Durán X, Lerma E, Horcajada JP, Torrens M. Trends in AIDS Mortality, Retention in Opioid Agonist Therapy, and HIV RNA Suppression in HIV-Infected People Who Injected Drugs from 2000 to 2015. AIDS Behav. 2018; 22(9):2766-2772. IF 3.017. Q1
- Dalfó-Pibernat A, Dalfó Baqué A, Pelegrina Rodríguez FJ, Garin O, Duran X, Cladellas Capdevila M, Comín Colet J. Improving ambulatory blood pressure monitoring knowledge in nurses and doctors: impact of a training intervention. Eur J Cardiovasc Nurs. 2018;17(8):742-750. IF 2.651. Q1

Freezers and Cryopreservation

This service is dedicated to the maintenance and supervision of the centralized -20°C and -80°C large freezers area as well as the liquid nitrogen area.

Services

- Monitoring of the process of supplying liquid nitrogen to the tanks
- Monitoring of the process of refilling the nitrogen tanks
- Process of supplying liquid nitrogen to portable containers
- Monitoring of proper freezer operation with a system of alarms connected to the IMIM Maintenance Service
- Assignment of space in the -80°C freezers and LN2 containers
- Temperature control of all refrigeration units and issuing of reports
- Storage and distribution of dry ice
- Technical support and scientific consultancy and advisement

Equipment

- 64 freezers of -80°C ultra-low temperature
- 4 temperature-controlled rooms (Temp and O₂ control in one room)
- 3 chambers of -20°C
- 4 chambers of 4°C
- 3 combined refrigerator/freezers (double sensor)
- 3 refrigerators
- 8 freezers of -20°C

All the equipment has sensors to monitor the different parameters of the units.

Every week, the temperature records are sent to the different research groups that use the equipment. A total of 12 new requests for cryopreservation space were processed in 2018.

Cell Culture Service

Services

- Preparation of cell culture media on demand. A total of 1,847 culture media were prepared under request.
- Mycoplasma test. A total of 269 applications for the mycoplasma test were received.

Cell line maintenance service

The bank has more than 140 tumor and normal cell lines, kept frozen in liquid nitrogen. The service includes maintenance of cell lines, replacement of stocks and distribution of frozen vials to internal users under request.

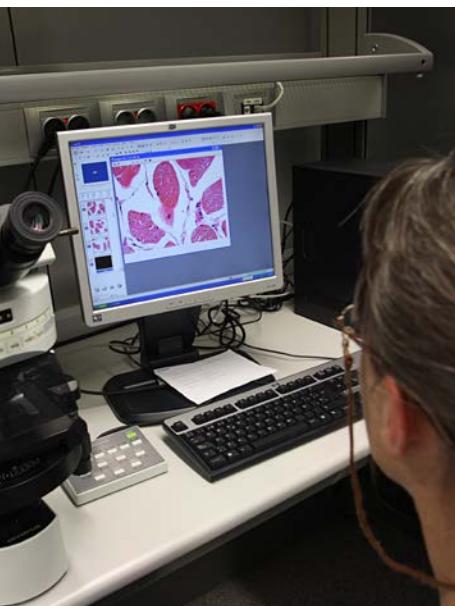
Number of requests in 2018: 97

Sterilization and Cleaning

The Sterilization and Cleaning Service provides support for the research laboratories in keeping the facilities clean (lab tables, fume-cupboard glass, cabinets), as well as taking care of fungible material.

The service carries out daily sterilization controls and all records and reports are filed for examination.

Common Areas and Laboratories



Histology

The Histology Area consists of a laboratory with the necessary infrastructure for processing tissues.

Equipment

- Leica Cryostat Microtome
- Paraffin microtome
- Dual view optical microscope
- ZEISS optical microscope
- Selecta oven up to 200°C
- Leika paraffin dispenser
- Myr paraffin-block dispenser
- Cooling and heating plates
- Heating baths
- Refrigerator

Microscopy

The Microscopy Area consists of two different areas:

Microscopy Room

- 2 Fluorescence Microscopes (Microscopy BX61 Olympus and Motorized Microscopy Nikon Eclipse Ni-E), equipped with a system for recording digital images
- 1 Dual-view optical microscope

Transmission Electron Microscopy

The service is offered only under collaboration or self-service for staff instructed in their use and functioning:

- Advisement in preparation of samples for their study with the electron microscope
- Observation and study of samples with the electron microscope
- Electronic micrographs (analog and digital photography reprints) taken from the samples
- Interpretation of the electron micrographs and results obtained from the study samples

The types of samples suitable for study (always from human or animal tissue samples) are the following: culture of cells processed using the mono-layer or roll procedure; samples from any human or animal organ or tissue, including blood, multiple fluids with cells and cilia samples; and microbiological samples in tissues or microbiological samples coming from cultures.

Radioactive Facilities

The Scientific and Technical Services of IMIM have a radioactive facility of category 2, IRA - 1936 (IR-B/360/92). The authorization was granted on September 21, 1993 by the Department of Industry and Energy of the Government of Catalonia.

It consists of a controlled access laboratory equipped with the necessary tools and equipment to carry on radioactive experimental procedures and supplied with the protective gear needed for the safe handling and storage of radioactive isotopes.

Culture Rooms and P2

The IMIM cell-culture area provides users with all the infrastructure and equipment necessary for culturing mammalian cells, and works with virus and MGO.

Internal and External Services



Microarray Analysis Service

The Microarray Analysis Service (SAM), with the AffymetrixGeneChip® research and diagnostics platform, offers an integrated service for cytogenetic, genomic and transcriptomic studies. The experimental services offered are the sample quality, quantification and microarray processing. Experimental design consultancy, statistical data analysis and orientation to its biological interpretation with specific tools are also included.

Arrays of human, mouse and other species are available.

Applications

- Discovery of biomarkers involved in biological processes
- Gene expression profile studies
- Detection of genes and pathways involved in diseases and pharmacological treatments
- Pharmacogenomics and toxicogenomics studies
- Alternative splicing detection
- Dose-effect studies
- Classification of samples based on gene signatures
- Predictive models associated with genes
- miRNA analysis
- Microarray analysis of degraded samples (ex: FFPE) and low quantity samples (from 500pg of total RNA)

Equipment

- Affymetrix Research Platform: GCS3000 with autoloader
- Agilent Bioanalyzer 2100
- NanoDrop 2000 Spectrophotometer
- GeneAmp PCR System 9700 (gold block) Thermocycler
- Qubit Fluorometer
- Proflex Thermocycler
- 2720 GeneAmp PCR System

Activity

Technical procedures	Number
Genomic arrays	65
Expression arrays	286
Quality samples	195

The services carried out correspond to the following centers:

Centers	Projects	Percentage
IMIM	20	42%
PRBB (no IMIM)	4	8%
External centers	24	50%
Total	48	100%

The Microarray Analysis Service is subscribed to the European Microarray Quality Control Programme, organized by the CEQA (Cytogenetic European Quality Assessment).

Publications

- Pascual-Reguant L, Blanco E, Galán S, Le Dily F, Cuartero Y, Serra-Bardenys G, et al. Lamin B1 mapping reveals the existence of dynamic and functional euchromatin lamin B1 domains. Nat Commun. 2018;9(1):3420. IF:12.353. Q1

Participation in projects

- Regulación epigenética de la función inflamatoria del componente epitelial en la progresión metastática del carcinoma escamoso cutáneo (CEC). FIS (PI15/00236). 2016-2019. Principal investigators: Agustí toll, Inmaculada Hernández.
- Validación clínica y mecanismos de acción de las alteraciones moleculares con valor predictivo de progresión en el cáncer de próstata: algoritmo molecular de la carcinogénesis prostática. FIS (PI16PI15/00452). 2016-2019. Principal investigator: Josep Lloreta.
- Desarrollo y validación de un panel de secuenciación para translocaciones y mutaciones con relevancia clínica en neoplasias de células B maduras. FIS (PI15/00437). 2016-2020. Principal investigator: Blanca Espinet.

- Micro-RNA as a novel biomarker of cardiovascular fibrosis in patients with degenerative aortic stenosis. Marató (201519 10). 2016-2019. Principal investigator: Begoña Benito.
- Ajuts per donar suport a les activitats dels grups de recerca (SGR) Grup de Recerca Traslacional en Neoplàsies Hematològiques (GRETNHE) (SGR 437). 2017-2020. Principal investigator: Blanca Espinet.
- Influencia de las concentraciones de compuestos tóxicos persistentes sobre la mortalidad, la incidencia de trastornos crónicos y la expresión de miARN en población general. FIS (PI17/00088). 2018-2020. Principal investigator: Miquel Porta.

Funding

- Grants for Technical Support Personnel Contracts. MINECO (PTA2014-09119-I). 2015-2019.
- Grants for the promotion of “empleo joven e implantación de la Garantía Juvenil”: Implementation of new protocols for difficult samples and microarray data analysis. MINECO (PEJ-2014-A-15816). 2015-2017.

BIOBANC MARBiobanc

The biobank of the Parc de Salut Mar (MARBiobanc) is a public, non-for-profit facility which stores various collections of biological samples available to the whole scientific community. It is organized as a technical unit with regards to quality, order and destination.

It has restricted access facilities which are equipped with the security control mechanisms necessary to ensure the correct storage of the biological samples, their confidentiality and their traceability in accordance with all the Spanish ethical and legal regulations.

The Biobank Service is certified by AENOR to ISO 9001:2015.

Available human biospecimen collections

- DNA bank for cardiovascular diseases
- Cerebral infarction (ictus) sample bank
- FORTIAM, acute myocardial infarction sample collection
- DNA bank for oncological diseases
- Bank of samples from influenza A (H1N1) patients
- Bank of lung disease samples (Lung Biobank Platform)

- Hematological malignancies bank
- Left over diagnose sample bank
- Cryopreserved tumour bank
- Collection Alzheimer and families (Alfa Study)
- ERyME: Sample collection from patients with rheumatic or muscle-skeletal disease
- GLOSEN: Glomerular diseases sample collection
- Colorectal cancer

Two new collections were incorporated:

- Plasma and serum samples (liquid biopsy) collection from patients with solid and haematological neoplasms
- Tumoroids collection from human colorectal cancer

Research line collections

- Three new research line collections have been added to the Biobank facility to be managed under biobank standards.

Activity

Parameter	2018
Number of requests	85
Samples approved	4,657

There were 17 active services in 2018.

There were 7,276 new donors in 2018.

The Biobank is subscribed to the Biobanks European Quality Control Program, organized by the IBBL (Integrated Biobank of Luxembourg).

MARBiobanc is the first biobank in Spain to implement an evaluation as a way of controlling samples transferred to clinical trials and their future uses.

In addition, MARBiobanc reviews all the agreements with the pharmaceutical industry to prevent surpluses being used for unspecified research. This special and urgent evaluation system guarantees the necessary speed and control of samples used in clinical trials.

The Reference Laboratory of Catalonia (Laboratori de Referència de Catalunya-LCR) has been included in the MARBiobanc as a new node. This new node includes all residual samples obtained at the phlebotomy department.

Funding

- New concession of the Biobanks Platform. Instituto de Salud Carlos III/FEDER (PT17/0015/0011). (2018-2020).

Dissemination

- 12 MARbiobanc dissemination sessions, including Openday and student visits.
- MARBiobanc Website. This website has been operational since June 2016. The website received a total of 1,472 visits from January to December 2018, with 879 new users. The pages most visited are in the Spanish language, followed by English.
- Creation the new BioBank Instagram channel (6-10-2018)

Publications 2018 with MARBiobanc samples

A total of 10 publications and a doctoral thesis have been done with samples obtained from MARBiobanc.

Microdissector Laser (microscopy area)

The ArcturusXT™ microdissection system offers a combination of infrared (IR) laser capture using standard slides, or a combination of both infrared and ultraviolet (IR and UV) laser, using polyethylene naphthalate (PEN) membrane slides laser enabled.

The instrument has a proprietary combination of a gentle IR laser and a powerful UV laser that work in conjunction to efficiently isolate cells without changing morphology or integrity of the biological content. The IR laser helps to capture the cells of interest, and the UV laser microdissects the captured cells. This is done without affecting the morphology of the cells, and allows for visual inspection of the remaining specimen to help ensure the quality of the sample collected. A wide-slide stage format is available for neurobiology researchers working with very large sections of brain tissue. The petri dish stage insert has opened the door for live-cell microdissection applications such as stem cell research and other rare-cell isolations.

The LCM technique can be used on formalin-fixed, paraffin-embedded (FFPE) sections, allowing the use of archival pathological material. In addition, frozen sections of tissue and cytological specimens are also suitable for laser microdissection. The technique causes no apparent alteration to the morphology of the chosen cells, which can be directly visualized after microdissection.

Key features

- Dual laser system-enables a wide range of applications ranging from single-cell isolation to large biopsy extractions.
- IR laser capture microdissection preserves morphology of isolated samples and integrity of biological material for downstream applications.
- Software enables rapid isolation of specific cells in five simple steps, provides quality control feature that allows users to visualize collected sample.
- Flexible sample prep-wide range of slide types and sample preparation formats supported.

Other Services



Animal Facility (PRBB)

The PRBB animal facility is one of the most complex and robotized installations of its kind in Europe and is fully accredited by AAALAC, the International Association for Assessment and Accreditation of Laboratory Animal Care. This is the maximum international certification and implies an acknowledgement of the quality of the operation of the facility which translates into better practices and research results. The main animal models are zebrafish and mice, but it is also possible to use rats, hamsters, rabbits, frogs and axolots.

The animal facility covers 4,500 m² with six independent units, which are connected and run under a single management:

- The aquatic animal area (zebrafish and xenopus)
- The specific pathogen germ free (SPF) barrier zone for rodents, with modern auto-ventilated microisolators and three support laboratories
- A transgenesis area with large laboratories (250 m²) for the production of genetically modified mice
- The experimental area with laboratories, surgery rooms and an irradiator
- The quarantine area with its own access changing rooms and embryonic transfer re-derivation laboratory
- A conventional animal facility, located at an adjacent building, which is connected via a tunnel with the PRBB, and has a surface area of 1,300 m², mainly for studies with animal models in neuropharmacology and immunology

The number of Animal Facility users in 2018 was 412.

The Ethical Committee for Animal Research (in USA, IACUC-Institutional Animal Care and Use Committee) conducted 9 meetings where 44 projects were evaluated (6 from IMIM). These projects include 92 experimental procedures (16 from IMIM).

Clinical Research Unit (IMIM)

The Clinical Research Unit has 12 beds and capacity to run different studies at the same time. The equipment is especially well suited for phase I clinical trials in drug development, for bioequivalence studies or for nutritional interventions. The studies are performed in accordance with the Good Clinical Practice (GCP) standards. It is accredited by the Government of Catalonia.

The Drug Research Ethical Committee (CEIm-Parc de Salut Mar) evaluates the study protocols in accordance with Spanish and European regulations. The Committee has two regular meetings every month. It is accredited by the Government of Catalonia and the Spanish Medicines Agency.

Available services

- Clinical trials in phase I and phase II
- Clinical trials of efficacy and tolerability
- Evaluation of the potential abuse of new drugs
- Psychopharmacology and behavioral pharmacology
- Methodological advice for clinical trial protocols
- Pharmacokinetic studies:
 - Bioavailability, including bioequivalence studies of generics
 - Metabolism and identification of metabolites

Health-Related Quality of Life Questionnaires

BiblioPRO is a virtual library of Quality of Life Questionnaires and other Patient Reported Outcomes (PROs) in Spanish with free and open access.

The mission of our project is to promote the adequate use of HRQL instruments in Spanish among researchers, clinicians and health management, by providing exhaustive online information, evidence-based evaluations, and specialized training in this area.

The library currently holds information on 2,026 questionnaires and is updated periodically.

BiblioPRO is a CIBER in epidemiology and public health Research and Knowledge Transfer Support Action, initiated, directed and coordinated by the Health Services Research Unit of the IMIM (Hospital del Mar Medical Research Institute), with the IMIM Foundation support.

RESEARCH ACTIVITY



- > Scientific Publications
- > Research Grants and Transfer of Results
- > Clinical Guidelines
- > Committees



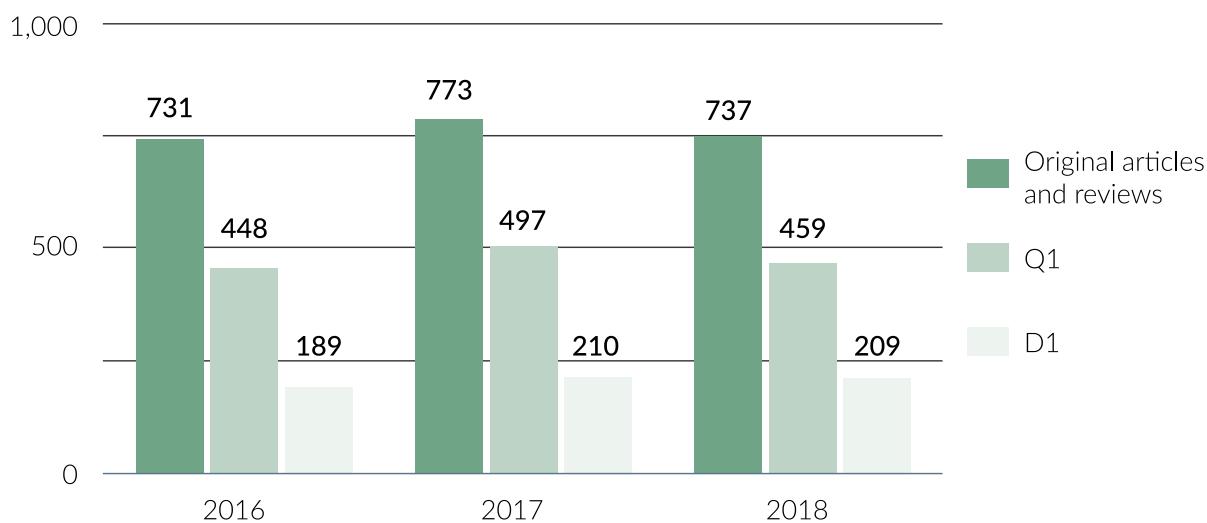
Scientific Publications

The good results of previous years were maintained in 2018, with nearly 90% of articles published in impact journals and more than 60% in publications in the first quartile.

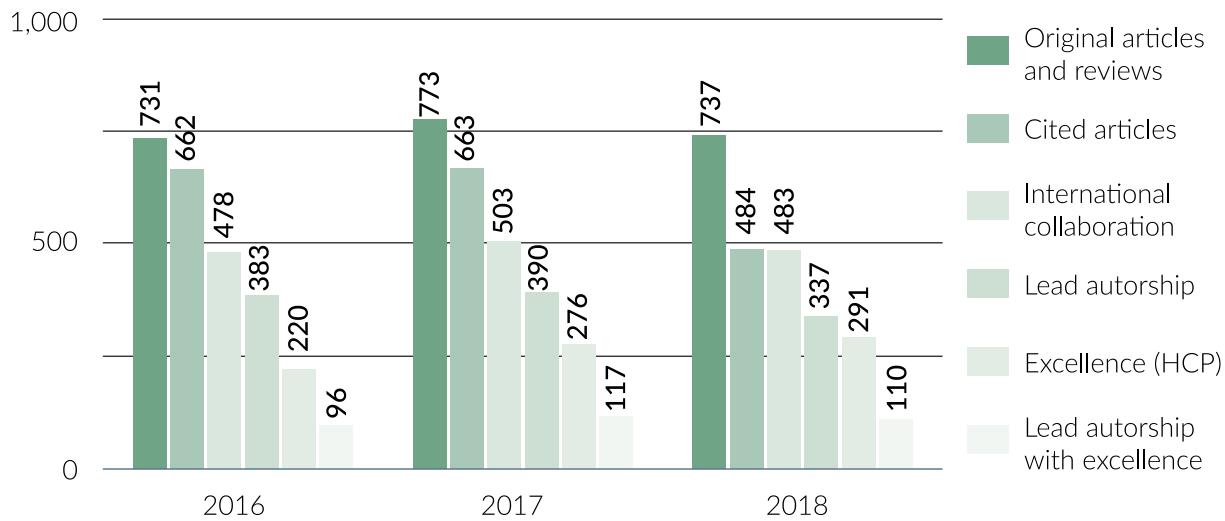
Nearly 40% of the original articles and reviews are in the 10% of most highly cited papers in the world in their category (Highly Cited Papers). Furthermore, 43% of articles are open-access.

The data are taken from the IMIM database, Web of Science and Journal Citation Reports. Only original articles and reviews have been included.

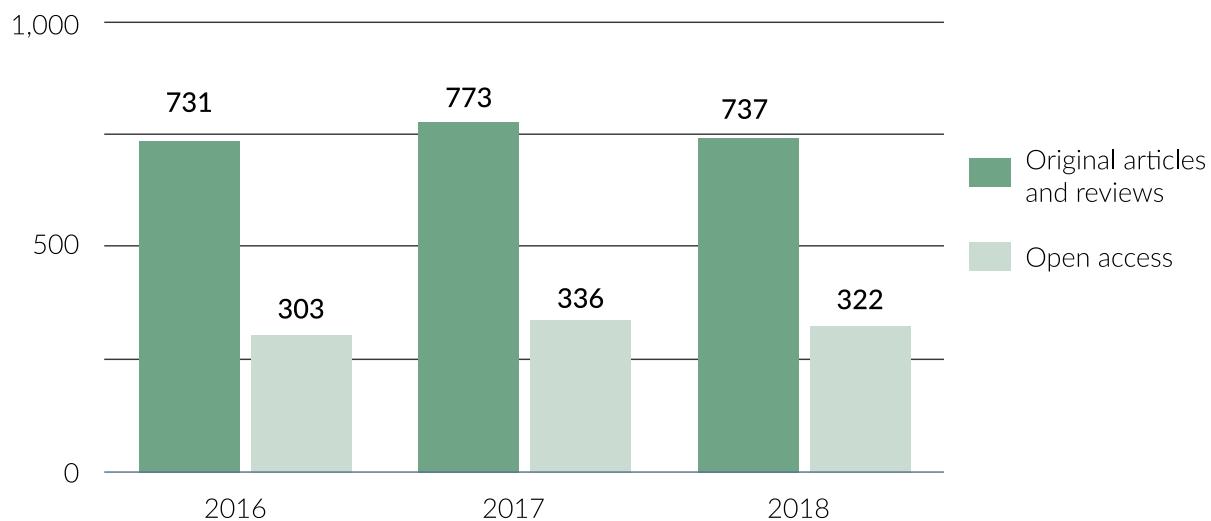
Articles in 1st Quartile and 1st Decile



Other Impact Indicators



Open access



Research Grants and Transfer of Results



IMIM has presented during 2018 (up to 15 November) a total of 389 applications for grants for research, of which 79 are still pending resolution.

In relation to contracts with private companies, it is worth highlighting that a total of 104 contracts have been signed for the execution of services or for sponsorship and 129 contracts for the conducting of clinical trials for a global sum of over ten million euros.

Grants for Projects

With respect to the competitive calls from the Ministry of the Economy and Competitiveness (MINECO) on Challenges and Knowledge Generation, four proposals were presented and are currently pending resolution.

Eighteen projects were successful from the 49 presented for the Call for Health Research Projects by the Carlos III Health Institute (ISCIII), which represents a success rate of 37%, a percentage higher than the Spanish average.

A total of 36 groups have been recognised in the AGUAR Grants for supporting the activities of Research Groups, of which 14 additionally have funding.

In 2018, the Ministry of Health of the Generalitat of Catalonia resolved the second call for grants for research in Health as part of the Strategic Plan for Health Research and Innovation (PERIS), with the obtaining of: two proposals for Intensification of nursing professionals, four for the incorporation of technologists and scientists, and six research projects oriented towards research in mental health (one of them coordinated from the centre).

With regard to international projects, there was approval of a grant from DG Justice, and two H2020 projects are under negotiation, as well as a CLIP project and one from the Alzheimer's Association of nearly 1 million dollars.

Staff grants

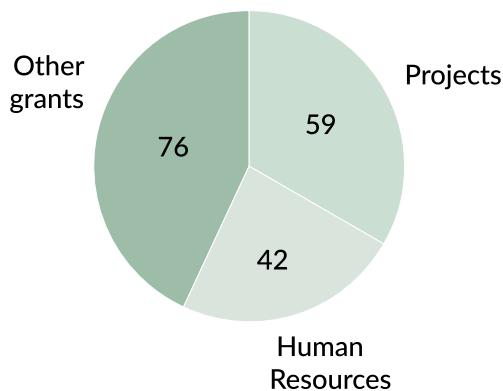
Two pre-doctoral candidates have been incorporated for "Grants for contracts for the Training of University Teaching Staff (FPU)", two predoctoral candidates for "Grants for the hiring of new research personnel (FI) from AGAUR, and two "Grants for pre-doctoral contracts for the training of doctors 2018" (FPI) from the State Research Agency (AEI).

With respect to ISCIII human resources calls, the staff funded were: one intensification, four Rio Hortega post-residency grants, two Sara Borrell post-doctoral grants, two PFIS pre-doctoral grants plus one Bioinformatics technician and one Management technician at the IIS.

In relation to the grants called by the IMIM assignable to the Programme Contract, three Jordi Gras grants were awarded for training in research for doctors who completed their residency in 2018. The grant for training at foreign research centres for specialist medical staff of the Parc de Salut Mar was awarded to four professionals.

Figure 1 below presents the grants achieved broken down by areas:

Figure 1- Grants awarded in the year 2018 by areas



Transfer of Results

There has been one registration through a notarial act for intellectual property and also a utility model, with 2 patents entering in the national phase and 2 addendums to licence agreements were signed that made them exclusive.

The initiative was maintained of the Innovation Clubs, an interdisciplinary meeting space that once a month brings together staff from the institution interested in innovation with the aim of finding out about new experiences and seeking synergies.

One of our spin-off enterprises, Chemotargets, has achieved a capital increase due to the inclusion of Prous. The aim of this inclusion is to improve the Chemotargets commercialisation strategy.

Our innovation funnel now contains: 17 new ideas, 5 innovations in the analysis phase, 18 in development, 9 in the transfer phase and 23 technologies in the marketplace or already implemented. Work has been done at the Hospital del Mar on the strategic plan in innovation.

In May 2018, re-accreditation was achieved for the UNE 166.002 standard which defines the requirements that must be met by a management system for RDI.

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Committees



Drug Research Ethical Committee

The Drug Research Ethical Committee (CEIm) of Parc de Salut Mar was created and accredited on November 11, 1993 by the General Management of Health Resources of the Autonomous Government of Catalonia, in accordance with the "Ordinance dated October 26, 1992".

Subsequently we were reaccredited on 19 December 2008 via the Order dated 24 October, 2006; and again on 27 October 2014. Accredited as a CEIm on February 7, 2018.

The principal duties of CEIC-Parc de Salut Mar, which are regulated by current legislation and approved by the Administrative Council of Parc de Salut Mar, are as follows:

- To evaluate the suitability of study protocols with regard to the objectives of studies, their scientific efficiency and the justification of the foreseeable risks weighed against the expected benefits for research subjects and society (risk/benefit ratio).
- To evaluate the suitability of the research team with regards to its experience and capacity to carry out the study.
- Clinical care requirements and commitments previously made to other research protocols are taken into consideration.
- To evaluate written study information to be given to participating research subjects (or to their legal representatives).
- To evaluate the procedure by which such information will be given and the type of consent to be obtained.
- To check the compensation and treatment being offered to research subjects in case of injury or death resulting from the study and to verify liability insurance to cover the funding agency, researchers, collaborators and the individual responsible at the center where the research is to be carried out.
- To be aware of and to evaluate the compensation to the study researchers and compensation to the subjects for their participation in the study.
- To monitor studies from the time of their inception and to follow them up until completion of the final report.

List of studies evaluated in 2018, classified by type

Clinical trials with drugs	49
Food and supplement clinical trials	2
Radiation therapy clinical trials	0
Clinical testing of cosmetics and personal care products	0
Clinical trials for medical devices	4
Post-authorisation studies	28
Observational studies	26
Research projects	294
Academic studies	26
Studies in pharmacogenetics and pharmacogenomics	15
Total	444

Committee for Research Integrity and Good Scientific Practice

The Committee for Research Integrity (CRI) of the IMIM was constituted by the Scientific Management of the institutions to act at the complete service of researchers and the scientific community, with the interest of giving support to the quality of research and contributing to its integrity.

Its specific functions are:

- To provide information and raise awareness with regard to events, necessities and orientations related to research integrity and good scientific practices in biomedical research.
- To promote and ensure that IMIM researchers and research support personnel receive appropriate training in best scientific practices to guarantee good scientific practices and integrity in the research developed at the IMIM.
- To implement procedures and investigate potential cases of research integrity misconduct.

In relation to the functions mentioned above, the Committee will guarantee, by all means, its own managerial diligence, independence of action, anonymity, and confidentiality in the processing of personal data, solvency of the information generated, impartiality in the deliberation process and equity of resolutions as well as possible allegations.

This Committee will form part and will work in alignment with the CRI of the Barcelona Biomedical Research Park (PRBB). The functions of the CRI of the PRBB are:

- To supervise the general, constant, and complete fulfilment of the guidelines of the Code of Good Scientific Practice at the PRBB's centers.
- To act as an arbitration body for doubts or disputes that may arise in relation to research integrity matters. Its decisions are binding for those researchers submitting their disputes to the CIR.
- To provide information and continuously raise awareness with regard to events, necessities and orientations related to the ethical and deontological aspects of biomedical research. The Committee has the commitment to request from the Governing Bodies of the Centers those resources and measures that will contribute to the development of this function.
- To be receptive to new problems related to research integrity, to propose their discussion to our institutions and, consequently, to update the Code of Good Scientific Practice as needed.

Ethical Committee for Animal Research

The PRBB has an Ethical Committee for Animal Research (CEEA-PRBB) which evaluates project procedures using experimental animals. It takes into account the appropriateness of the procedure in relation to the objectives of the study, the possibility of reaching valid conclusions with the fewest animals, the effect on the animals not being disproportionate to the potential benefits of the research, and, in short, the avoidance of unnecessary suffering, as well as considering the possibility of alternative methods to the use of animals. That is the internationally accepted 3R rule (Reduction, Refinement and Replacement).

The Ethical Committee for Animal Research (in USA, IACUC- Institutional Animal Care and Use Committee) conducted 9 meetings where 44 projects were evaluated. These projects include 92 experimental procedures.

Center	n	%
PRBB	5	5.43%
UPF	36	39.14%
CRG	31	33.69%
IMIM	16	17.39%
External centers	4	4.35%
Total	92	100%

During the meetings scientific articles and new ways of controlling and improving animal welfare to adapt to the new legislation on animal experimentation have been discussed.

Also comments, recommendations or amendments done by the Government of Catalonia's Animal Experimentation Ethics Committee (CEEA) were included in each meeting.

The CEEA also carried out their traditional inspection of the animal facility, which is a quality requirement recommended both by the AAALAC (Association for Assessment and Accreditation of Laboratory Animal Care International) and current legislation.

PRBB Animal Facility Users' Committee

The Animal Facility Users' Committee at the Barcelona Biomedical Research Park (CUA-PRBB) is an advisory committee external to the animal facility that reports directly to the PRBB management. The committee's main objective is as a forum to provide information and debate the most important issues affecting the animal facility.

Its functions are:

- To remain informed and be aware of the content of animal facility's annual report.
- To raise any problems identified in the overall functioning of the animal facility as well as to discuss and propose new solutions.
- To discuss processes and operating procedures at the animal facility and make suggestions as to how to improve them.
- To propose functional or procedural solutions for extraordinary action within the animal facility that may involve modifications from the normal routine, such as building work, repairs, supply cuts, reviews, extraordinary maintenance, etc.
- To make suggestions for improving the facilities, including the purchase or replacement of equipment, and to prioritize these purchases.
- To take part, when appropriate, in the preparation of applications for equipment grants or funds for provisioning the animal facility.
- To participate in the development of satisfaction surveys.
- To collaborate in the evaluation and assessment of these surveys.

The Animal Facility Users' Committee (CUA-PRBB) conducted two meetings during 2018 in order to address the various issues affecting the functioning of the animal facility, to solve problems and consider proposals from researchers in the field of animal experimentation.

Barcelona Biomedical Research Park Biosafety Committee

The Barcelona Biomedical Research Park Biosafety Committee (CBS-PRBB) was set up with the aim of regulating and supervising the activities using GMOs (Genetically Modified Organisms) that take place around the PRBB, as set out in Law 9/2003 of 25 April, establishing the legal regime for the confined use, voluntary release and commercialization of genetically modified organisms, and considering the general norms for their development and implementation (Royal Decree 178 / 5004, 30 January).

The main objective of the CBS-PRBB is the biosafety evaluation of scientific projects using GMO, biological and chemical agents with a complex or important biological effect according to current biosafety legislation.

The Biosafety Committee (CBS-PRBB) evaluated 7 projects during 2018. Among other activities, it collaborated with the Inter-institutional Commission on Prevention of Occupational Risks (CIPRL) in reviewing a document on the transport of biological samples in order to implement this throughout the PRBB.

Inter-institutional Commission on Prevention of Occupational Risks at the Barcelona Biomedical Research Park (CIPRL-PRBB)

The Inter-institutional Commission on Prevention of Occupational Risks at the Barcelona Biomedical Research Park (CIPRL-PRBB) was created in application of Article 24 of Law 31/1995 of 8 November, on the Prevention of Occupational Risks, in matters of the coordination of business activities to channel the exchange of preventive information between the companies involved and the joint establishment of preventive measures, procedures and action protocols at the Barcelona Biomedical Research Park.

Its purpose is to give support to the management by the health and safety of the personnel existing at the building.

This Commission is the legacy of the Inter-institutional Prevention Group for the Coordination of Preventive Activity at the Barcelona Biomedical Research Park (GPIPRBB) which was created on 8 January 2008 by specialists in prevention.

The tasks performed are diverse, and include:

- Information campaigns featuring the “Previ” mascot as a joint image for the Prevention of Occupational Risks in the building.
- Joint publications in different Journals, participations with oral presentations and posters at Congresses in the prevention sphere, publication of Manuals on preventive information in the sphere of biomedical research, participation in the PRBB Open Doors Day with a range of Workshops, etc.

- Awards: The Ignasi Fina Occupational Health Award 2010 (April 2010), Occupational Health Advisory Council of Barcelona City Council, and runner-up at the 6th Atlante awards, in the modality of large company and the category of initiatives for awareness-raising, information and/or training (November 2012), Foment del Treball Nacional.

During 2018, the CIPRL-PRBB held six coordination meetings, with the aim of promoting coordination between all the institutions resident in the building, that participate in biomedical research activity.

The most prominent questions were: the review of the Procedure for the Transfer of Biological Samples, the coordination of business activities with the Animal Supply Facility and the Awareness-Raising Campaign for 2018-2019 with the redesigning of our mascot (PREVI version 2.0.) and the preparation of the ORP 2019 international congress on Occupational Risk Prevention.

Each meeting also includes comments and recommendations to be taken into account, and the sharing of everyday issues: emergencies, accidents, incidents, etc.

The Commission also coordinates with the Biosafety Committee of the PRBB (CBS) in order to develop a joint approach to different issues.

MANAGEMENT



- > Management Structure
- > Income
- > Human Resources
- > Communication
- > Governing Bodies

Management Structure

The mission of the Management Division is to provide administrative and logistic support to the researchers at IMIM.

Manager

Andreu Fort Robert

Director of Management

Balbina Ugena Villalobos

Management Secretary

Pilar Sánchez Macías

Purchasing

Concepción León Pérez (head of service), M. Aranzazu Bernal Ybarra (since 28/11/2018), Laura Erruz Peregrina, Laia Orpinell Ros

Accounts

Marta Mestres Mestres (head of service), Ana Godall Peralta, Rosa Gras López, Noemí Morín Rodríguez (since 03/04/2018)

Communication/Reception

Rosa Manaut Dueñas (head of service), Ana Benzal Jurado (reception) (until 03/05/2018), Marta Calsina Freixas (communication), M. Inmaculada Colom Mesquida (reception), M. Carmen de la Bella Toledano (reception)

Quality

Xavier Palazón Vilarrasa (head of service), Montserrat Salguero Pulido

Research

Marta López Otero (head of service), Carol Barnwell, Mercedes Bayo Romero, Marta del Olmo Zurriaga (since 12/02/2018), Elisenda Fité Collet (since 30/01/2018), Teresa Macià Úbeda, Sergio Sanz Ruiz, Anaí Villanueva Delgado (since 22/10/2018)

Human Resources

Balbina Ugena Villalobos (head of service), Anna Maria Adell Vallhonesta, Georgiana Anghelache, Miriam Martínez Romero (since 21/11/2018), Laia Rabal de Andrés, Sergio Roque Bretones (until 06/05/2018), Diana Sebastián Guillart

Health and Safety

Sandra Vial Mora (head of service)

IT Resources

Joan Marc Carbó Arnau (head of service), Josep Manel Andrés Moscardó (until 31/01/2018), Xavier Durán Sans (since 13/06/2018), Pau Espinàs Romero (since 03/09/2018), Max Fusté Valls, Iván Martínez Campos, Alfonso Ming Cazorla (until 30/11/2018)

Legal Consultancy and Contracting

Andreu Fort Robert (head of service), Aida Pérez González, Vanessa Puig Suárez, Marta Rabal de Andrés

General Services

Patxi Fernández Navarro (head of service)

Income

The incomes of the competitive projects have suffered a decrease, the main cause has been in those corresponding to the European projects.

In relation to the other external funds, there has been an increase in the billing of clinical trials, which is compensated by lower charity fees and the doping service activity.

Total external funding	2018	2017
Competitive Grants	6,852.93	43.48%
European Commission	250.14	1.59%
International	362.38	2.30%
National	6,240.41	39.59%
Other External Funding	8,909.31	56.52%
Research services	6,332.75	40.18%
Other services	1,866.03	11.84%
Charity	710.53	4.51%
Total	15,762.24	100%
		17,322.34
		100%

Human Resources

Programme	Resear-chers	PhD Students	Tech-nicians	Support/Research assistants	Total
Biomedical Informatics	13	3	6	3	25
Cancer	84	13	52	2	151
Epidemiology and Public Health	65	11	32	15	123
Inflammatory and Cardiovascular Disorders	123	5	47	3	178
Neurosciences	84	4	53	5	146
Management				42	42
Scientific and Technical Services			12	3	15
Total	369	36	202	73	680

Communication

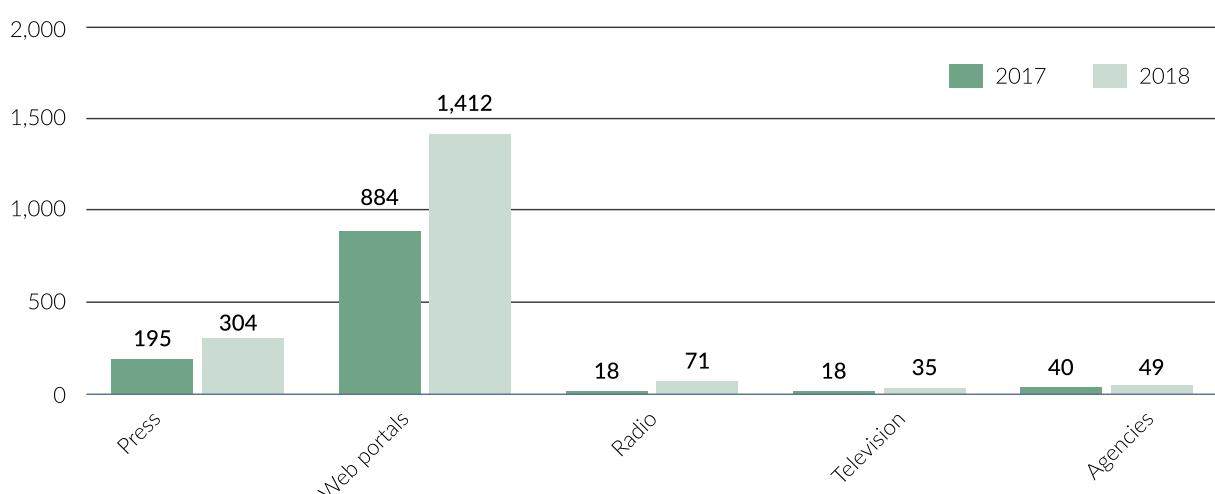


Media Presence

In the year 2018 a total of 1872 news items in the media making reference to the IMIM were recorded. The number of impacts was 37% higher with respect to the year 2017, thanks to greater interest aroused in the issues we have worked on as a press release in the media. With respect to the number of press releases made, there were 32, four releases fewer than those issued during the year 2017.

Of the overall figure of appearances in the press detected, 94% were motivated by the press releases from the Communication service and only 6% were due to requests not directly linked to any information issued from the Institution, a percentage that denotes the pro-active nature of the Institution before the media.

Distribution of news items by type of media outlet. Comparison 2017-2018



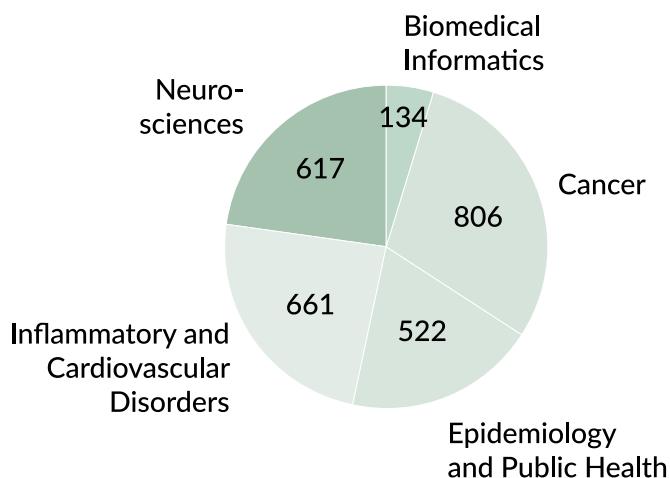
Web Notes

Subjects that have scientific and/or institutional importance but that would have no repercussions as a press release sent to the media are chosen as website notes, thus offering a new communication reference. This year, 23 website notes have been made.

Distribution of presence in the media by research programme

This year has seen a predominance of media in instances of Cancer (806 instances) and an increased presence of programmes such as Inflammatory and Cardiovascular Disorders, Epidemiology, and Public Health and Neurosciences programmes.

Distribution of news items by research programme. Year 2018



Website

During the year 2018, a total of 103,041 visits were received with views of 401,123 pages (4 pages per visit on average). If we study the origin of the visits by countries, we find that 81% of visits originated from Spain, followed by the United States (4%), the United Kingdom (2%), Mexico (1.9%) and Germany (1.7%). It is also confirmed that the most-visited pages on the website continue to be the home page and the job offers page, followed by the research programmes space.

A major event took place in the month of May when the website was upgraded with the goal of making it a responsive website, in other words, adaptable to access by any type of device, whether PC, tablet or mobile. This has facilitated the fact that, this year, 23% of users consulting the website do so via their mobile phone.

Intranet

A total of 756 news items were published on the intranet, of which 468 were scientific sessions in the agenda space, which was created in February 2017 and incorporates the agenda of all the sessions held at the PRBB. Of the other types of news, the most numerous are Inforeserca (research info, 100 items), Institutional information (99) and Press Releases (32).

Social Networks

Twitter

The IMIM Twitter account (@imimat) currently has 3,520 tweets published and 5,793 followers, around a thousand more than at the end of 2017. We were pioneers in the year 2008 in using this tool on a scientific level; now it is a consolidated tool with new followers joining day after day.

The most prominent tweet during the period was “A new study identifies hundreds of fragments of the genome without any apparent function, that can generate new proteins and, potentially, evolve into de novo genes”. A study by @maralbasoler and @jruizorera published in @NatureEcoEvo, which achieved 6,147 impressions.

Flickr

The Flickr channel has been established as an images repository and current hosts 1342 images, organised into 35 albums.

Science Communication Actions

For the general public

Science Cafés

During the year 2018, the cycle “Losing the fear of cancer” began in collaboration with the Barcelona Libraries Network. It forms part of the “Visions of Science” project that has been run by Libraries of Barcelona for several years, and on this occasion they entrusted its organisation to the Hospital del Mar Institute for Medical Research (IMIM) thanks to the success obtained with the science cafés series that was organised last year.

Every week the talks deal with a different issue related with the disease: immunotherapy, the genetics of cancer, personalised medicine, cancer in old age, blood cancers, the importance of exercise and diet for cancer, the management of emotions and how technological advances are helping treatment. The series lasts 8 weeks and the talks are held every Monday at 7 p.m. alternating around 4 libraries in the Barcelona area: Camp de l'Arpa Library, Sagrada Família Library, Vila de Gràcia Library and El Clot Library.

Open Day

The Open Day is organised annually at the PRBB with the participation of all the centres that make up the PRBB. Some 255 volunteers collaborated on this tenth

edition, which was held on 6 October, and around 2,000 visitors were able to enjoy activities and workshops, guided tours to the laboratories, science talks and activities for children.

"Experience the research of La Marató"

A project by the La Marató de TV3 Foundation to raise awareness around some of the projects promoted by this telethon at research centres. Two guided tours are organised, led by a researcher from a project funded by La Marató, which on this occasion was a lung cancer research project led by Dr. Bellosillo.

For secondary and sixth-form students

Project for Bringing Science Closer to Secondary Education Centres (ACCÉS)

Continuing with the ACCÉS project, up to the month of October we have been visited by 7 centres from around Catalonia, which represented participation in the programme of over 170 pupils. The ACCÉS project is included in the Escolab Project, an initiative from the Barcelona Science Programme of the Institute of Culture and of the Scientific Culture Programme of Barcelona City Council's Education Institute, which groups together research centre activities, providing us with greater visibility.

Visits by International Students

This year we have received visits from students from the Howest University in Belgium (41) and from the Vibor Cathedral School in Denmark (30).

Biojunior

This is an activity aimed at young people in the last year of Compulsory Secondary Education (ESO) and the first year of higher secondary education (batxillerat) organised by the PRBB and open to some 300 pupils. At this fourth edition, the IMIM has participated with two stations: the laboratory of the research group in Integrated Pharmacology and Systems Neuroscience and the group for research into doping in sport.

Science talks for students (4th year of ESO)

Science lectures offered by the PRBB to secondary schools in collaboration with Scientific Culture at the Municipal Institute of Education of Barcelona.

YOMO

Organised within the framework of the Mobile World Congress is the Youth Mobile Festival Barcelona, aimed at secondary and sixth-form students from all over Spain and hosting some 40,000 pupils per edition. The IMIM participated with an activity on the PRBB's stand.

For a children's audience

Interview with a scientist

This is an activity organised by the PRBB and aimed at children in the second cycle of primary education (9-12 years) which began in the year 2014. It is programmed as one of the educational activities that are offered at primary school centres and some 4/5 are held in each school year. The IMIM participates with 2 researchers each season.

Governing Bodies

The Board of Trustees is the top governing body of the Foundation and is comprised of representatives from the Catalan Ministry of Health, Parc de Salut Mar, the Catalan Ministry of Economy and Knowledge and the Pompeu Fabra University (UPF) and Autonomous University of Barcelona (UAB).

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Appointed by the Ministry of Economy and Knowledge:

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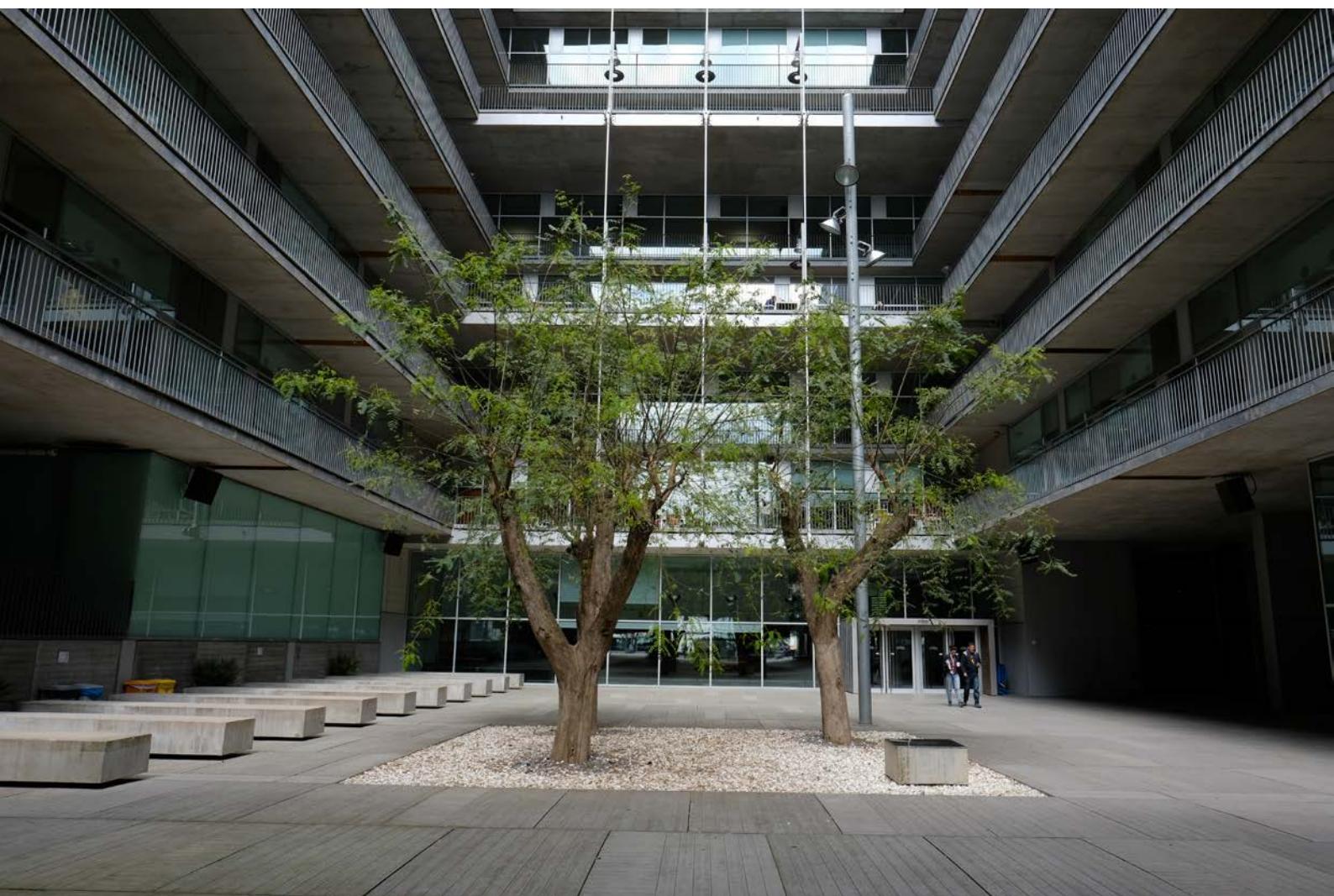
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Institut Hospital del Mar
d'Investigacions Mèdiques