

ANNUAL SCIENTIFIC REPORT

2021



Institut
d'Investigació
Biomèdica
de Girona
Dr. Josep Trueta

IDIB^R GI

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Diputació de Girona

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Director's Foreword

During the course of 2021, the Girona Biomedical Research Institute has continued to pursue its mission of setting up biomedical research and creating an appropriate environment for transferring the results into the clinical practice and to society. I arrived at IDIBGI on March 16, appointed as new director, the main objectives being to continue the deployment of the strategic plan for the period 2018-2022 and to start a series of actions to achieve the short term and long term challenges of the Institute, essentially, to help IDIBGI grow and achieve the best positioning among all Biomedical research centers.

Even though COVID19 has still conditioned most of the face-to-face activity, work for the institute has continued to achieve the expected objectives: the participation in new competitive calls has been promoted, both nationally and internationally; very good results have been obtained, especially in the international calls (5 new projects and 11 active projects), with a remarkable impact on the budget of the institution. The scientific production has increased in terms of quality indicators such as the main impact factor (6.1) of the original papers published (340) and the papers published in the first quartile (64%).

All the actions of scientific strategy have been oriented towards one of the principal objectives: obtaining the accreditation as Instituto de Investigación Sanitaria-ISCIII as soon as possible; all the indicators of the assessment guide have been reviewed to determine which actions are the ones to undertake first: a scientific career and the policy of overheads have been reviewed to favor young researchers; internal regulations of the internal and external scientific committees have been defined and approved and periodic meetings of both committees have been retaken, among others. The definition of the scientific policies that are missing has been started. All the research support units have been involved in reorienting, if necessary, the collection and analysis of the information to fulfill the requirements of the accreditation indicators.

In the strategic line of clinical scientist promotion, the POST MIR scholarships funded by DipSalut, with the collaboration of the COMG, have been redefined: the scholarships co-finance hospital contracts for the beneficiaries, which improves working conditions and encourages participation in these calls. Also, encouragement of research among young clinicians is expected through the new Training Plan of the IDIBGI that includes, for the first time, a training program in research, for POST MIR doctors.

Also, to increase the opportunities to participate in clinical trials promoted by the pharmaceutical industry, institutional negotiations between the most active groups in clinical research have been started for the creation of the Clinical Research Unit as a transversal support structure for all clinical research that is developed at the ICS Girona and the IAS.

On the managerial side, two new departments have been created with the aim of improving areas of support to researchers: the Department of Legal Services has been created with the incorporation of a qualified person and expert in data protection who has been appointed as the DPD of the CEIM; the Knowledge Management Unit for the definition and implementation of Open Science policies which is coordinated by the same person in charge of the Biostatistics support office.

2021 has been the year of IDIBGI's participation in the three clinical trials of the vaccine against SarsCov2 that the company HIPRA is developing. The collaboration with HIPRA, which started in April 2020 due to the need to use PCR tests to detect the presence of the virus, has been expanded through other collaborative projects and we hope to be able to consolidate this in the coming years, for example, through the established strategic collaboration to opt for Next Generation funds or the development of a new vaccine against the respiratory syncytial virus.

HIPRA also bought the spin-off GoodGut created in 2014 by researchers from the IDIBGI and the University of Girona (UdG). This is the perfect outcome to close the circle of what the transference of knowledge from academia towards the productive sector should be, being therefore, a remarkable case of success.

All the results and actions that are reflected in this report have a direct impact on the improvement of the health of our society, through the diagnoses of the diseases that we study, their treatments and also, their prevention. The activity of the IDIBGI also contributes to the generation of direct and indirect workplaces in the scientific and managerial fields of the city of Girona.

IDIBGI has renewed the HSR4R seal from the EC which certifies the institutional commitment with good Human resources policies for researchers, in the coming years. Also, the support offices together with the Biobank were all re-certified by the ISO 9001/2015 seal. Worth mentioning is the success of obtaining funding for an ultracentrifuge machine which has been long demanded by researchers.

One of the most challenging projects for the next year will be the extension of spaces: the extension of M2 in Parc Martí i Julià and the adaptation of a space for clinical research in Sant Ponç. After drafting the basic projects of the two extensions during this 2021, works should be completed by the end of 2022. The M2 extension is half funded by the Generalitat de Catalunya through the *Projectes Singulaires* call.

In summary, from both the scientific and managerial points of view, the year 2021 has been a year of growth and continuous improvement. Challenges are still ahead and in 2022, a new strategic plan will have to be designed by all of us, to establish the roadmap for this purpose.

Organization

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Jordi Cid

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Respiratory

SECRETARY

Míriam Gironès

IDIBGI Deputy Director

Research areas and groups

IDIBGI is composed of 21 research groups organized in 6 different areas.

AREA 1

CARDIOVASCULAR AND RESPIRATORY

Cardiovascular genetics
Research in vascular health
Respiratory

AREA 2

MEDICAL IMAGING

Medical imaging

AREA 3

MENTAL HEALTH

Mental health and addictions
Neurodevelopmental disorders

AREA 4

METABOLISM AND INFLAMMATION

Digestive disorders and microbiota
Infections, sepsis and multiorgan dysfunction of the patient
Internal medicine
Metabolic and maternal-fetal
Nephrology
Nutrition, eumetabolism and health
Obesity and cardiovascular risk in children

AREA 5

NEUROSCIENCE

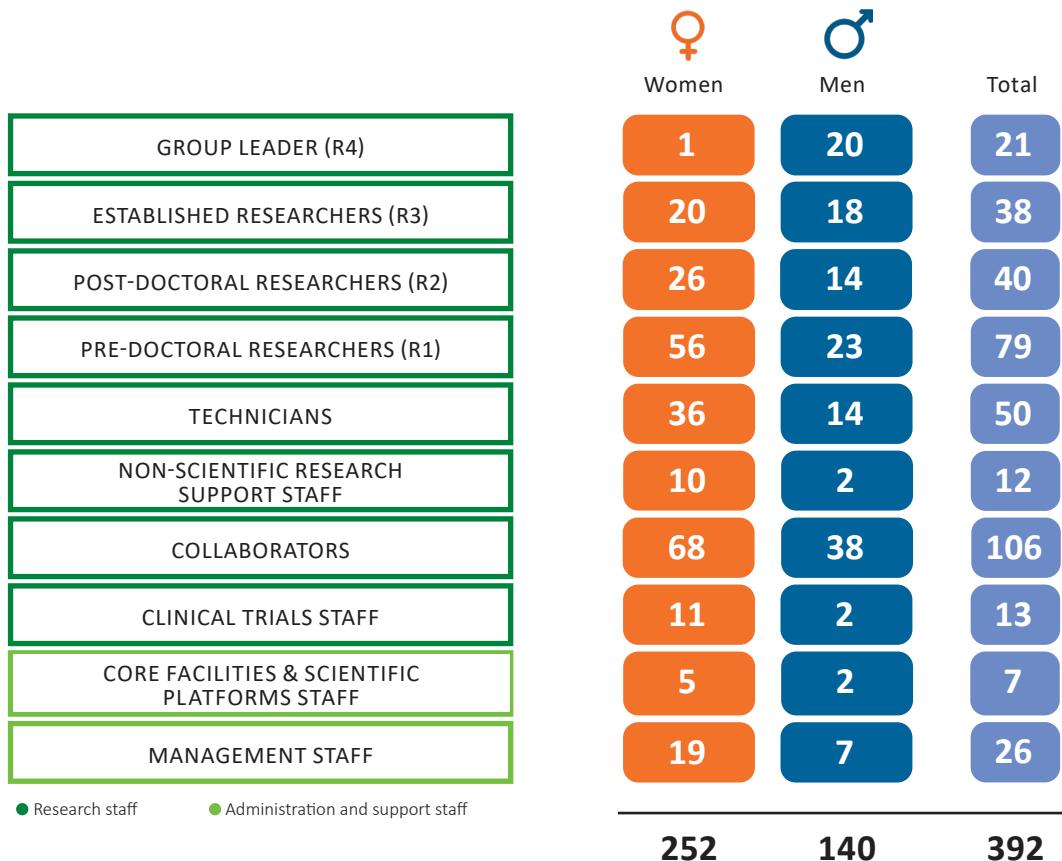
Aging, disability and health
Cerebrovascular pathology
Neurodegeneration and neuroinflammation

AREA 6

ONCO-HAEMATOLOGY

Chromosomal replication
Descriptive epidemiology, genetics and cancer prevention
General and digestive surgery
Haematology
Metabolism and cancer

Staff



STAFF FROM UNIVERSITY OF GIRONA ASSOCIATED GROUPS

GROUP LEADER (R4)	4	5	9
ESTABLISHED RESEARCHERS (R3)	18	17	35
POST-DOCTORAL RESEARCHERS (R2)	16	9	25
PRE-DOCTORAL RESEARCHERS (R1)	7	16	23
TECHNICIANS	3	4	7
NON-SCIENTIFIC RESEARCH SUPPORT STAFF	4	2	6
COLLABORATORS	4	2	6
	56	55	111

SCIENTIFIC OUTPUTS

Scientific publications



Number: Total number of documents published in scholarly journals indexed in the WoS.

INDICATORS OF ORIGINAL ARTICLES

NUMBER	TOTAL IF	MEAN IF	%Q1	%D1
TOTAL	340	2085.85	6.1	64%

Total IF: Accumulated impact factor (2020 Journal Citation Reports) of original publications.

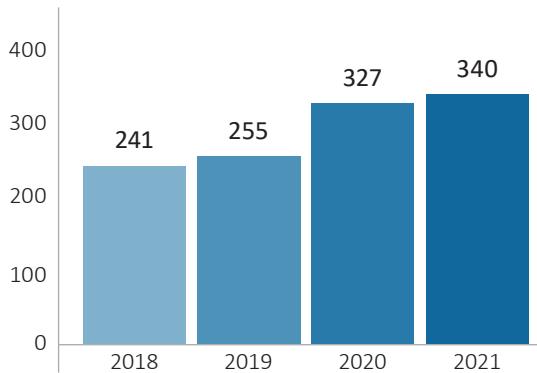
Mean IF: Mean impact factor (2020 Journal Citation Reports) of original articles.

%Q1: % of publications published in journals ranked in the first quartile (top 25%) of their category as ordered by the 2020 Journal Citation Reports.

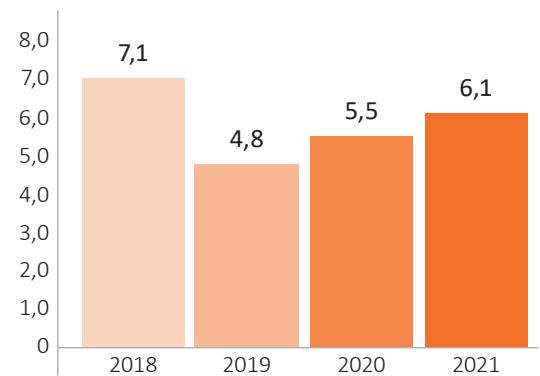
%D1: % of publications published in journals ranked in the first decile (top 10%) of their category as ordered by the 2020 Journal Citation Reports.

EVOLUTION OF NUMBER, MEAN IF, %Q1 AND %D1 OF ORIGINAL ARTICLES

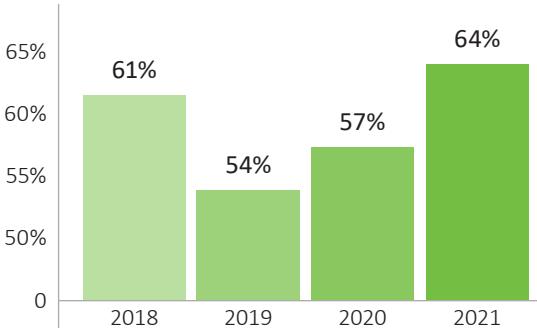
Number of original articles:



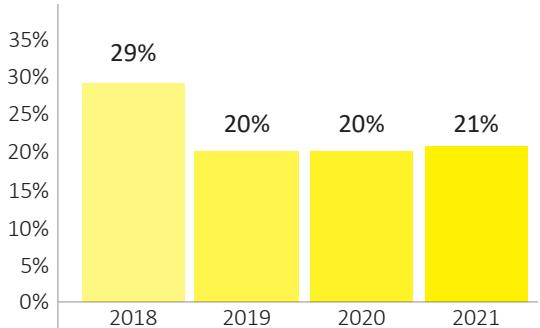
Mean IF:



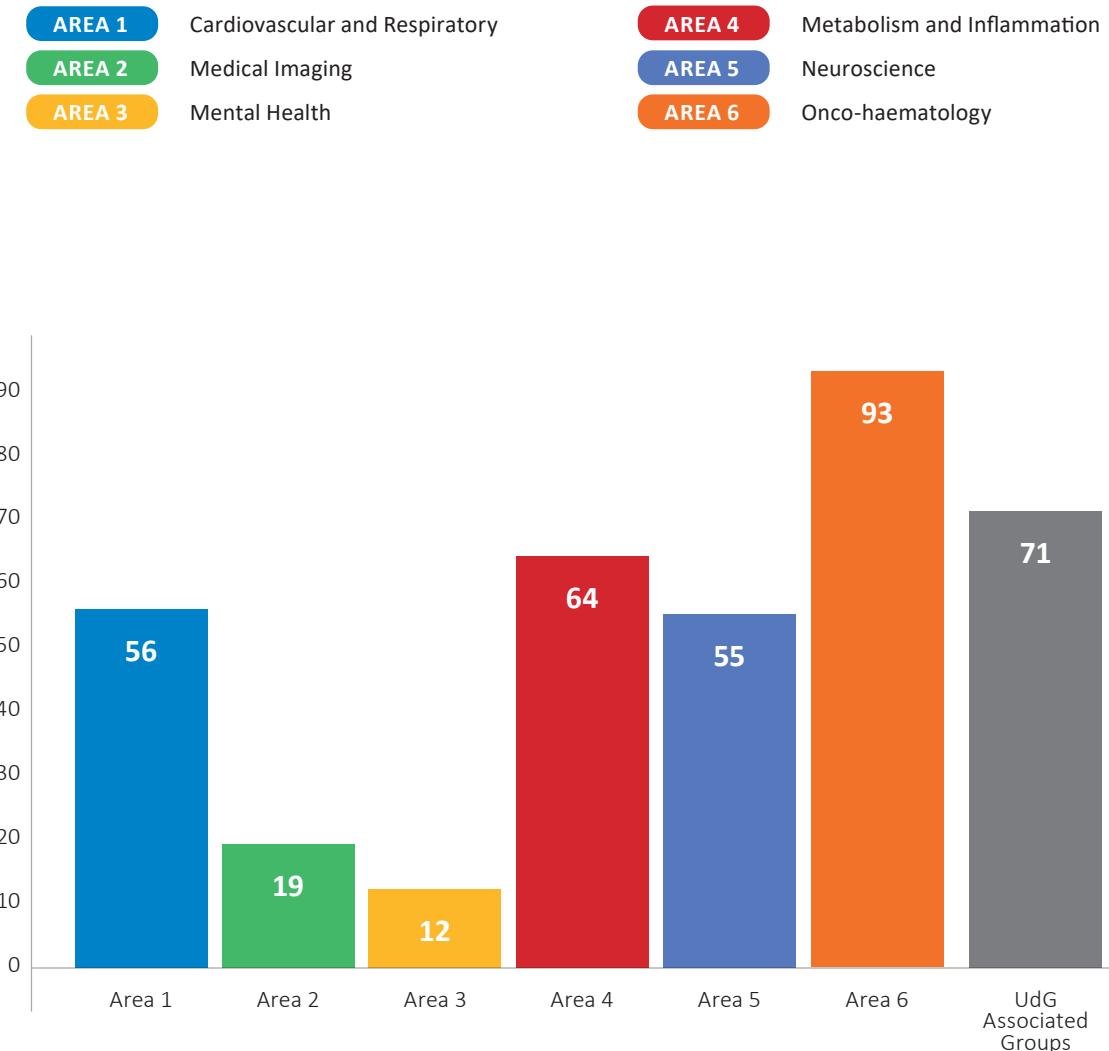
%Q1:



%D1:



NUMBER OF ORIGINAL ARTICLES PER AREA



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

ORIGINAL ARTICLES IN THE HIGHEST IMPACT FACTOR JOURNALS (IF>10)

33

JOURNAL	IF	TOTAL ORIGINAL ARTICLES
Lancet Neurology	44,182	4
Lancet Respiratory Medicine	30,7	1
Lancet Infectious Diseases	25,071	1
Journal Of The American College Of Cardiology	24,094	2
Gut	23,059	2
Blood	22,113	1
Autophagy	16,016	1
Cell Death And Differentiation	15,828	1
European Journal Of Heart Failure	15,534	1
Nature Communications	14,919	6
Journal Of Clinical Investigation	14,808	1
Microbiome	14,65	1
Science Advances	14,136	1
Journal For Immunotherapy Of Cancer	13,751	2
Clinical Cancer Research	12,531	1
Neuro-Oncology	12,3	1
Embo Molecular Medicine	12,137	1
Redox Biology	11,799	1
Leukemia	11,528	1
Blood Cancer Journal	11,037	1
American Journal Of Gastroenterology	10,864	1
Hypertension	10,19	1
TOTAL		33

4

Number of original articles in
IF>10 journals with IDIBGI main
contribution

AUTHORS	TITLE	REFERENCE	IF	Q/D1
Arnoriaga Rodríguez M, Mayneris Perxachs J, Contreras Rodríguez O, Burokas A, Ortega Sanchez JA, Blasco G, Coll C, Biarnés C, Castells Nobau A, Puig J, Garre Olmo J, Ramos R, Pedraza S, Brugada R, K, Serena J, Barretina J, Gich J, Pérez Brocal V, Moya A, Fernández Real X, Ramíos Torrentà L, Pamplona R, Sol J, Jové M, Ricart W, Portero Otin M, Maldonado R, Fernández Real JM.	Obesity-associated deficits in inhibitory control are phenocopied to mice through gut microbiota changes in one-carbon and aromatic amino acids metabolic pathways.	Gut. 2021. 70. (12):p. 2283-2296.	23,059	Q1/D1
Guerrero Puigdevall M, Fernandez Fuentes N, Frigola J.	Stabilisation of half MCM ring by Cdt1 during DNA insertion.	Nat Commun. 2021. 12. (1):p. 1746-1746.	14,919	Q1/D1
Mayneris Perxachs J, Cardellini M, Hoyles L, Latorre J, Davato F, Moreno Navarrete JM, Arnoriaga Rodríguez M, Serino M, Abbott J, Barton RH, Puig J, Fernández Real X, Ricart W, Tomlinson C, Woodbridge M, Gentileschi P, Butcher SA, Holmes E, Nicholson JK, Pérez Brocal V, Moya A, Clain DM, Burcelin R, Dumas ME, Federici M, Fernández Real JM.	Iron status influences non-alcoholic fatty liver disease in obesity through the gut microbiome.	Microbiome. 2021. 9. (1):p. 104-104.	14,65	Q1/D1
Comas F, Latorre J, Ortega F, Oliveras Cañellas N, Lluch A, Ricart W, Fernández Real JM, Moreno Navarrete JM.	Permanent cystathione-β-Synthase gene knockdown promotes inflammation and oxidative stress in immortalized human adipose-derived mesenchymal stem cells, enhancing their adipogenic capacity.	Redox Biol. 2021. 42. p. 101668-101668.	11,799	Q1/D1

DOCTORAL THESES

20

DOCTORAL THESES DEFENDED IN 2021

6

THESES WITH INTERNATIONAL MENTION

THESIS AUTHOR	TITLE	DIRECTORS
Álvaro Franquet Bonet	Statistical methods to manage and analyse Real World Data. Development of a health observatory	Maria Antònia Barceló, Pere Plaja
Rebecca Martínez Moreno	Effect of sodium channel SNVs associated to arrhythmogenic diseases. Modulatory role of the genetic background	Fabiana Scornik Gerzenstein, Elisabet Selga Coma
Natalia Mordvanyuck	Efficient sequential and temporal pattern mining	Beatriz López, Albert Bifet
María Muñoz San Martín	Role of miRNAs in multiple sclerosis: study of miRNAs in cerebrospinal fluid for different clinical conditions	Lluís Ramió Torrentà, Ester Quintana Camps
Francesc Xavier Prat Genis	Prevalença i factors psicosocials associats a les conductes distractores més freqüents dels conductors	Montserrat Planes Pedra, M. Eugènia Gras Pérez
Valérie F. E. D. Smolders	Functional and metabolic characterization of endothelial cells in chronic thromboembolic pulmonary hypertension	Olga Tura Ceide
Paula Astudillo Díaz	Protectores ambientales de estrés laboral hospitalario	M. Eugenia Gras Pérez, Montserrat Planes Pedra, Rosa Suñer
Laura Ballester Comas	Mental disorders among Spanish university students: a longitudinal study	Jordi Alonso Caballero, M. Eugenia Gras Pérez
Pere Boqué Busquet	Models matemàtics per a la predicción dels robatoris amb força a domicili a Catalunya	Marc Saez, Laura Serra
Ferran Comas Vila	The relevance of Hydrogen Sulfide (H2S) in obesity and adipose tissue physiology	José Manuel Fernández-Real Lemos, José Ma. Moreno Navarrete
Verónica Gordo Hernández	Estudi de la reacció de trans-splicing i caracterització fisicoquímica de la interina partida Neq DNA polimerasa B del hipertermòfil <i>N. equitans</i>	Marc Ribó Panosa
Laura Guerrero Caballero	Programa d'intervenció familiar multidisciplinar en atenció primària de salut basat en la teràpia de resolució de problemes per la disminució de la utilització dels recursos sanitaris del pacient crònic complex	Rafel Ramos, Maria Garcia-Gil
Erica Homs Romero	Prevalencia e incidencia de la enfermedad venosa crónica en Cataluña. Desarrollo y validación de un conjunto mínimo básico de datos para su prevención, diagnóstico y tratamiento	Ruth Martí Lluch, José Verdú Soriano
Anna Marull i Arnall	Algoritme diagnòstic en el laboratori. Impacte dels nous índex hematimètrics	David Gallardo Giralt, Maite Serrando Querol
Duncan McGregor	Advancing compositional data analysis to study the interplay of lifestyle behaviours for public health	Sebastien Chastin, Javier Palarea-Albaladejo, Philippa Dall
Josep Oriol Miquel Cusachs	Monitoratge de la malaltia inflamatòria intestinal en la pràctica clínica mitjançant marcadors de la microbiota intestinal en mostres fecals. Estudi prospectiu.	Xavier Aldeguer Manté, Jesús L. Garcia-Gil
Adrià Parcerises Albés	Study, development and validation of advanced tools for the management of diabetes	Josep Vehí, Ivan Contreras
Xavier Pericot Mozo	Qualitat de vida de les persones amb dolor lumbar crònic i factors associats	Rosa Suñer Soler
Nikola Štefelová	Compositional approach to the analysis of data in biostatistics	Karel Hron, Javier Palarea-Albaladejo
Àlex Vila Belmonte	Estimación de la prevalencia de la Hipertrofia Familiar y de las características clínicas asociadas en Cataluña	Rafel Ramos, Alberto Zamora

Knowledge transfer and innovation

CLINICAL GUIDELINES



AUTHOR	TITLE	REFERENCE	IF	Q/D1
Fuentes B, Amaro S, Alonso de Leciñana M, Arenillas JF, Ayo-Martín O, Castellanos M, Freijo M, García-Pastor A, Gomis M, Gómez Choco M, López-Cancio E, Martínez Sánchez P, Morales A, Palacio-Portilla EJ, Rodríguez-Yáñez M, Roquer J, Segura T, Serena J , Vivancos-Mora J; Comité ad hoc del Grupo de Estudio de Enfermedades Cerebrovasculares de la Sociedad Española de Neurología.	Stroke prevention in patients with type 2 diabetes or prediabetes. Recommendations from the Cerebrovascular Diseases Study Group, Spanish Society of Neurology.	Neurologia (Engl Ed). 2021 May;36(4):305-323	3,109	Q3
Nadal E, Bosch-Barrera J , Cedrés S, Coves J, García-Campelo R, Guirado M, López-Castro R, Ortega AL, Vicente D, de Castro-Carpeño J	SEOM clinical guidelines for the treatment of malignant pleural mesothelioma (2020).	Clin Transl Oncol. 2021 May;23(5):980-987	3,405	Q3
Redondo A, Guerra E, Manso L, Martín-Lorente C, Martínez-García J, Pérez-Fidalgo JA, Varela MQ, Rubio MJ, Barretina-Ginesta MP , González-Martin A	SEOM clinical guideline in ovarian cancer (2020).	Clin Transl Oncol. 2021 May;23(5):961-968	3,405	Q3
Luque R, Benavides M, Del Barco S , Egaña L, García-Gómez J, Martínez-García M, Pérez-Segura P, Pineda E, Sepúlveda JM, Vieito M	SEOM clinical guideline for management of adult medulloblastoma (2020).	Clin Transl Oncol. 2021 May;23(5):940-947	3,405	Q3

NON-INDEXED

Pajares MA, Margarit JA, García Camacho C, García Suárez J, Mateo E, Castaño M, López Forte C, López Menéndez J, Gómez M, Soto MJ, Veiras S, Martín E, Castaño B, López Palanca S, Gabaldón T, Acosta J, Fernández Cruz J, Fernández López AR, García M, Hernández Acuña C, Moreno J, Osseyan F, Vives M, Pradas C, Aguilar EM, Bel Mínguez AM, Bustamante Munguira J, Gutiérrez E, Llorens R, Galán J, Blanco J, Vicente R. **Guidelines for enhanced recovery after cardiac surgery. Consensus document of Spanish Societies of Anesthesia (SEDAR), Cardiovascular Surgery (SECCE) and Perfusionists (AEP).** Rev Esp Anestesiol Reanim (Engl Ed). 2021. 68. (4):p. 183-231.

García Pastor A, López Cancio Martínez E, Rodríguez Yáñez M, Alonso de Leciñana M, Amaro S, Arenillas JF, Ayo Martín O, Castellanos M, Fuentes B, Freijo MM, Gomis M, Gómez Choco M, Martínez Sánchez P, Morales A, Palacio Portilla EJ, Segura T, **Serena J**, Vivancos Mora J, Roquer J, Ad hoc committee of the Spanish Society of Neurology's Cerebrovascular Disease S. **Recommendations of the Spanish Society of Neurology for the prevention of stroke. Interventions on lifestyle and air pollution.** Neurología (Engl Ed). 2021. 36. (5):p. 377-387.

Rodríguez Yáñez M, Gómez Choco M, López Cancio E, Amaro S, Alonso de Leciñana M, Arenillas JF, Ayo Martín O, Castellanos M, Freijo MM, García Pastor A, Gomis M, Martínez Sánchez P, Morales A, Palacio Portilla EJ, Roquer J, Segura T, **Serena J**, Vivancos Mora J, Fuentes B, ad hoc committee of the Spanish Society of Neurology's Study Group for C. **Stroke prevention in patients with arterial hypertension: Recommendations of the Spanish Society of Neurology's Stroke Study Group.** Neurología (Engl Ed). 2021. 36. (6):p. 462-471.

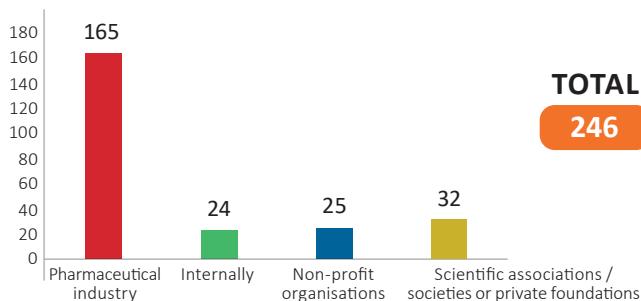
CLINICAL TRIALS

Clinical trials performed at the IDIBGI-associated hospitals are an example of translation and return to the patient, in terms of improved patient care and access to cutting-edge therapies or technologies.

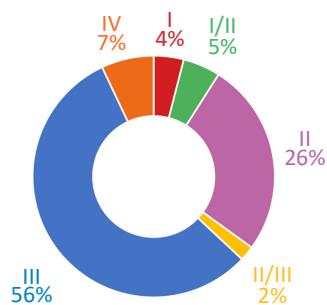
In 2021, 74 new clinical trials were opened and 246 clinical trials were active, all promoted either a) by the pharmaceutical industry, b) internally, c) by non-profit organizations or d) by scientific associations / societies or private foundations. As in previous years, most of the active trials correspond to phase III (56%) and most of the active trials are performed in the area of onco-haematology (48.28%).

The figures below summarize the number of active clinical trials in 2021.

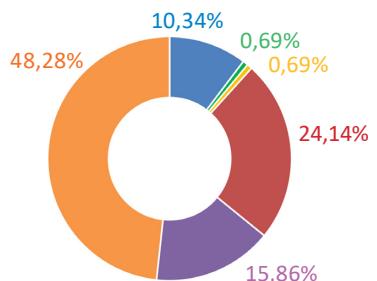
Active clinical trials distributed by promotor



Active clinical trials by phase



Active clinical trials by scientific areas



Area 1: Cardiovascular and Respiratory

Area 2: Medical Imaging

Area 3: Mental Health

Area 4: Metabolism and Inflammation

Area 5: Neuroscience

Area 6: Onco-haematology

PATENTS AND LICENSE AGREEMENTS



IDIBGI currently manages 9 patent families, which represent about 49 patents, 1 of which is a utility model. The total number of active **patent license agreements** is 4.

During 2021, 3 new patent applications were filed: 1 ES, 1 EP, 1 US patents.

SPIN-OFF PORTFOLIO

IDIBGI researchers have founded 2 spin-offs since the foundation of the institute, one of which is still active.

Spin-off from IDIBGI researchers where IDIBGI participates as shareholder:

GOODGUT

Dr. Mariona Serra / Dr. Xavier Aldeguer

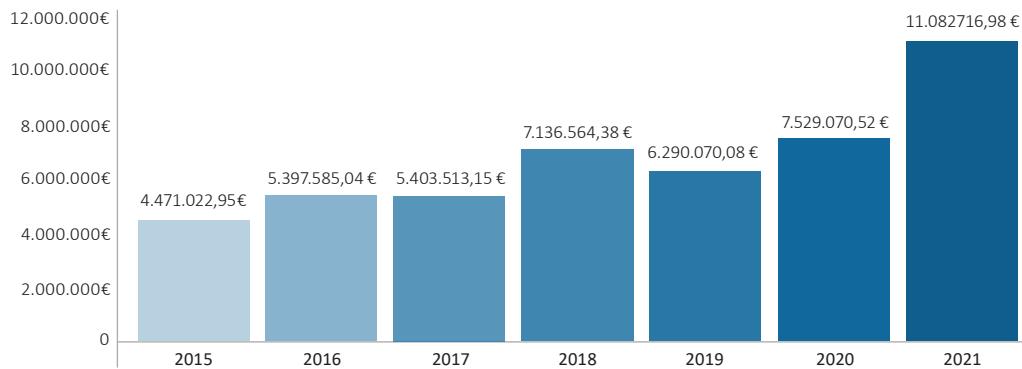
<https://www.goodgut.eu>



GoodGut is a biotechnology spin-off that emerged from the IDIBGI Digestive Diseases and Microbiota research group led by Dr. Xavier Aldeguer and the Universitat de Girona (UdG). GoodGut is engaged in the research and development of non-invasive systems that support the diagnosis and treatment of digestive diseases based on intestinal microbiota as a determining factor. In September 2021, GoodGut was purchased by the pharmaceutical company HIPRA.

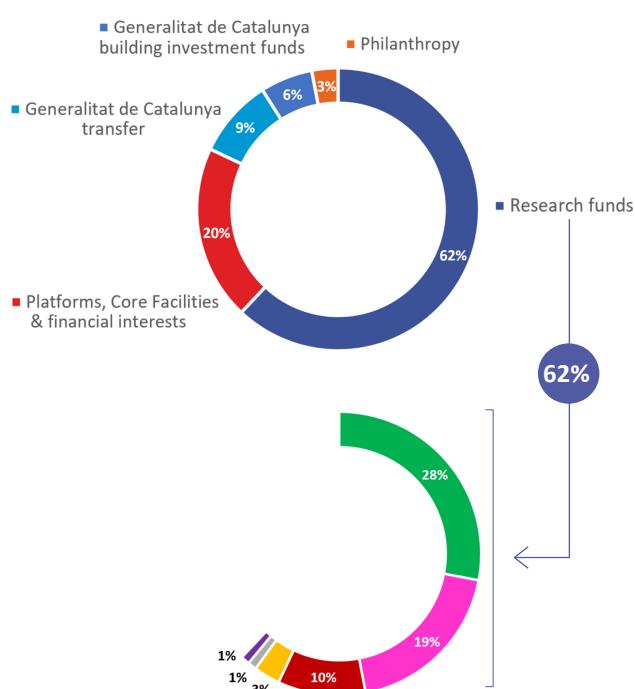
Funding

ANNUAL BUDGET

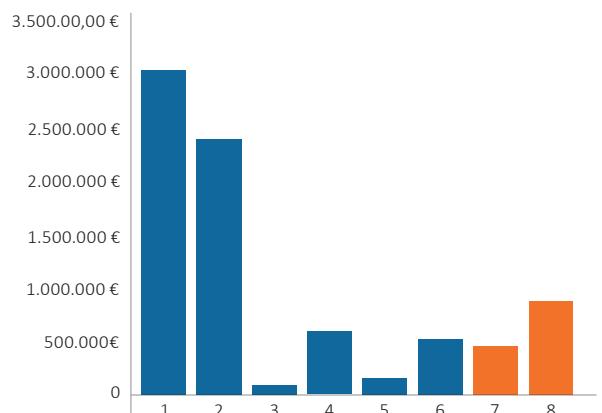


FUNDING SOURCES AND EXPENSES

FUNDING SOURCES



EXPENSES



- Projects**
- 1 Research Staff
 - 2 Research Consumables & external works
 - 3 Research Publications & academic training
 - 4 Research Travelling costs & others services
 - 5 Research Transfers to other public institutions
 - 6 Research Equipment

- Support**
- 7 Administration Running costs
 - 8 Administration & Research support Staff

■ Clinical trials & private contracts
■ Associations & foundations funds
■ Diputació de Girona & DipSalut
■ Spanish competitive funds
■ European funds
■ Generalitat de Catalunya competitive funds

Projects

COMPETITIVE PROJECTS

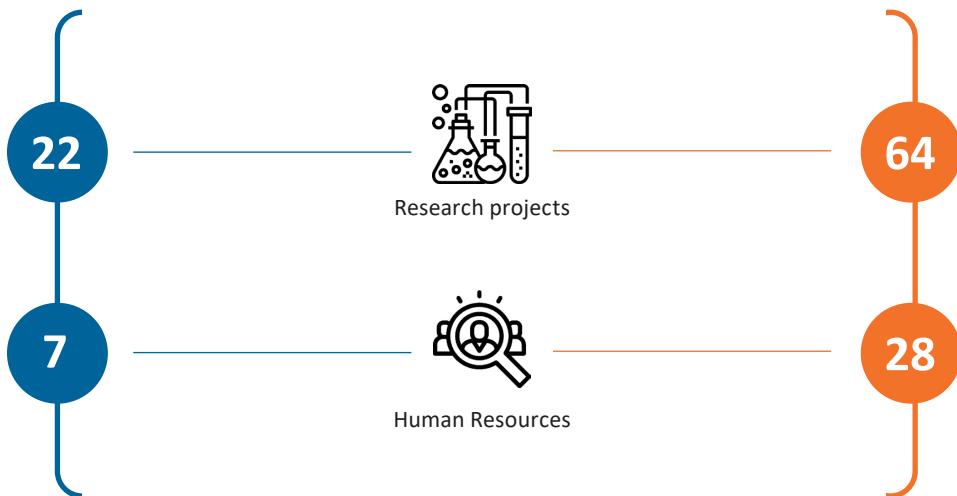
29

NEW COMPETITIVE PROJECTS IN 2021

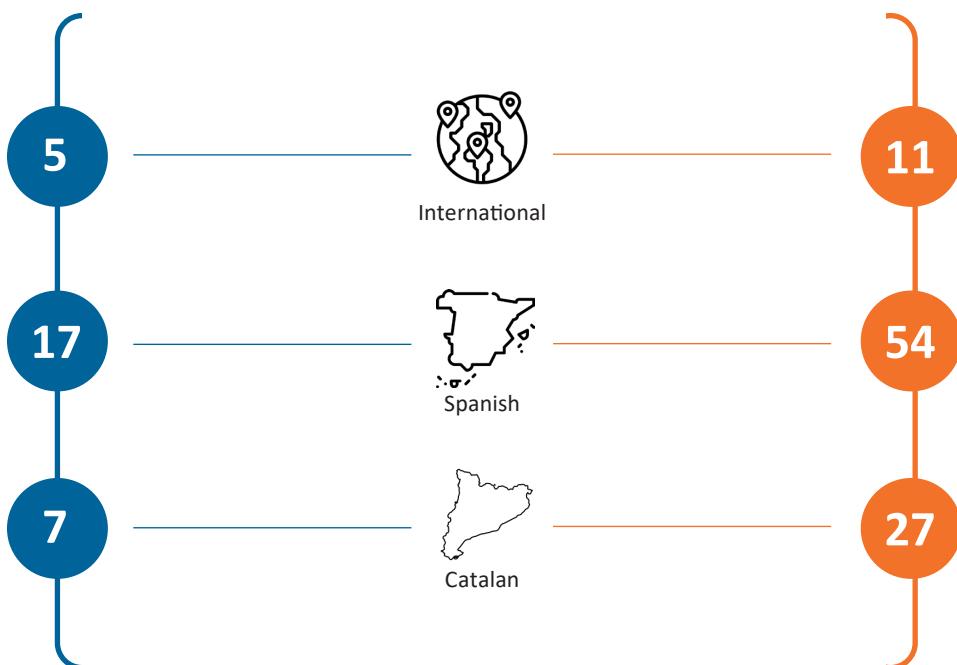
ACTIVE COMPETITIVE PROJECTS IN 2021

92

TYPE OF FUNDING:



FUNDING ORIGIN:



QUALITY SEALS

HUMAN RESOURCES STRATEGY FOR RESEARCHERS



<https://idibgi.org/hr-excellence-in-research>

On the 31st of March 2015 the Girona Biomedical Research Institute (IDIBGI) received the "HR Excellence in Research Award". This award and its logo reflect the IDIBGI's commitment to continuously improve its human resources policies and practices in line with the European Charter for Researchers and the Code of Conduct for the Recruitment of Researchers (Charter & Code).

IDIBGI endorsed the Charter and Code in May 2011, and joined the Fourth Cohort of the Institutional Human Resources Strategy Group in 2012. Thereon the IDIBGI started implementing its own Human Resources Strategy for Researchers (HRS4R).

In 2019 the Action Plan 2014-2018 concluded and a new gap analysis and Action Plan for 2020-2023 was developed by the HRS4R Working Group. The OTM-R checklist was reviewed as well. The Action Plan 2020-2023 was sent to the European Commission on November 2020 for their revision and renewal of the "HR Excellence in Research Award".

During 2021 some actions were concluded, such as:

1. The execution of the "IDIBGI Training plan", which includes training on IPR and Science Law, Data Protection, Selection Procedures, Communication Skills, Leadership, etc. to all IDIBGI community.
2. Develop the IDIBGI Communication Policy.
3. Update the IDIBGI Recruitment Manual.
4. Introduced the CERCA Ombudsperson to the IDIBGI community.
5. Create a form and database to monitor the ownership percentage of the inventions and compensations of IPR exploitation.
6. Receive the European evaluators on HRS4R Strategy in a Site Visit, to know IDIBGI experience and revalidate the HR Excellence in Research Award.
7. Update the document 'Award renewal: interim assessment & Action Plan 2020-2023' in accordance with the evaluators feedback.

Most of these actions were possible thanks to the engagement of many researchers and other IDIBGI staff belonging to specific working groups or committees.

ISO 9001:2015 CERTIFICATION



The ISO 9001 Standard is the most widespread quality management tool in the world. Its main goal is to increase customer satisfaction through continuous improvement of processes. It is designed to ensure that organizations guarantee their ability to offer services that meet the demands of their clients; essentially, researchers and providers.

This international standard promotes the adoption of a process-based approach when developing, implementing, and improving the effectiveness of a quality management system.

The main benefits derived from the ISO 9001 certification for organizations are: systematization of operations, improvement of the internal organization, generation of a greater level of confidence internally and externally, an increase in competitiveness and compliance with legislation and regulations related to products and services, among others.

In 2019 IDIBGI obtained the ISO 9001:2015 certification for a) Research support services: Quality policy and Quality procedures and b) Biobank's Quality policy. In 2020 and 2021 IDIBGI passed the first and second follow-up audit successfully.

INSTITUTIONAL PROJECTS

GO-HERO



<https://goherohealth.com>

Internationalization is a strategic and transversal goal of the IDIBGI present in the current IDIBGI's strategic plan.

In 2019, the International Projects Office, along with the respective units of the Biomedical Research Institutes of Tarragona (IISPV) and Lleida (IRBLleida), joined forces on the GO-HERO project (Health European Research Offices). GO-HERO consortium priorities:

- Reinforce international project departments
- Design and implement a training plan for the internationalization of research
- Increase the international visibility of the institutes.

The project finished on December 2021 with the commitment of the three Institutes to continue working together in the dissemination of EU calls and promoting collaborative projects and trainings.

Highlighted 2021 activities:

- Organization of 3 workshops on Responsible Research and Innovation topics: Gender, Communication and Dissemination, Data Management.
- Organization of the workshop "Getting Ready for Horizon Europe" with the participation of Dr. Marina Martínez (SOST-CDTI) and Dr. Juan Riese (NCP-ISCIII).

INFRASTRUCTURES



IDIBGI was awarded with the call "Convocatoria de adquisición de equipamientos e infraestructuras científico-técnicas" of the Instituto de Salud Carlos III (ISCIII) (IFEQ21/00022) for the acquisition of an **ultracentrifuge** with two rotors, with a total budget of 79.700,00€. This is an essential equipment for all biomedical research not present in any of the research entities in the Girona area. Therefore, this essential equipment will give service not only for the researchers of the IDIBGI but also for those of the University of Girona (UdG) associated with our institute, for the ICRA and the IRTA researchers. This is a long-awaited infrastructure that will be of use to many research groups, and will be located in the M2 building of IDIBGI.

Networks

SPANISH BIOMEDICAL NETWORKS

ISCIII NETWORKS

CIBER



3 IDIBGI researchers are group leaders within CIBER networks:

CIBER-OBN: Obesity and nutrition

1

CIBER-CV: Cardiovascular

1

CIBER-ESP: Public Health and Epidemiology

1

RETICS



3 IDIBGI researchers are group leaders within RETICS networks:

INVICTUS + ISCIII: Cerebral Vascular Diseases

1

REEM ISCIII: Multiple Sclerosis

1

REDIAPP ISCIII: Care Prevention and Health Promotion

1

BIOBANKS AND BIOMODELS PLATFORM



IDIBGI Biobank participates in ISCIII Biobanks and Biomodels Platform.

Core facilities

BIOBANK

<https://idibgi.org/en/biobanc>
biobanc@idibgi.org

José Manuel Fernández-Real, MD, PhD
 Scientific director

Luís Gallart
 Coordinator



The IDIBGI Biobank is the research core facility responsible for the management of human biological samples and associated data for research. This includes collection, processing, storage, and transfer of samples to promote quality biomedical research. The IDIBGI Biobank is linked to two hospitals: The University Hospital of Girona Dr. Josep Trueta (HUGJT) and the Santa Caterina Hospital at Institut d'Assistència Sanitària (IAS).

Its goal is to contribute to the development of biomedical research of excellence, making available biological samples to the scientific community under certain legal, technical, organizational guarantees and respecting the rights of the donors.

The IDIBGI Biobank was authorized by the Department of Health in October 2013 and is enrolled in the Carlos III Health Institute National Register of Biobanks. All the procedures performed at the Biobank are carried out under ISO 9001:2015 certification.

The IDIBGI Biobank Catalogue of samples is organized into two nodes:

- **Central Node**, which contains a variety of samples: blood, serum, plasma, buffy coat, urine, stool, adipose tissue and DNA, among others. This repository is composed by samples of patients with diverse clinical diagnosis, collected by IDIBGI researchers and HUJT and Santa Caterina Hospital services, as well as a COVID collection.
- **Tumour bank Node**, which contains tumoural and non-tumoural tissue samples from cancer patients collected by anatomical pathology service and medical interventions and surgeries.

IDIBGI's Biobank activities and indicators in 2021:

TOTAL:

BIOBANK SAMPLES	SAMPLE TRANSFERS	NR. COLLECTIONS
259.192	5.485	50

2021:

NEW DONORS	NR. DONATIONS TO BIOBANK	NEW COLLECTIONS
1.992 (COVID-19: 547)	2.433 (COVID-19: 824)	1

One of the most outstanding activities of the Biobank during 2021 has been the collaboration in the sample processing of the HIPRA company's SARS-CoV-2 vaccine trials:

- A phase I/IIa study to evaluate safety and immunogenicity of recombinant protein RBD fusion dimer candidate vaccine against SARS-CoV-2 in adult healthy volunteers. EudraCT 2021-001411-82
- A Phase IIb, Double-blind, Randomised, Active-controlled, Multi-centre, Non-inferiority Trial Followed by a Phase III, Single-arm, Open-label Trial, to Assess Immunogenicity and Safety of a Booster Vaccination with a Recombinant Protein RBD Fusion Dimer Candidate (PHH-1V) Against the Virus That Cause COVID-19, Known as Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2), in Adults Fully Vaccinated Against COVID-19. EudraCT 2021-005226-26



OUTREACH ACTIVITIES

Courses, conferences and seminars

COURSES ORGANIZED BY IDIBGI DURING 2021:

Programa de formació en novetats cardiovasculars per l'atenció primària

Dr. Marco Antonio Paz Bermejo. January - March

MET Recursos en Cirugía Colorectal

Dr. Ramón Farrés. March

Advances in Urogynaecology. International Online Workshop

Dr. Joan Méledez-Muñoz and Dr. Pedro Cozo. March, 12

Curs de formació especialitzada en tumors urològics; càncer de pròstata

Dr. Núria Sala. March 21 and April, 14

Curs d'actualització en Farmàcia Hospitalària 2021. Actualització en el tractament de la patologia reumàtica, dermatològica, psiquiàtrica, pacient VIH i errors de medicació

Dr. Rosa Sacrest. June - August

Transición al alta integral y digitalizada del paciente con Insuficiencia Cardíaca

Dr. Aleix Fort. June - September

Formació continuada Hematologia- ICO

Dr. Yolanda Gonzalez. July

Formació continuada en Hematología ICO 2021. Aspectes clínics i de desenvolupament de la investigació en el camp de la hematología: Patologías, diagnòstic, projectes d'investigació

Dr. David Gallardo. July, 1

Jornada Cirugía Tiroides mínimamente Invasiva. Tiroïdectomia

Dr. Rodríguez Hermosa. July, 1

II Curs d'Ecocardiografia bàsica

Dr. Ramon Brugada. September

Jornada de Cirugía Mínimamente Invasiva de Tiroides: Utilització d'Hempatch

Dr. José Ignacio Rodríguez and Dr. Jordi Gironès. September, 28

Plataforma de formació continuada de diagnòstic i tractament per la imatge

Dr. Salvador Pedraza. October to 2022

Tallers formatius sobre la Gestió multidisciplinari del pacient amb Esclerosi Múltiple

Dr. Lluís Ramió. September - November

Formació continuada del Servei de Dermatologia de l'IAS

Dr. Margarita Roura. October - May 2022

V Jornada catalana d'actualització en infectologia pediàtrica.

“Novetats en patologia infecciosa dels dels inicis de la pandèmia”

Dr. Borja Guarch, Dr. Laura Minguell, Dr. José María Valle, Dr. Neus Rius. October, 8

Curs de punció perifèrica ecoguiada per infermeria

Dr. Xavier Garcia. December, 1-3

CONFERENCES ORGANIZED BY IDIBGI DURING 2021:

MET Masterclass en Cirurgia Hepàtica per Laparoscòpia

Dr. Lopez Ben. March

Sessió clínica en cirurgia Maxil-lofacial

Dr. Miquel Atajona. March, 2 and 26

Jornada Cirugía Hepática por Laparoscopia: Hemostáticas y Sellantes

Dr. Lopez Ben. April, 12, and July, 1

IV Jornada sobre Immunoteràpia i noves teràpies del càncer

Dr. Joaquim Bosch and Dra. Núria Sala. September, 30

3^a Jornada científica de la unitat funcional de ginecologia oncològica de Girona

Dr. Pilar Barretina. October, 15

Tècniques quirúrgiques laparoscòpies

Dr. Antoni Codina. November, 25

Jornades Gironines del Mediterrani en Esclerosi Múltiple 2021

Dr. Lluís Ramió. December, 16 and 17

SEMINARS ORGANIZED BY IDIBGI DURING 2021:

Webinar: "El meu neuròleg m'ha proposat participar en un assaig clínic. Què faig?"

Dr. Lluís Ramió. July, 22

Webinar: "Actualització i novetats en esclerosi múltiple en entorns de pandèmia COVID"

Dr. Lluís Ramió. December, 23

Communication and public engagement

MEDIA RELATIONS

16

Press Releases

2

Press Conferences

SOCIAL MEDIA



Twitter
1975 followers



Instagram
842 followers



LinkedIn
2548 followers



Youtube
53 subscribers

FEATURED NEWS

January

IDIBGI starts a research on the causes that generate the physical and cognitive disability caused by Multiple Sclerosis

February

Dr. Marga Nadal, the new director of the Institute for Biomedical Research of Girona (IDIBGI)

March

IDIBGI study opens the door to the development of low-toxicity cancer treatments

April

An IDIBGI study identifies seven genetic variants that determine the risk of cardiac arrhythmias

June

The IDIBGI Biobank has collected more than 23,000 samples during the pandemic year

July

One thousand people have participated in the "Girona, Healthy Region Study - PECT"

September

The second phase of the project that studies physical, personal and social factors that affect the health of the inhabitants of the province of Girona begins

November

Two IDIBGI researchers recognized among the most cited scientists in the world for the quality of their research, according to the Stanford ranking

December

The IDIBGI Neurodegeneration and Neuroinflammation Research Group receives a grant from the Francisco Soria-Melguizo Foundation

New genetic regulatory pathway related to obesity discovered

VISITS

4

Secondary Schools

16

Donors and Sponsors



ACTIVITIES ORGANISED

14

Solidarity campaigns
and outreach activities



FUNDRAISING

3

Material donations

12

New IDIBGI donors

234.422€

2021 IDIBGI
Fundraising revenue



- 1 Research and Universities Catalan Minister, Gemma Geis, visits IDIBGI.
- 2 Solidarity concert "CantEM" to raise funds for Multiple Sclerosis research at IDIBGI.
- 3 IDIBGI's stand in the Fira de Mostres event in Girona.
- 4 Santa Eugènia Secondary School's donation for a COVID-19 research project at IDIBGI.

IDIBGI FRIENDS



El sopar dels miralls



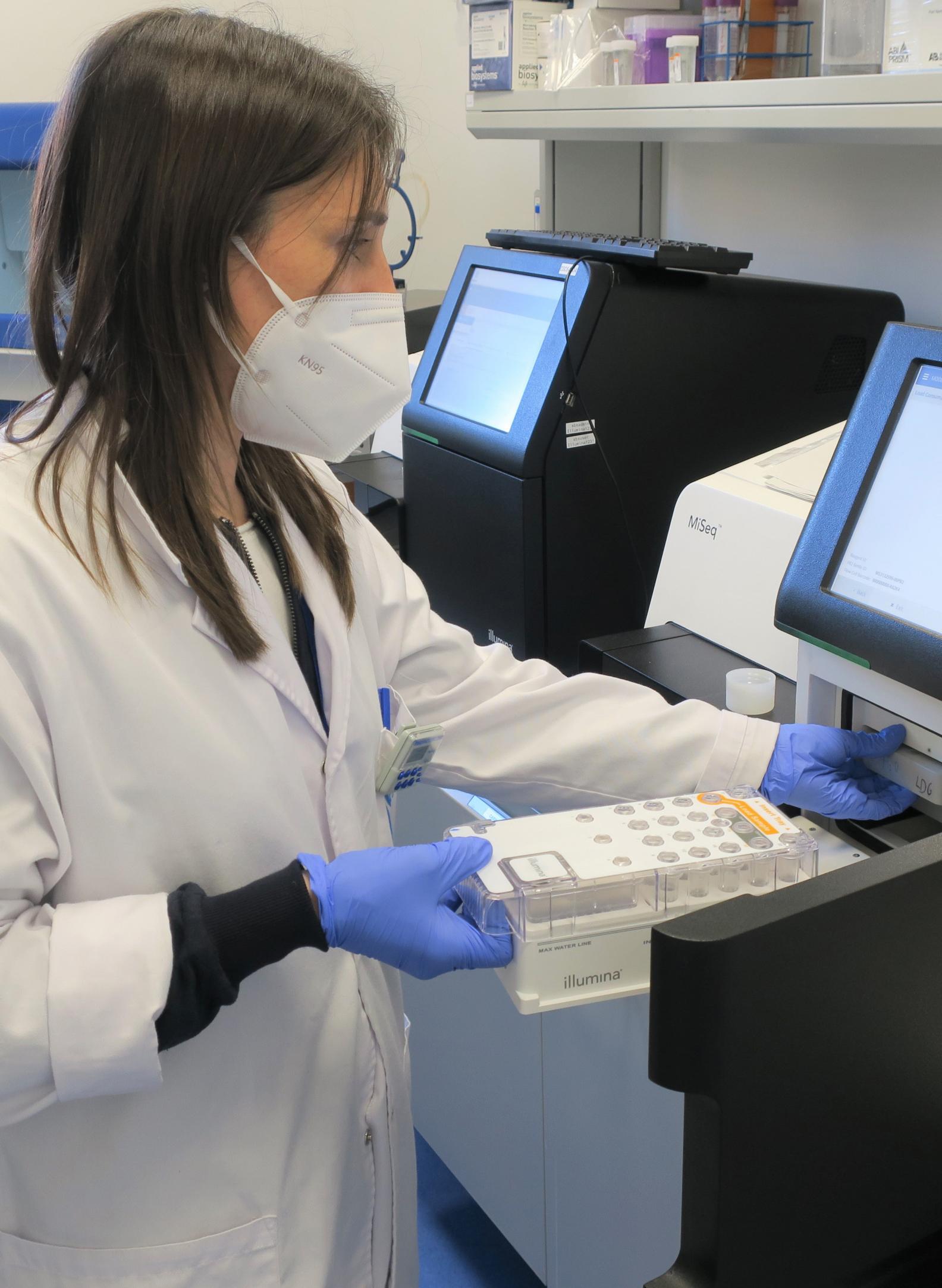
PUBLIC INSTITUTIONS



MEDIA PARTNERS



RESEARCH AREAS AND GROUPS



CARDIO- VASCULAR AND RESPIRATORY

CARDIOVASCULAR GENETICS
RESEARCH IN VASCULAR HEALTH
RESPIRATORY

Cardiovascular genetics



Recognized as a consolidated research group by AGAUR (Generalitat de Catalunya) - 2017 SGR 804.

MEMBER OF
CIBER-CV

KEYWORDS

Sudden Cardiac Death; Arrhythmia; Ion channels, Genetics; Cell Biology; Epigenomics; iPSCs

RELATED DISEASES

Sudden Death; Long Qt syndrome; Short Qt syndrome; Brugada Syndrome; Catecholaminergic polymorphic ventricular tachycardia; Arrhythmogenic cardiomyopathy; Hypertrophic cardiomyopathy; Dilated cardiomyopathy.

GROUP LEADER - R4

Ramon Brugada Terradellas (ICS/Trueta)

ESTABLISHED RESEARCHERS - R3

Oscar Campuzano Larrea (UdG)
Carles Ferrer Costa (IDIBGI)
Sergio Moral Torres (ICS/Trueta)
Sara Pagans Lista (UdG)

Guillermo Javier Pérez González (UdG)
Elisabet Selga Coma (UVic-UCC)
Fabiana Silvia Scornik Gerzenstein (UdG)
Marcel Vergés Aiguaviva (UdG)

POST-DOCTORAL RESEARCHERS - R2

Jaime Aboal Viñas (ICS/Trueta)
Mireia Alcalde Masegú (IDIBGI)
Mónica Coll Vidal (IDIBGI)
Markus Linhart (ICS/Trueta)
Pablo Loma-Osorio Rincon (ICS/Trueta)
Bernat Del Olmo Cabestré (IDIBGI)
Mel·lina Pinsach Abuin (IDIBGI)
Marta Puigmulé Raurich (ICS/Trueta)

PRE-DOCTORAL RESEARCHERS - R1

Maria Yajaira Alvarado Cervantes (IDIBGI)
Eloi Arias Labrador (EUSES)
David Carreras Gorgals (IDIBGI)
Anna Fernandez Falgueras (ICS/Trueta)
Rebecca Martínez Moreno (IDIBGI)
Adrián Pérez Agustín (IDIBGI)
Manjot Singh (ICS/Trueta)
Marta Vallverdú Prats (IDIBGI)

TECHNICIANS

Aleix Ramon Brugada Iglesias (GENINCODE)
Mònica Corona Martín (IDIBGI)

Anna Maria Iglesias Muñoz (IDIBGI)
Laura López López (IDIBGI)
Irene Mademont Soler (ICS/Trueta)
Marina Moliner Culubret (IDIBGI)
Núria Esther Neto Ibáñez (IDIBGI)
Adrià Simon Rodríguez (IDIBGI)
Alejandro Pérez Pizarro (IDIBGI)
Alexandra Pérez Serra (IDIBGI)
Ferran Picó Micaló (IDIBGI)
Isabel Ramio Viñets (IDIBGI)
Xavier Sumpsi Balada (IDIBGI)
Marcel Tarragó Lamelas (IDIBGI)

NON-SCIENTIFIC RESEARCH SUPPORT STAFF

Elisabet Canals Latorre (UdG)
Laia Nogué Navarro (UVic-UCC)

COLLABORATORS

Maria Berenguel Anter (ICS/Trueta)
Xavier Albert Bertran (ICS/Trueta)
Núria Coma Constançó (ICS/Trueta)
Paula Fluvia Brugués (ICS/Trueta)
Aleix Fort Pal (ICS/Trueta)
Maria Nuñez Torras (ICS/Trueta)
Daniel Rivero Cerda (ICS/Trueta)
Coloma Tiron De Llano (ICS/Trueta)
Maria-Emilce Trucco (ICS/Trueta)



OVERVIEW

PROBLEM

Sudden cardiac death in the young is a devastating event, which affects families and communities. Because it can have a genetic origin, it places family members at risk. The identification of the genetic cause is key for adoption of preventive strategies.

APPROACH

We aim to tackle this medical problem with research at the clinical and basic levels.

CLINICAL RESEARCH: The clinical research program takes advantage of the collaboration of hospitals and health centers to study risk factors, possible treatments, and prevention methods.

BASIC RESEARCH: Studies aimed at better understanding the biological bases of diseases associated with sudden death. The laboratory participates in different projects to understand the physio pathological basis of sudden death in six major aspects: Genetics, epigenetics, histology, electrophysiology, membrane trafficking and proteomics.

IMPACT

Our research is multidisciplinary. We use genetic tools to identify the genetic variants associated with the disease and molecular biology tools, functional studies, IPs and CRISPR technology to understand the basic mechanisms leading to arrhythmogenesis.

The goal of our research is to provide better tools for the identification of individuals at risk of sudden death, to adopt preventive and therapeutic strategies to ultimately better understand the most common cause of sudden death, the one caused by myocardial infarction.

MAIN RESEARCH LINES

- Channelopathies, we investigate new mechanisms associated with the disease, from the most basic to the clinical aspects of the disease
- Cardiomyopathies. We investigate how the disease is associated with sudden cardiac death in athletes
- Unexplained sudden death in forensics. We investigate the genetic, epigenetic and environmental factors causing sudden death in the young

- Public access defibrillation program. We investigate the use of public access defibrillators in the prevention of sudden death
- Valvulopathies
- Electrophysiological bases of arrhythmias
- Early coronary artery disease
- Cardioncology

PUBLICATIONS

ORIGINALS/ I.F: 167.37

1. Walsh R,Lahrouchi N,Tadros R, KYNDTF,Glinge C,Postema PG,Amin AS,Nannenberg EA,Ware JS,Whiffin N,Mazzarotto F,Škoric Milosavljevic D,Krijger C,Arbelo E,Babuty D,Barajas Martinez H,Beckmann BM,Bézieau S,Bos JM,Breckpot J,Campuzano O,Castelletti S,Celen C,Clauss S,Corveleyn A,Crott L,Dagradi F,de Asmundis C,Denjoy I,Dittmann S,Ellinor PT,Ortuño CG,Giustetto C,Gourraud JB,Hazeki D,Horie M,Ishikawa T,Itoh H,Kaneko Y,Kanters JK,Kimoto H,Kotta MC,Krapels I,Kurabayashi M,Lazarte J,Leenhardt A,Loeys BL,Lundin C,Makiyama T,Mansouriati J,Martins RP,Mazzanti A,Mörner S,Napolitano C,Ohkubo K,Papadakis M,Rudic B,Molina MS,Sacher F,Sahin H,Sarquella Brugada G,Sebastiano R,Sharma S,Sheppard MN,Shimamoto K,Shoemaker MB,Stallmeyer B,Steinfurt J,Tanaka Y,Tester DJ,Usuda K,van der Zwaag PA,Van Dooren S,Van Laer L,Winbo A,Winkel BG,Yamagata K,Zumhagen S,Volders P,Lubitz SA,Antzelevitch C,Platonov PG,Odening KE,Roden DM,Roberts JD,Skinner JR,Tfelt Hansen J,van den Berg MP,Olesen MS,Lambiase PD,Borggreffe M,Hayashi K,Rydberg A,Nakajima T,Yoshinaga M,Saenen JB,Kääb S,Brugada P,Robyns T,Giachino DF,Ackerman MJ,Brugada R,Brugada J,Gimeno JR,Hasdemir C,Guicheney P,Priori SG,Schulze Bahr E,Makita N,Schwartz PJ,Shimizu W,Aiba T,Schott JJ,Redon R,Ohno S,Probst V,Behr ER,Barc J,Bezzina CR, Nantes Referral Center for inherited cardiac arrhythmia. **Enhancing rare variant interpretation in inherited arrhythmias through quantitative analysis of consortium disease cohorts and population controls.** Genet Med. 2021. 23. (1):p. 47-58. IF:8,822. (Q1).
2. Jáuregui B,Soto Iglesias D,Zucchelli G,Penela D,Ordóñez A,Terés C,Chauca A,Acosta J,Fernández Armenta J,Linhart M,Perea RJ,Prat González S,Bosch X,Ortiz Pérez JT,Mont L,Berruezo A. **Arrhythmogenic substrate detection in chronic ischaemic patients undergoing ventricular tachycardia ablation using multidetector cardiac computed tomography: compared evaluation with cardiac magnetic resonance.** Europace. 2021. 23. (1):p. 82-90. IF:5,214. (Q2).

- 3.** Mademont Soler I,Casellas Vidal D,Trujillo A,Espuña Capote N,MAROTO A,García González MDM,Ruiz MD,Diego Álvarez D,Queralt X,Perapoch J,Obón M. **GLYT1 encephalopathy: Further delineation of disease phenotype and discussion of pathophysiological mechanisms.** Am. J. Med. Genet. A. 2021. 185. (2):p. 476-485. IF:2,802. (Q3).
- 4.** Giralt T,Ribas N,Freixa X,Sabaté M,Caldentey G,Tizón Marcos H,Carrillo X,García Picart J,Lidón RM,Cárdenes M,Pérez Fernández S,Mauri J,Vaquerizo B. **Impact of pre-angioplasty antithrombotic therapy administration on coronary reperfusion in ST-segment elevation myocardial infarction: Does time matter?** Int. J. Cardiol. 2021. 325. p. 9-15. IF:4,164. (Q2).
- 5.** Vallverdú Prats M,Alcalde M,Sarquella Brugada G,Cesar S,Arbelo E,Fernandez Falgueras A,Coll M,Pérez Serra A,Puigmulé M,Iglesias A,Fiol V,Ferrer Costa C,Olmo BD,Picó F,Lopez L,Jordà P,García Álvarez A,Llano CT,Toro R,Grassi S,Oliva A,Brugada J,Brugada R,Campuzano O. **Rare Variants Associated with Arrhythmogenic Cardiomyopathy: Reclassification Five Years Later.** J. Pers. Med. 2021. 11. (3):162. IF:4,945. (Q1).
- 6.** Arbelo E,Angera I,Trucco E,Rivas Gándara N,Guerra JM,Bisbal F,Jáuregui Abularach M,Vallés E,Martin G,Sbraga F,Tolosana JM,Linhart M,Francisco Pascual J,Montiel Serrano J,Pereferrer D,Menéndez Ramírez D,Jiménez J,Elamrani A,Borrás R,Dallaglio PD,Benito E,Santos Ortega A,Rodríguez Font E,Sarrià A,González Matos CE,Martí Almor J,Cabrera S,Mont L. **Reduction in new cardiac electronic device implantations in Catalonia during COVID-19.** Europace. 2021. 23. (3):p. 456-463. IF:5,214. (Q2).
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 - 3.** Moral S,Avegliano G,Cuéllar H,Ballesteros E,Rodríguez J,Teixidó G,Galian L,Gutiérrez L,Evangelista A. **Usefulness of Transesophageal Echocardiography in the Evaluation of Celiac Trunk and Superior Mesenteric Artery Involvement in Acute Aortic Dissection.** J. Am. Soc. Echocardiogr. 2021. 34(4):p. 327-335. IF:5,251. (Q2).
 - 4.** Grassi S,Campuzano Q,Coll M,Cazzato F,Sarquella G,Rossi R,Arena V,Brugada J,Brugada R,Oliva A. **Update on the Diagnostic Pitfalls of Autopsy and Post-Mortem Genetic Testing in Cardiomyopathies.** Int J Mol Sci. 2021. 22(8):4124. IF:5,923. (Q1).
 - 5.** Costagliola G,Orsini A,Coll M,Brugada R,Parisi P,Striano P. **The brain-heart interaction in epilepsy: implications for diagnosis, therapy, and SUDEP prevention.** Ann. Clin. Transl. Neurol. 2021. 8(7):p. 1557-1568. IF:4,511. (Q2).
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CONSORTIUM PUBLICATIONS/ I.F.: 14.25

1. Garre Olmo J,Turró Garriga O,Martí Lluch R,Zacarías Pons L,Alves Cabratosa L,Serrano Sarbosa D,Vilalta Franch J,Ramos R,Girona Healthy Region Study Group. **Changes in lifestyle resulting from confinement due to COVID-19 and depressive symptomatology: A cross-sectional a population-based study.** *Compr. Psychiatr.* 2021. 104. p. 152214-152214. IF:3,735. (Q2).
2. Sastre Buades A,Ochoa S,Lorente Rovira E,Barajas A,Grasa E,López Carrilero R,Luengo A,Ruiz Delgado I,Cid J,González Higueras F,Sánchez Alonso S,Baca García E,Barrigón ML,Spanish Metacognition Study Group. **Jumping to conclusions and suicidal behavior in depression and psychosis.** *J. Psychiatr. Res.* 2021. 137. p. 514-520. IF:4,791. (Q1).
3. Zamora V,Garin O,Pardo Y,Pont À,Gutiérrez C,Cabrera P,Gómez Veiga F,Pijoan JL,Litwin MS,Ferrer M, Multicentric Spanish Group of Clinically Localized Prostate Cancer. **Mapping the Patient-Oriented Prostate Utility Scale From the Expanded Prostate Cancer Index Composite and the Short-Form Health Surveys.** *Value Health.* 2021. 24. (11):p. 1676-1685. IF:5,725. (Q1).

MEMBERSHIP OF COLLABORATIVE RESEARCH NETWORKS**SPANISH**

- CIBER-CV (Enfermedades Cardiovasculares) - CB16/11/00329

GRANTS

Principal Investigator: Ramon Brugada
Project Title: Ajuda de personal FI_David Carreras
Project Code: 2018FI_B00969
Funding Agency: Agència De Gestió D'Ajuts Univ. I Recer.
Duration: 01/03/2018 to 15/07/2021

Principal Investigator: Ramon Brugada
Project Title: Ayuda de personal- movilidad
Project Code: MV20/00091

Funding Agency: Instituto De Salud Carlos III
Duration: 01/01/2021 to 31/12/2021

Principal Investigator: Ramon Brugada
Project Title: Ayuda de personal PFIS
Project Code: FI18/00321
Funding Agency: Instituto De Salud Carlos III
Duration: 01/01/2019 to 31/05/2023

Principal Investigator: Ramon Brugada
Project Title: Mendelian Randomization to assess causal genetic pathways leading to severe COVID-19 (GINA-COVID)
Project Code: La Marató- GINA-COVID
Funding Agency: Fundació La Marató TV3
Duration: 20/07/2021 to 30/07/2024

Principal Investigator: Ramon Brugada, Antoni Castro, Rafel Ramos
Project Title: RBD Dimer recombinant protein vaccine against SARS-CoV2
Project Code: 101046118- RBDCOV
Funding Agency: European Commission
Duration: 01/12/2021 to 31/05/2024

Principal Investigator: Ramon Brugada
Project Title: Enhancing Whole Genome Sequencing (WGS) and/or Reverse Transcription Polymerase Chain Reaction (RT-PCR) national infrastructures and capacities to respond to the Covid-19 pandemic in Spain. HERA Incubator
Project Code: HERA INCUBATOR
Funding Agency: European Centre For Disease Prevention And Control (ECDC)
Duration: 03/09/2021 to 30/09/2022

Principal Investigator: Ramon Brugada
Project Title: Muerte súbita inexplicada en población joven: estudio genético, translación clínica y prevención familiar.
Project Code: PI17/01690
Funding Agency: Instituto De Salud Carlos III
Duration: 01/01/2018 to 31/05/2021

Principal Investigator: Oscar Campuzano
Project Title: Estudio de expresión del ARN en pacientes con miocardiopatía arritmogénica para la determinación del sustrato fisiopatológico inductor de arritmias
Project Code: SEC/FEC-INV-BAS 20/003
Funding Agency: Sec- Sociedad Española De Cardiología
Duration: 28/10/2020 to 31/12/2024

DOCTORAL THESES

Thesis author: Rebecca Martínez Moreno
Title: Effect of sodium channel SNVs associated to arrhythmogenic diseases. Modulatory role of the genetic background
Thesis directors: Dra. Fabiana Scornik Gerzenstein / Dra. Elisabet Selga Coma
International mention: Yes

AWARDS

Title: Medalla Narcís Monturiol al mèrit científic i tecnològic

Institution: Generalitat de Catalunya

Awardee/s: Dr. Ramon Brugada

Title: Premi Joan Codina Altés

Institution: Societat Catalana de Cardiologia

Awardee/s: Dr. Ramon Brugada

Research in vascular health



redIAPP
Red de Investigación en Actividades Preventivas y Promoción de la Salud

Recognized as a consolidated research group by AGAUR (Generalitat de Catalunya) - 2017 SGR 1146.

MEMBER OF
rediAPP ISCIII

KEYWORDS
Atherosclerosis
Cardiovascular risk
Primary prevention

RELATED DISEASES
Coronary Heart Disease
Cerebrovascular disease
Peripheral Artery Disease

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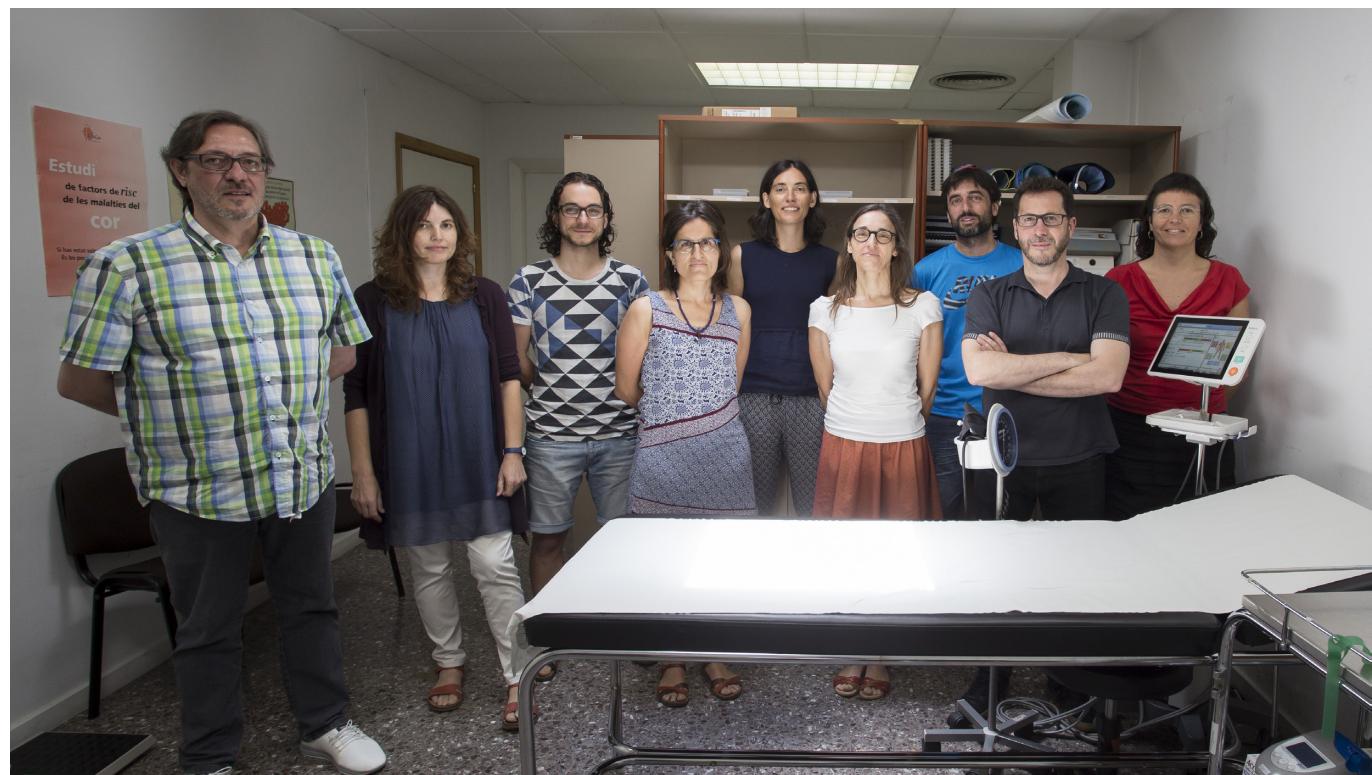
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OVERVIEW

PROBLEM

Cardiovascular diseases are the leading cause of death and disability in the western countries. Most of the burden of cardiovascular diseases is preventable.

APPROACH

Our group is focused on the design and implementation of decision-making support tools using mathematical modelling of risk prediction and on the design and evaluation of preventive interventions to reduce the cardiovascular disease burden.

IMPACT

Our final goal is to improve lifestyles and cardiovascular risk factors and reduce the incidence of cardiovascular diseases in general population.

MAIN RESEARCH LINES

- Evaluation of preventive interventions and study of the effectiveness of drugs used in primary prevention.
- Epidemiology of cardiovascular diseases, especially asymptomatic.
- The design of decision-making support tools using mathematical modelling of risk prediction.

PUBLICATIONS

ORIGINALS / I.F: 97.10

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- risk of subclinical carotid atherosclerosis and stiffness?**
Hypertens Res. 2021. 44. (8):p. 1046-1046. IF:3,872. (Q2).
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- 14.** Arnoriaga Rodríguez M, Mayneris Perxachs J, Contreras Rodríguez Q, Burokas A, Ortega Sanchez JA, Blasco G, Coll C, Biarnés C, Castells Nobau A, Puig J, Garre Olmo J, Ramos R, Pedraza S, Brugada R, K, Serena J, Barretina J, Gich J, Pérez Brocal V, Moya A, Fernández Real X, Ramírez Torrentà L, Pamplona R, Sol J, Jové M, Ricart W, Portero Otin M, Maldonado R, Fernández Real JM. **Obesity-associated deficits in inhibitory control are phenocopied to mice through gut microbiota changes in one-carbon and aromatic amino acids metabolic pathways.** Gut. 2021. 70. (12):p. 2283-2296. IF:23,059. (Q1).
- 15.** Tiron C, Ramos R, Iglesias J, Fernandez Falgueras A, Campuzano O, Loma Osorio P, Brugada R. **The Peguero-Lo Presti ECG criteria improve diagnostic accuracy of left ventricular hypertrophy in hypertrophic cardiomyopathy patients.** J. Cardiovasc. Med. 2021. 22. (12):p. 946-947. IF:2,160. (Q3).
- 16.** Zabaleta Olmo E, Casajuana Closas M, López Jiménez T, Pombo H, Pons Vigués M, Pujol Ribera E, Cabezas Peña C, Llobera J, Martí Lluch R, Vicens C, Motrico E, Gómez I, Maderuelo Fernández JA, Recio Rodriguez JI, Masluk B, Contreras Martos S, Jacques Aviñó C, Aznar Lou I, Gil Girbau M, Clavería A, Magallón Botaya R, Bellón JÁ, Ramos R, Sanchez Perez A, Moreno Peral P, Leiva A, González Formoso C, Bolíbar B. **Multiple health behaviour change primary care intervention for smoking cessation, physical activity and healthy diet in adults 45 to 75 years old (EIRA study): a hybrid effectiveness-implementation cluster randomised trial.** Bmc Public Health. 2021. 21. (1):p. 2208-2208. IF:3,295. (Q2).
- LETTERS/ I.F.: 4.48**
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- CONSORTIUM PUBLICATIONS/ I.F.: 8.14**
- 1.** NCD Risk Factor Collaboration (NCD-RisC). **Heterogeneous contributions of change in population distribution of body mass index to change in obesity and underweight.** eLife. 2021. 10. e60060. IF:8,140. (Q1).
-
- GRANTS**
- Principal Investigator:** Ramon Brugada, Antoni Castro, Rafel Ramos
Project Title: RBD Dimer recombinant protein vaccine against SARSCoV2
Project Code: 101046118- RBDCOV
Funding Agency: European Commission
Duration: 01/12/2021 to 31/05/2024
- Principal Investigator:** Josep Garre, Josep Puig, Rafel Ramos
Project Title: Girona, Regió Saludable- Imagenoma de la Salut
Project Code: GO03-001848- PECT
Funding Agency: Generalitat de Catalunya (Fons FEDER), Diputació de Girona
Duration: 01/01/2017 to 31/12/2021
- Principal Investigator:** Ruth Martí-Lluch
Project Title: Análisis del papel de las aptitudes personales como DETERminantes de la incidencia de morbilidad, eStilos de vida, calidad de Vida, uso de sErvidios y mortalidad (Cohorte DESVELA)
Project Code:
Funding Agency: INSTITUTO CARLOS III
Duration: 01/01/2020 to 31/12/2022
- Principal Investigator:** Anna Ponjoan
Project Title: Smart City Observatories implement REsilient Water Management
Project Code: 820751
Funding Agency: European Commission
Duration: 2019 to 2022
- Principal Investigator:** Anna Ponjoan
Project Title: Nivel y variación del riesgo cardiovascular y prevención

de la demencia
Project Code:
Funding Agency: Instituto Carlos III
Duration: 25/11/2020 to 25/11/2023

Principal Investigator: Rafel Ramos
Project Title: Prediction of Adolescent mental health from Electronic health Records (PANTHER)
Project Code: UNS80587
Funding Agency: University College London (UCL)
Duration: 2021 to 2023

Gil
International mention: No

COLLABORATIVE GRANTS

Principal Investigator: José Manuel Fernández-Real
Project Title: Stratification of Obese Phenotypes to Optimize Future Obesity Therapy
Project Code: 875534- SOPHIA
Funding Agency: European Commission
Duration: 09/07/2020 to 08/07/2025

Principal Investigator: Jaume Marrugat
Project Title: CARGENCORS / CARdiovascular GENetic risk score for Risk Stratification of patients positive for SARS-CoV-2 (COvid 19) virus
Project Code:
Funding Agency: FONDO SUPERA COVID19
Duration: 2020 to 2022

MEMBERSHIP OF COLLABORATIVE RESEARCH NETWORKS

SPANISH

- RETICS - Red: REDIAPP ISCIII (Actividades preventivas y promoción de la Salud)
 - RICORS – Red: RICCAPS ISCIII - RD21/0016/0001
-

DOCTORAL THESES

Thesis author: Erica Horns Romero
Title: Prevalencia e incidencia de la enfermedad venosa crónica en Cataluña. Desarrollo y validación de un conjunto mínimo básico de datos para su prevención, diagnóstico y tratamiento.
Thesis directors: Dra. Ruth Martí Lluch / Dr. José Verdú Soriano
International mention: No

Thesis author: Laura Guerrero Caballero
Title: Programa d'intervenció familiar multidisciplinar en atenció primària de salut basat en la teràpia de resolució de problemes per la disminució de la utilització dels recursos sanitaris del pacient crònic complex.
Thesis directors: Dr. Rafel Ramos Blanes / Dra. María del Mar García

Respiratory



Part of a preconsolidated research group recognized by AGAUR (Generalitat de Catalunya) - 2017 SGR 1387.

MEMBER OF
CIBER-ES

KEYWORDS
Bronchiectasis
Sleep disorders
Interstitial Lung Diseases
Occupational diseases
COVID-19
Endothelial dysfunction
Arterial pulmonary hypertension
Thromboembolic disease

RELATED DISEASES
Bronchiectasis
Obstructive Sleep Apnea Hypopnea Syndrome
Thromboembolic pulmonary hypertension
COVID-19
Lung Cancer
Occupational and Interstitial Lung Diseases

GROUP LEADER - R4

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Anton Obrador Lagares (ICS/Trueta)
Carmen Rosa Vargas Arevalo (ICS/Trueta)
Anna Torrente Nieto (ICS/Trueta)



OVERVIEW

PROBLEM

The Respiratory Research Group is focused on research of bronchiectasis, sleep disorders, thromboembolic pulmonary hypertension, COVID-19, lung cancer, occupational respiratory and interstitial lung diseases. The research challenge is to improve knowledge in respiratory health problems and have significantly beneficial impact on patient's health.

APPROACH

As a medical research group, our research is based on intense clinical activity and is especially linked to the resolution of clinical problems. We consider that participation of clinicians from the Pulmonology Service is essential. In addition, the collaboration of our basic research unit is also essential, as it carries out the necessary laboratory tasks in those studies and projects that is required.

IMPACT

A growing understanding of the respiratory health problems may have a significantly impact on the heath system and patient's quality of life. In addition to the direct impact on the respiratory health of the population, we want to improve our competitiveness in research. Also, make it possible, innovation and technology transfer.

RESEARCH TOPICS

- Bronchiectasis
- Obstructive Sleep Apnea Hypopnea Syndrome
- Endothelial dysfunction
- Occupational and interstitial diseases
- Lung cancer
- COVID-19

PUBLICATIONS

ORIGINALS / I.F: 59.96

1. Muñoz G, de Gracia J, Giron R, Olveira C, Alvarez A, Buxó M, Birring SS, Vendrell M. **Validation of a Spanish version of the Leicester Cough Questionnaire in cystic fibrosis.** Chronic Respir. Dis. 2021; 18: 14799731211036903. IF:2,444. (Q4).
2. Youssef L, Miranda J, Blasco M, Paules C, Crovetto F, Palomo M, Torramade Moix S, García Calderó H, Tura Ceide O, Dantas AP, Hernandez Gea V, Herrero P, Canela N, Campistol JM, Garcia Pagan JC, Diaz Ricart M, Gratacos E, Crispi F. **Complement and coagulation cascades activation is the main pathophysiological pathway in early-onset severe preeclampsia revealed by maternal proteomics.** Sci Rep. 2021; 11: (1):p. 3048-3048. IF:4,379. (Q1).
3. Nukala SB, Tura Ceide O, Aldini G, Smolders V, Blanco I, Peinado VI, Castellà M, Barberà JA, Altomare A, Baron G, Carini M, Cascante M, D'Amato A. **Protein network analyses of pulmonary endothelial cells in chronic thromboembolic pulmonary hypertension.** Sci Rep. 2021; 11: (1):p. 5583-5583. IF:4,379. (Q1).
4. Smolders V, Lodder K, Rodríguez C, Tura Ceide O, Barberà JA, Jukema JW, Quax P, Goumans MJ, Kurakula K. **The Inflammatory Profile of CTEPH-Derived Endothelial Cells Is a Possible Driver of Disease Progression.** Cells. 2021; 10: (4):737. IF:6,600. (Q2).
5. Shull JG, Pay MT, Lara Compte C, Olid M, Bermudo G, Portillo K, Sellarés J, Balcells E, Vicens Zygmunt V, Planas Cerezales L, Badenes Bonet D, Blavia R, Rivera Ortega P, Moreno A, Sans J, Perich D, Barril S, Esteban L, Garcia Bellmunt L, Esplugas J, Suarez Cuartín G, Bordas Martínez J, Castillo D, Jolis R, Salvador I, Eizaguirre Anton S, Villar A, Robles Perez A, Cardona MJ, Barbeta E, Silveira MG, Guevara C, Dorca J, Rosell A, Luburich P, Llatjós R, Jorba O, Molina M. **Mapping IPF helps identify geographic regions at higher risk for disease development and potential triggers.** Respirology. 2021; 26: (4):p. 352-359. IF:6,424. (Q1).
6. Rodríguez C, Luque N, Blanco I, Sebastian L, Barberà JA, Peinado VI, Tura Ceide O. **Reply to: COVID-19 and Coagulopathy.** Am J Respir Cell Mol Biol. 2021; 64: (6):p. 764-766. IF:6,914. (Q1).
7. Tura Ceide O, Blanco I, García Lucio J, Del Pozo R, García AR, Ferrer E, Crespo I, Rodríguez Chiaradia DA, Simeon Aznar CP, López Meseguer M, Martín Ontiyuelo C, Peinado VI, Barberà JA. **Circulating Cell Biomarkers in Pulmonary Arterial Hypertension: Relationship with Clinical Heterogeneity and Therapeutic Response.** Cells. 2021; 10: (7):1688. IF:6,600. (Q2).
8. Tejada S, Campogiani L, Solé Lleonart C, Gómez A, Gallego M, Vendrell M, Soriano JB, Rello J. **Inhaled antibiotics for treatment of adults with non-cystic fibrosis bronchiectasis: A systematic review and meta-analysis.** Eur. J. Intern. Med. 2021; 90: p. 77-88. IF:4,487. (Q1).
9. Muñoz Castro G, Balañá Corberó A. **Airway Clearance and Mucoactive Therapies.** Semin. Respir. Crit. Care Med. 2021.

42. (4):p. 616-622. IF:3,119. (Q3).
- 10.** Tura Ceide O,Smolders V,Aventin N,Morén C,Guitart Mampel M,Blanco I,Piccarri L,Osorio J,Rodríguez C,Rigol M,Solanes N,Malandrino A,Kurakula K,Goumans MJ,Quax P,Peinado VI,Castellà M,Barberà JA. **Derivation and characterisation of endothelial cells from patients with chronic thromboembolic pulmonary hypertension.** Sci Rep. 2021. 11. (1):p. 18797-18797. IF:4,379. (Q1).
- 11.** Gallogly S,Fujisawa T,Hung JD,Brittan M,Skinner EM,Mitchell AJ,Medine C,Luque N,Zodda E,Cascante M,Hadoke PW,Mills NL,Tura Ceide O. **Generation of a Novel In Vitro Model to Study Endothelial Dysfunction from Atherothrombotic Specimens.** Cardiovasc Drugs Ther. 2021. 35. (6):p. 1281-1290. IF:3,727. (Q2).
- 12.** Trinidad FJR,Ruiz MA,Batillo NS,Badenes AV,Gibert JB,Canellas AV,Moreno MR,Rofastes XF,Tenás MS,Dantas AP,Tura Ceide O,Muxart MR. **Linking In Vitro Models of Endothelial Dysfunction with Cell Senescence.** Life (Basel). 2021. 11. (12):1323. IF:3,817. (Q2).
- 13.** Torrego A,Herth FJ,Munoz Fernandez AM,Puente L,Faciolongo N,Bicknell S,Novali M,Gasparini S,Bonifazi M,Dheda K,Andreo F,Votruba P,Langton D,Flandes J,Fielding D,Bonta PI,Skowasch D,Schulz C,Darwiche K,McMullen E,Grubb GM,Niven R. **Bronchial Thermoplasty Global Registry (BTGR): 2-year results.** BMJ Open. 2021. 11. (12):e053854. IF:2,692. (Q2).
- REVIEWS / I.F: 12.99**
- 1.** Kurakula K,Smolders V,Tura Ceide O,Jukema JW,Quax P,Goumans MJ. **Endothelial Dysfunction in Pulmonary Hypertension: Cause or Consequence?** Biomedicines. 2021. 9. (1):57. IF:6,081. (Q1).
- 2.** Rodríguez C,Luque N,Blanco I,Sebastian L,Barberà JA,Peinado VI,Tura Ceide O. **Pulmonary Endothelial Dysfunction and Thrombotic Complications in COVID-19 Patients.** Am J Respir Cell Mol Biol. 2021. 64. (4):p. 407-415. IF:6,914. (Q1).
- CONSORTIUM PUBLICATIONS / I.F: 9.29**
- 1.** Garre Olmo J,Turró Garriga O,Martí Lluch R,Zacarías Pons L,Alves Cabratosa L,Serrano Sarbosa D,Vilalta Franch J,Ramos R,Girona Healthy Region Study Group,Manté XA,Casedevall JB,Ginesta JB,Terradellas RB,Perxas LC,Colom JC,Real JMF,Quicios JH,Bermejo AL,Gragera RM,Del Rio AM,Navarrete JMM,Nicolau JL,Martinez P,Compta AP,Gutierrez SP,Alcántara JP,Torrentà LR,García GR,Serena J,Relat MV, K. **Changes in lifestyle resulting from confinement due to COVID-19 and depressive symptomatology: A cross-sectional a population-based study.** Compr. Psychiat. 2021. 104. p. 152214-152214. IF:3,735. (Q2).
- 2.** Mayneris Perxachs J,Russo MF,Ramos R,de Hollanda A,Arxé AA,Rottoli M,Arnoriaga Rodríguez M,Comas Cufí M,Bartoletti M,Verrastro O,Gudiol C,Fages E,Giménez M,Gil AG,Bernante P,Tinahones F,Carratalà J,Pagotto U,Hernández Aguado I,Fernández Aranda F,Meira F,Castro Guardiola A,Mingrone G,Fernández Real JM,Obesity-T2DM Covid19 Study Group. **Blood Hemoglobin Substantially Modulates the Impact of Gender, Morbid Obesity, and Hyperglycemia on COVID-19 Death Risk: A Multicenter Study in Italy and Spain.** Front. Endocrinol. 2021. 12. p. 741248-741248. IF:5,555. (Q1).
- GRANTS**
- Principal Investigator: Ramon Orriols
Project Title: La detección de ctDNA como herramienta diagnóstica en el cáncer de pulmón
Project Code: 729/2018
Funding Agency: SOC. ESP. NEUMOLOGIA Y CIRURGIA TORACICA
Duration: 07/01/2019 to 31/12/2022
- Principal Investigator: Anton Obrador, Ramon Orriols, Olga Tura
Project Title: Diagnostic and treatment of Sleep Apnea Hypopnea Syndrome in Primary Care. INNOBICS
Project Code: ID-220637
Funding Agency: EIT Health
Duration: 01/12/2021 to 31/05/2024
- Principal Investigator: Montserrat Vendrell
Project Title: Benefits of inhalation of 7% hypertonic saline solution prior to ELTGOL physiotherapy, in patients with bronchiectasis. A randomized controlled trial
Project Code: FISHT2021
Funding Agency: SOC. ESP. NEUMOLOGIA Y CIRURGIA TORACICA
Duration: 15/12/2021 to 31/12/2022
- Principal Investigator: Olga Tura
Project Title: Study of the insights and origins of endothelial dysfunction in chronic thromboembolic pulmonary hypertension and covid-19 (SIENA)
Project Code: PI12/01212
Funding Agency: INSTITUTO DE SALUD CARLOS III
Duration: 01/01/2022 to 31/12/2025
- Principal Investigator: Paula Poyatos
Project Title: Nuevas estrategias terapéuticas para tratar la disfunción endotelial en HPTEC: Moléculas de adhesión y estrés oxidativo. Estudio de la disfunción endotelial en pacientes con COVID-19
Project Code: IFUdG2021
Funding Agency: Becas Santander Investigación
Duration: 2021 to 2024
- Principal Investigator: Olga Tura

Project Title: Mitochondrial-endoplasmatic reticulum abnormalities in endothelial cells derived from patients with chronic thromboembolic pulmonary

Project Code: 202007439

Funding Agency: ALBA-Synchrotron Cells

Duration: 2021

Principal Investigator: Paula Poyatos

Project Title: Nuevas estrategias terapéuticas para tratar la disfunción endotelial en HPTEC: Moléculas de adhesión y estrés oxidativo. Estudio de la disfunción endotelial en pacientes con COVID-19

Project Code: IFUDG2021

Funding Agency: Becas Santander Investigación

Duration: 2021 to 2024

Principal Investigator: Olga Tura

Project Title: Estudio del metabolismo y de la función endotelial en pacientes con hipertensión pulmonar tromboembólica: efecto de la estimulación de Riociguat

Project Code:

Funding Agency: Societat Catalana de Pneumologia (SOCAP)

Duration: 2020 to 2022

MEMBERSHIP OF COLLABORATIVE RESEARCH NETWORKS

INTERNATIONAL

- Cost Action
- EMBARC - The European Bronchiectasis Registry

SPANISH

- CIBER_ES (enfermedades respiratorias) - CB06/06/0030

DOCTORAL THESES

Thesis author: Valérie F E D Smolders

Title: Functional and metabolic characterization of endothelial cells in chronic thromboembolic pulmonary hypertension

Thesis directors: Dra. Olga Tura Ceide

International mention: Yes

SIEMENS

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MEDICAL IMAGING

MEDICAL IMAGING

Medical imaging

KEYWORDS

Imaging
Radiology
Nuclear medicine
Disease
Postprocessing

RELATED DISEASES
Stroke
Oncology
Aging
Musculoskeletal
Metabolism
Obesity

GROUP LEADER - R4

Salvador Pedraza Gutiérrez (IDI)

ESTABLISHED RESEARCHERS - R3

Oren Contreras Rodriguez (IDIBGI)
Josep Puig Alcántara (IDI)
Joan Carles Vilanova Busquets (IDI)

POST-DOCTORAL RESEARCHERS - R2

Victor Pineda Sanchez (IDI)

PRE-DOCTORAL RESEARCHERS - R1

Marta Reales Moreno (IDIBGI)

TECHNICIANS

Carles Biarnes Duran (IDIBGI)
Maria Angels Martí Navas (IDIBGI)

COLLABORATORS

Pepus Daunís Estadella (UdG)
Santiago Thio Fernandez De Henestrosa
(UdG)



OVERVIEW

PROBLEM

Biomarkers are characteristics that are objectively evaluated as indicators of normal biological and pathological processes, or treatment responses. Our challenge is to use advanced imaging techniques to develop associative or predictive imaging biomarkers that would make it possible to understand the clinical condition and course of disease. Despite an increase in new imaging biomarkers, only a few have undergone full validation and qualification for routine research or clinical use.

APPROACH

Our imaging lab is located at Department of Radiology (IDI) in the University Hospital Dr. Josep Trueta. We are involved into the optimization of the 1.5T magnetic resonance imaging protocols acquisition and data quantification.

IMPACT

The practice of precision medicine requires reliable and informative biomarkers to guide clinical management decisions. The impact of our processes is expected to accelerate translation of imaging biomarkers into clinical use.

MAIN RESEARCH LINES

- Cerebrovascular disease
- Oncology
- Aging
- Obesity

PUBLICATIONS

ORIGINALS / I.F: 137.16

1. Ohara T, Menon BK, Al Ajlan FS, Horn M, Najm M, Al Sultan A, Puig J, Dowlatshahi D, Calleja Sanz AI, Sohn SI, Ahn SH, Poppe AY, Mikulik R, Asdaghi N, Field TS, Jin A, Asil T, Boulanger JM, Letteri F, Dey S, Evans JW, Goyal M, Hill MD, Almekhlafi M, Demchuk AM, for INTERSeCT Study I. **Thrombus Migration and Fragmentation After Intravenous Alteplase Treatment: The INTERSeCT Study.** *Stroke.* 2021; 52. (1):p. 203-212. IF:7,914. (Q1).

2. Mota Martorell N, Jové M, Borrás C, Berdún R, Obis È, Sol J, Cabré R, Pradas I, Galo Licona JD, Puig J, Viña J, Pamplona R. **Methionine transsulfuration pathway is upregulated in long-lived humans.** *Free Radic. Biol. Med.* 2021; 162. p. 38-52. IF:7,376. (Q1).
3. Pérez Pelegrí M, Biarnés C, Thió Henestrosa S, Remollo S, Gimeno A, Cuba V, Teceño M, Martí Navas M, Serena J, Pedraza S, Ruiz Constantino JS, Puig J. **Higher agreement in endovascular treatment decision-making than in parametric quantifications among automated CT perfusion software packages in acute ischemic stroke.** *J Xray Sci Technol.* 2021; 29. (5):p. 823-834. IF:1,535. (Q3).
4. Esteve Codina A, Alameda F, Carrato C, Pineda E, Arpí O, Martínez García M, Mallo M, Gut M, Dabad M, Tortosa A, Del Barco S, Capellades J, Puig J, Gallego O, Pujol T, Oleaga L, Gil MJ, de Quintana Schmidt C, Valduvieco I, Martínez Cardus A, Bellosillo B, Muñoz Márquez AM, Esteve A, Domenech M, Camins A, Craven Bartle J, Villa S, Marruecos J, Domenech S, de la Iglesia N, Balana C. **RNA-Sequencing and immunohistochemistry reveal ZFN7 as a stronger marker of survival than molecular subtypes in G-CIMP-negative glioblastoma.** *Clin. Cancer Res.* 2021; 27. (2):p. 645-655. IF:12,531. (Q1).
5. Jensen M, Boutitie F, Cheng B, Cho TH, Ebinger M, Endres M, Fiebach JB, Fiehler J, Ford I, Galinovic I, Königsberg A, Puig J, Roy P, Wouters A, Thijss V, Lemmens R, Muir KW, Nighoghossian N, Pedraza S, Simonsen CZ, Gerloff C, Thomalla G. **Polypharmacy, functional outcome and treatment effect of intravenous alteplase for acute ischaemic stroke.** *Eur. J. Neurol.* 2021; 28. (2):p. 532-539. IF:6,089. (Q1).
6. Planellas P, Salvador H, Cornejo L, Buxó M, Farrés R, Molina X, Maroto A, Ortega N, Rodríguez Hermosa JI, Codina Cazador A. **Risk factors for suboptimal laparoscopic surgery in rectal cancer patients.** *Langenbecks Arch. Surg.* 2021; 406. (2):p. 309-318. IF:3,445. (Q2).
7. Escrichs A, Biarnés C, Garre Olmo J, Fernández Real JM, Ramos R, Pamplona R, Brugada R, Serena J, Ramió Torrentà L, Coll Tuero G, Gallart L, Barretina J, K, Mayneris Perxachs J, Essig M, Figley CR, Pedraza S, Puig J, Deco G. **Whole-Brain Dynamics in Aging: Disruptions in Functional Connectivity and the Role of the Rich Club.** *Cereb Cortex.* 2021; 31. (5):p. 2466-2481. IF:5,357. (Q1).
8. Mayneris Perxachs J, Cardellini M, Hoyles L, Latorre J, Davato F, Moreno Navarrete JM, Arnorriaga Rodríguez M, Serino M, Abbott J, Barton RH, Puig J, Fernández Real X, Ricart W, Tomlinson C, Woodbridge M, Gentileschi P, Butcher SA, Holmes E, Nicholson JK, Pérez Brocal V, Moya A, Clain DM, Burcelin R, Dumas ME, Federici M, Fernández Real JM. **Iron status influences non-alcoholic fatty liver disease in obesity through the gut microbiome.** *Microbiome.* 2021; 9. (1):p. 104-114. IF:5,357. (Q1).

104. IF:14,650. (Q1).
9. Schlemm E,Ingwersen T,Königsberg A,Boutitie F,Ebinger M,Endres M,Fiebach JB,Fiehler J,Galinovic I,Lemmens R,Muir KW,Nighoghossian N,Pedraza S,Puig J,Simonsen CZ,Thijs V,Wouters A,Gerloff C,Thomalla G,Cheng B. **Preserved structural connectivity mediates the clinical effect of thrombolysis in patients with anterior-circulation stroke.***Nat Commun.* 2021. 12. (1):p. 2590-2590. IF:14,919. (Q1).
10. Wibmer AG,Kattan MW,Alessandrino F,Baur A,Boesen L,Franco FB,Bonekamp D,Campa R,Cash H,Catalá V,Crouzet S,Dinnoc S,Eastham J,Fennelly FM,Ghabili K,Hohenfellner M,Levi AW,Ji X,Løgager V,Margolis DJ,Moldovan PC,Panebianco V,Penzkofer T,Puech P,Radtke JP,Rouvière O,Schlemmer HP,Sprengle PC,Tempany CM,K,Weinreb J,Hricak H,Shukla Dave A. **International Multi-Site Initiative to Develop an MRI-Inclusive Nomogram for Side-Specific Prediction of Extraprostatic Extension of Prostate Cancer.***Cancers.* 2021. 13. (11):2627. IF:6,639. (Q1).
11. Königsberg A,DeMarco AT,Mayer C,Wouters A,Schlemm E,Ebinger M,Cho TH,Endres M,Fiebach JB,Fiehler J,Galinovic I,Puig J,Thijs V,Lemmens R,Muir KW,Nighoghossian N,Pedraza S,Simonsen CZ,Gerloff C,Thomalla G,Cheng B. **Influence of stroke infarct location on quality of life assessed in a multivariate lesion-symptom mapping study.***Sci Rep.* 2021. 11. (1):p. 13490-13490. IF:4,379. (Q1).
12. Martinez Boggio G,Meynadier A,Daunis Estadella P,Marie Etancelin C. **Compositional analysis of ruminal bacteria from ewes selected for somatic cell score and milk persistency.***PLoS One.* 2021. 16. (7):e0254874. IF:3,240. (Q2).
13. Blasco J,Puig J,Daunis Estadella P,González E,Fondevila Monso JJ,Manso X,Oteros R,Jimenez Gomez E,Bravo Rey I,Vega P,Murias E,Jimenez JM,López Rueda A,Renú A,Aixut S,Chirife Chaparro O,Rosati S,Moreu M,Remollo S,Aguilar Tejedor Y,Terceño M,Mosqueira A,Nogueira RG,San Roman L. **Balloon guide catheter improvements in thrombectomy outcomes persist despite advances in intracranial aspiration technology.***J. NeuroInterventional Surg.* 2021. 13. (9):p. 773-778. IF:5,836. (Q1).
14. Porcu M,Cocco L,Puig J,Mannelli L,Yang Q,Suri JS,Defazio G,Saba L. **Global Fractional Anisotropy: Effect on Resting-state Neural Activity and Brain Networking in Healthy Participants.***Neuroscience.* 2021. 472. p. 103-115. IF:3,590. (Q3).
15. Sartor MM,Grau Sánchez J,Guillén Solà A,Boza R,Puig J,Stinear C,Morgado Perez A,Duarte E. **Intensive rehabilitation programme for patients with subacute stroke in an inpatient rehabilitation facility: describing a protocol of a prospective cohort study.***BMJ Open.* 2021. 11. (10):e046346. IF:2,692. (Q2).
16. Álvarez Torres MDM,Fuster García E,Balaña C,Puig J,García Gómez JM. **Lack of Benefit of Extending Temozolamide Treatment in Patients with High Vascular Glioblastoma with Methylated MGMT.***Cancers.* 2021. 13. (21):5420. IF:6,639. (Q1).
17. Mayneris Perxachs J,Moreno Navarrete JM,Ballanti M,Monteleone G,Alessandro Paoluzi O,Mingrone G,Lefebvre P,Staels B,Federici M,Puig J,Garre J,Ramos R,Fernández Real JM. **Lipidomics and metabolomics signatures of SARS-CoV-2 mediators/receptors in peripheral leukocytes, jejunum and colon.***Comp. Struct. Biotechnol. J..* 2021. 19. p. 6080-6089. IF:7,271. (Q1).
18. Arnoriaga Rodríguez M,Mayneris Perxachs J,Contreras Rodríguez O,Burokas A,Ortega Sanchez JA,Blasco G,Coll C,Biarnés C,Castells Nobau A,Puig J,Garre Olmo J,Ramos R,Pedraza S,Brugada R,K,Serena J,Barretina J,Gich J,Pérez Brocal V,Moya A,Fernández Real X,Ramírez Torrentà L,Pamplona R,Sol J,Jové M,Ricart W,Portero Otín M,Maldonado R,Fernández Real JM. **Obesity-associated deficits in inhibitory control are phenocopied to mice through gut microbiota changes in one-carbon and aromatic amino acids metabolic pathways.***Gut.* 2021. 70. (12):p. 2283-2296. IF:23,059. (Q1).

CONSORTIUM PUBLICATIONS/ I.F.: 3.73

1. Garre Olmo J,Turró Garriga O,Martí Lluch R,Zacarías Pons L,Alves Cabratosa L,Serrano Sarbosa D,Vilalta Franch J,Ramos R,Girona Healthy Region Study Group. **Changes in lifestyle resulting from confinement due to COVID-19 and depressive symptomatology: A cross-sectional a population-based study.***Compr. Psychiat.* 2021. 104. p. 152214-152214. IF:3,735. (Q2).

GRANTS

Principal Investigator: Oren Contreras
 Project Title: Ayuda de personal Miquel Servet
 Project Code: CP20/00165
 Funding Agency: INSTITUTO DE SALUD CARLOS III
 Duration: 01/01/2021 to 31/12/2025

Principal Investigator: Josep Puig
 Project Title: MRI Biomarkers of brain connectivity during stroke recovery and rehabilitation
 Project Code: La Marató 201725.30
 Funding Agency: FUNDACIÓ LA MARATÓ TV3
 Duration: 10/03/2019 to 31/01/2022

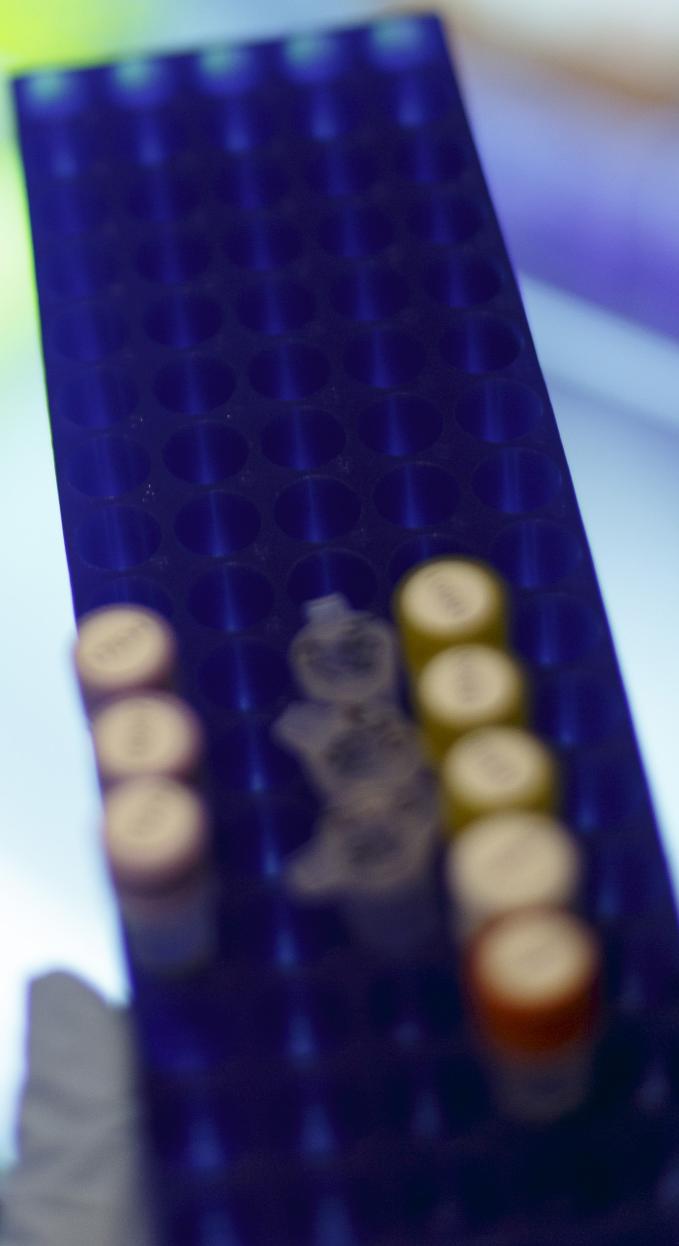
Principal Investigator: Joan Carles Vilanova
Project Title: An AI Platform integrating imaging data and models, supporting precision care through prostate cancer's continuum
Project Code: 952159- PROCANCER
Funding Agency: European Commission
Duration: 01/10/2020 to 30/09/2024

Principal Investigator: Josep Garre, Josep Puig, Rafel Ramos
Project Title: Girona, Regió Saludable- Imagenoma de la Salut
Project Code: GO03-001848- PECT
Funding Agency: Generalitat de Catalunya (Fons FEDER), Diputació de Girona
Duration: 01/01/2017 to 31/12/2021

PATENTS

Title: Method And System For The Automatic Segmentation Of White Matter Hyperintensities In Brain Magnetic Resonance Images
Application number: WO2021058843
Applicants: QUIBIM S.L., Fundació Institut d'Investigació Biomèdica de Girona Dr. Josep Trueta (IDIBGI).
Inventors: Ana María Jiménez, Eduardo Camacho, Fabio Garcia, Ángel Alberich, Josep Puig, Carles Biarnés, Lluís Martí, Salvador Pedraza.

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24/03/12



MENTAL HEALTH

MENTAL HEALTH AND ADDICTIONS
NEURODEVELOPMENTAL DISORDERS

Mental health and addictions

KEYWORDS	GROUP LEADER - R4	Lourdes Márquez Mora (IAS)
Mental health	Jordi Cid Colom (IAS)	Sacramento Mayoral Moyano (IAS)
Addictions		Alejandro Nieto Campaña (IAS)
Psychotropic drugs		Pilar Ramiro (IAS)
Patient safety		Patricia Revilla Bruñol (IAS)
Epidemiology		José Luís Sagredo (IAS)
Neuropsychology		Ingrid Thelen (IAS)
Pediatric		Cristina Toro Blanch (ICS/Trueta)
Adults		Glòria Tràfach (IAS)
Mental health services		
Genetic polymorphism		
RELATED DISEASES	ESTABLISHED RESEARCHERS - R3	
Mental health	Eva Frigola Capell (IAS)	
Mood disorder		
Attempted suicide		
Psychosis		
Attention deficit disorder with hyperactivity	POST-DOCTORAL RESEARCHERS - R2	
Disruptive behavior disorders	Aránzazu Jordá Jordá (IAS)	
Cognition disorders	Laura Masferrer Boix (IAS)	
Addictions	Domènec Serrano Sarbosa (IAS)	
 	PRE-DOCTORAL RESEARCHERS - R1	
	Meritxell Beltran Fernandez (IAS)	
	Maria Dels Àngels Deu Coll (IAS)	
	René Ricardo Morgan Ferrando (IAS)	
	Eduard Palomer (IAS)	
 	COLLABORATORS	
	Eugenia Baykova Platonenkova (IAS)	
	Margarita De Castro-Palomino Serra (IAS)	
	Jordi Font Pujol (IAS)	
	Montse Gibernau (IAS)	
	Maria Pilar González Planas (IAS)	
	Begoña Gonzalvo Cirac (IAS)	
	Laura Gratacos Santanach (ICS/Trueta)	
	Maria Dolors Malla (IAS)	

OVERVIEW

PROBLEM

Mental health disorders are influenced by individual attributes (ie. genetic-based factors...) the social circumstances (socio-economic status, educational, working conditions...) and the environment (access to services, cultural background...) in which they live. These determinants interact dynamically, and may threaten or protect an individual's mental state. Suffering a mental health problem increases the odds of substance use problems. Variability in the treatment of complex mental health disorders yields to increasing costs and exposure to quality and safety inequalities among health care users.

APPROACH

The group research focuses on the study of mental health conditions through genetic and imaging tools, psychological treatments, psychometrics, e-health technologies, social-functionalism impact, and epidemiological methods. The group also focus on assessment of mental health programmes and support in decision making. Finally, the group focuses on patient safety, systematizing the identification of events or

circumstances that may have given rise to, or have indeed given rise to unnecessary harm to a patient, and work in suggesting improvements.

IMPACT

The ambition is to increase knowledge of mental disorders. A growing understanding in this field may offer new and important tools to move forward to better treatments and recovery, allow personal empowerment and improve quality of care of patients.

MAIN RESEARCH LINES

- Clinical Research line, which includes several mental health conditions such as psychosis, addictions, mood disorders, attempted suicide, attention deficit disorder with hyperactivity...
- Mental health programmes and support in decision making.
- IC Technologies applied to health and remote assistance and m-health (use of mobile technology).
- Quality and Patient Safety applied to clinical processes, phar-

macological and non-pharmacological therapies and genetics in mental health.

PUBLICATIONS

ORIGINALS / I.F: 21.03

1. **Caparrós B,Masferrer L. Coping Strategies and Complicated Grief in a Substance Use Disorder Sample.** Front. Psychol. 2021. 11. p. 624065-624065. IF:2,990. (Q2).
2. Sastre Buades A,Ochoa S,Lorente Rovira E,Barajas A,Grasa E,López Carrilero R,Luengo A,Ruiz Delgado I,Cid J,González Higueras F,Sánchez Alonso S,Baca García E,Barrigón ML,Spanish Metacognition Study G. **Jumping to conclusions and suicidal behavior in depression and psychosis.** J. Psychiatr. Res. 2021. 137. p. 514-520. IF:4,791. (Q1).
3. **Castells X,Ramon M,Cunill R,Olivé C,SERRANO D. Relationship Between Treatment Duration and Efficacy of Pharmacological Treatment for ADHD: A Meta-Analysis and Meta-Regression of 87 Randomized Controlled Clinical Trials.** J Atten Disord. 2021. 25. (10):p. 1352-1361. IF:3,256. (Q2).
4. González Blanch C,Birulés I,Pousa E,Barrigón ML,López Carrilero R,Lorente Rovira E,Ayesa Arriola R,Setien Suero E,Barajas A,Grasa EM,Ruiz Delgado I,González Higueras F,Cid J,Ochoa S. **Moderators of cognitive insight outcome in metacognitive training for first-episode psychosis.** J. Psychiatr. Res. 2021. 141. p. 104-110. IF:4,791. (Q1).
5. Ferrer Quintero M,Fernández D,López Carrilero R,Birulés I,Barajas A,Lorente Rovira E,Díaz Cutraro L,Verdaguer M,García Mieres H,Sevilla Jones J,Gutiérrez Zotes A,Grasa E,Pousa E,Huerta Ramos E,Pélaez T,Barrigón ML,González Higueras F,Ruiz Delgado I,Cid J,Moritz S,Spanish Metacognition G,Ochoa S. **Persons with first episode psychosis have distinct profiles of social cognition and metacognition.** npj Schizophr. 2021. 7. (1):p. 61-61. IF:5,200. (Q1).

LETTERS / I.F: 4.94

1. Díaz Cutraro L,García Mieres H,López Carrilero R,Ferrer M,Verdaguer Rodríguez M,Barrigón ML,Barajas A,Grasa E,Pousa E,Lorente E,Ruiz Delgado I,González Higueras F,Cid J,Palma Sevillano C,Moritz S,Spanish Metacognition G,Ochoa S. **Jumping to conclusions is differently associated with specific subtypes of delusional experiences: An exploratory study in first-episode psychosis.** Schizophr. Res. 2021. 228. p. 357-359. IF:4,939. (Q1).

CONSORTIUM PUBLICATIONS / I.F: 3.73

1. Garre Olmo J,Turró Garriga O,Martí Lluch R,Zacarías Pons L,Alves Cabratosa L,Serrano Sarbosa D,Vilalta Franch J,Ramos R,Girona Healthy Region Study Group. **Changes in lifestyle resulting from confinement due to COVID-19 and depressive symptomatology: A cross-sectional a population-based study.** Compr. Psychiatr. 2021. 104. p. 152214-152214. IF:3,735. (Q2).

COLLABORATIVE GRANTS

Principal Investigator: Aránzazu Jordá Jordá
 Project Title: Beneficios De Combinar El Entrenamiento Metacognitivo (Emc) Con La Rehabilitacion Cognitiva (Rc) En La Recuperacion De Pacientes Con Trastornos Del Espectro Psicotico
 Project Code: PI20/00104

Funding Agency: I+D+i Orientada a los Restos de la Sociedad, del Plan Estatal de Investigación Científica y Técnica y de Innovación 2017-2020
 Duration: 18/01/2021 to 30/06/2023

Principal Investigator: Susana Ochoa
 Project Title: Influencia del estilo de apego en la cognición social y sesgos cognitivos en personas con un primer episodio psicótico, esquizofrénia crónica y controles sanos/as
 Project Code: PI18/00212

Funding Agency: Instituto de Salud Carlos III
 Duration: 18/01/2019 to 30/06/2023

Principal Investigator: Jordi Núñez
 Project Title: Predictores clínicos y biomarcadores de las tentativas de suicidio en pacientes del Código Riesgo Suicidio de Cataluña (CRS)
 Project Code: PI17/01205
 Funding Agency: Instituto de Salud Carlos III
 Duration: 2018 to 2022

MEMBERSHIP OF COLLABORATIVE RESEARCH NETWORKS

SPANISH

- Spanish Metacognition Study Group (SMSG)
- PSICOST Group

Neurodevelopmental disorders

KEYWORDS

Mental health
Intellectual disabilities

Autism spectrum disorder

Challenge behavior

Genetics

Behavioural phenotypes

Prader-Willy

Down syndrome

Neuropsychology

DTI

MEG

MRI

Connectivity

RELATED DISEASES

Autism spectrum disorder

Rare genetic syndromes

Intellectual disabilities

Prader Willi Syndrome

Down Syndrome

GROUP LEADER - R4

Ramon Novell Alsina (IAS)

POST-DOCTORAL RESEARCHERS - R2

Pilar Àvila Castells (UdG)

Susanna Esteba Castillo (IAS)

PRE-DOCTORAL RESEARCHERS - R1

Aida Palacin Maresma (IAS)

TECHNICIANS

Nuria Ribas Vidal (IAS)

COLLABORATORS

Marta Vilà Alsina (IAS)



OVERVIEW

PROBLEM

People with intellectual disabilities are a population that has a high probability of presenting behavioural disturbances and/or mental health problems. They are, generally, an unattractive population when it comes to global research due to the difficulty involved, in their assessment, among others. We believe that the study of this group will, on one hand, allow the improvement on the understanding of the relationship between behaviour-brain and, on the other hand, to improve interventions in the field of health (both pharmacological and non-pharmacological).

APPROACH

We want to focus on an interdisciplinary approach that wants to identify the genetic, cognitive, MRI/connectivity and mental health problems in intellectual disability population, rare genetic syndromes and autism disorders. Also, we want to reduce the contribution of mental health difficulties, autism characteristics and negative outcomes in people with complex needs.

IMPACT

The impact of our research has a range from the purely biological aspect to the most social one, such as supporting the rights and the access of people with intellectual disabilities to secondary and tertiary healthcare services as recent EU policy developments and initiatives gathered below include actions and recommendations focused on the issue of people with disabilities' health and their right to access health care services. So far, what we want to achieve and what we're fighting for is obtaining the right for an acceptable quality of life.

MAIN RESEARCH LINES

Our interdisciplinary research is on learning disabilities from different perspectives. Research to date has had the following main themes:

- Relationship between genetics-cognition-behaviour in people with intellectual disabilities.
- Research projects have included studies of Prader Willi Syndrome and the associated eating disorder and risks of psychiatric illness, neuropsychological aspects and functional connectivity.
- Investigations of the links between Down's syndrome and the high risk for developing Mild cognitive impairment and

Alzheimer's disease and diagnostic criteria.

- Creation, validation and standardization of neuropsychological and psychiatric tests in ID population.
- Study of genetic variants, structural alterations and cognitive profiles in women on the autism spectrum.
- Proprioception-based intervention for behavioural, psychiatric and sleep factors improvement.
- Stands for stopping over medication of people with a learning disability and or autism with psychotropic medicines Supporting rights and access of people with intellectual disabilities to secondary and tertiary healthcare services.

PUBLICATIONS

ORIGINALS/ I.F: 22.11

1. Cobo J, Coronas R, Pousa E, Oliva JC, Giménez Palop O, Esteba Castillo S, Novell R, Palao DJ, Caixàs A. Multidimensional Evaluation of Awareness in Prader-Willi Syndrome. *J Clin Med.* 2021. 10. (9):2007. IF:4,241. (Q1).
2. Giménez Palop O, Casamitjana L, Corripio R, Esteba Castillo S, Pareja R, Albiñana N, Rigla M, Caixàs A. Growth Hormone (GH) Treatment Decreases Plasma Kisspeptin Levels in GH-Deficient Adults with Prader-Willi Syndrome. *J Clin Med.* 2021. 10. (14):3054. IF:4,241. (Q1).
3. Blanco Hinojo L, Casamitjana L, Pujol J, Martínez Vilavella G, Esteba Castillo S, Giménez Palop O, Freijo V, Deus J, Caixàs A. Cerebellar Dysfunction in Adults with Prader Willi Syndrome. *J Clin Med.* 2021. 10. (15):3320. IF:4,241. (Q1).
4. Caixàs A, Blanco Hinojo L, Pujol J, Deus J, Giménez Palop O, Torrents Rodas D, Coronas R, Novell R, Esteba Castillo S. Altered Gesture Imitation and Brain Anatomy in Adult Prader-Willi Syndrome Patients. *J. Int. Neuropsychol. Soc.* 2021. 27. (10):p. 1-13. IF:2,892. (Q2).
5. Ramírez Toraño F, García Alba J, Bruña R, Esteba Castillo S, Vaquero L, Pereda E, Maestu F, Fernández A. Hypersynchronized MEG brain networks in patients with mild cognitive impairment and Alzheimer's disease in Down syndrome. *Brain Connect.* 2021. 11. (9):p. 725-733. IF:2,262. (Q4).

-
6. Bueno M, Boixadera Planas E, Blanco Hinojo L, Esteba Castillo S, Giménez Palop O, Torrents Rodas D, Pujol J, Corripio R, Deus J, Caixàs A. **Hunger and Satiety Peptides: Is There a Pattern to Classify Patients with Prader-Willi Syndrome?**. J Clin Med. 2021. 10. (21):5170. IF:4,241. (Q1).
-

COLLABORATIVE GRANTS

Principal Investigator: Assumpta Caixàs, Susanna Esteba
Project Title: Efecto de la estimulación de la propiocepción profunda sobre los trastornos del sueño el comportamiento y la conectividad cerebral en pacientes con Síndrome de Prader-Willi
Project Code: PI21/00459
Funding Agency: Instituto de Salud Carlos III
Duration: 2021 to 2024

Principal Investigator: Tratamiento con hormona de crecimiento en el adulto con Síndrome de Prader-Willi: efecto sobre el tono muscular valorado mediante resonancia magnética funcional (RMf) y su relación con la fuerza muscular y la composición corporal
Project Code:
Funding Agency: Instituto de Salud Carlos III
Duration: 2019 to 2022

AWARDS

Title: Intervención combinada en un caso de síndrome KBG: PECS y metodología P-LeViSS
Institution: Piramid
Awardee/s: Neurodevelopment disorders research group.



METABOLISM AND INFLAM- MATION

DIGESTIVE DISEASES AND MICROBIOTA
INFECTIONS, SEPSIS AND MULTI-ORGAN DYSFUNCTION IN THE PATIENT
INTERNAL MEDICINE
METABOLIC AND MATERNAL-FETAL
NEPHROLOGY
NUTRITION, EUMETABOLISM AND HEALTH
OBESITY AND CARDIOVASCULAR RISK IN CHILDREN

Digestive diseases and microbiota

KEYWORDS

Microbiota
Biomarkers
Inflammatory Bowel diseases
Pancreatic diseases
Colorectal Cancer
Molecular microbial ecology

RELATED DISEASES

Inflammatory bowel diseases
Irritable bowel syndrome
Celiac disease
Pancreatic cancer
Chronic pancreatitis
Colorectal Cancer

GROUP LEADER - R4

Xavier Aldeguer Mante (IDIBGI)

ESTABLISHED RESEARCHERS - R3

Virginia Piñol Sanchez (ICS/Trueta)
Margarita Sala Llinàs (ICS/Trueta)
Isabel Serra Matamala (ICS/Trueta)

POST-DOCTORAL RESEARCHERS - R2

Anna Bahí Salavedra (IDIBGI)
Marc Llirós Dupre (IDIBGI)
Javier Pamplona Portero (IAS)
Miriam Sàbat Mir (IAS)

PRE-DOCTORAL RESEARCHERS - R1

David Busquets Casals (ICS/Trueta)
Aleix Lluansí Salís (IDIBGI)
Josep Oriol Miquel Cusachs (ICS/Trueta)
Laura Vilà Quintana (IDIBGI)

TECHNICIANS

Montserrat Capdevila Cabarrocas (IDIBGI)
Anna Feliu Ropero (IDIBGI)
Anna Rodríguez Morera (ICO)

COLLABORATORS

Marc Albert Carrasco (ICS/Trueta)
Esther Fort Martorell (ICS/Trueta)
Carlos Huertas Nadal (ICS/Trueta)
Carmen Lopez Nuñez (ICS/Trueta)
Laura Pardo Grau (ICS/Trueta)
Leyanira Torrealba Medina (ICS/Trueta)



OVERVIEW

PROBLEM

The role of living microorganisms in the digestive system on overall health and digestive diseases is an expanding research field. Alterations in the composition have been observed related to health outcomes; however, their causal role and their diagnostic character is not yet elucidated. Moreover, modifications on the composition by prebiotic or probiotic intake are a potential noninvasive treatment for outcomes and symptoms.

APPROACH

We collect tissue, saliva, and feces samples from different patients with specific outcomes. The 16s rRNA gene of those samples is sequenced by DNA PCR techniques to obtain the present microbiota diversity. These techniques are independent from traditional culture techniques, and allow a minimum biased identification of diversity.

IMPACT

The results of our research activity will provide evidence on the diagnostic character of microbiome diversity on a range of digestive diseases, and the potential benefit of prebiotic and probiotic intake to revert microbiota unbalanced composition.

MAIN RESEARCH LINES

- Diagnostic capacity of microbiome diversity on inflammatory bowel diseases, including Crohn's diseases and colitis ulcerosa, and their different states (active, remission without bowel discomfort, remission with bowel discomfort)
- Diagnostic capacity of microbiome diversity on pancreas outcomes including chronic pancreatitis and pancreatic cancer
- Prebiotic effect of bread fermentation protocols on microbiome composition of patients with inflammatory bowel diseases

PUBLICATIONS

ORIGINALS / I.F: 76.42

- Chaparro M, Garre A, Mesonero F, Rodríguez C, Barreiro de Acosta M, Martínez Cadilla J, Arroyo MT, Manceñido N, Sierra Ausín M, Vera Mendoza I, Casanova MJ, Nos P, González Muñoz C, Martínez T, Boscá Watts M, Calafat M, Busquets D, Girona E, Llaó J, Martín Arranz MD, Piqueras M, Ramos L, Surís G, Bermejo F, Carbajo AY, Casas Deza D, Fernández Clotet A, García MJ, Ginard D, Gutiérrez Casbas A, Hernández L, Lucendo AJ, Márquez L, Merino Ochoa O, Rancel FJ, Taxonera C, López Sanromán A, Rubio S, Domènech E, Gisbert JP. **Tofacitinib in Ulcerative Colitis: Real-world Evidence From the ENEIDA Registry.** *J. Crohns Colitis.* 2021. 15. (1):p. 35-42. IF:9,071. (Q1).

- Roland F, Borges AV, Darchambeau F, Llirós M, Descy JP, Morana C. **The possible occurrence of iron-dependent anaerobic methane oxidation in an Archean Ocean analogue.** *Sci Rep.* 2021. 11. (1):p. 1597-1597. IF:4,379. (Q1).

- Oliver L, Ramió Pujol S, Amoedo J, Malagón M, Serrano M, Bahí A, Lluansí A, Torrealba L, Busquets D, PARDÒ GRAU L, Serra Pagès M, Aldeguer X, García Gil J. **A Novel Grape-Derived Prebiotic Selectively Enhances Abundance and Metabolic Activity of Butyrate-Producing Bacteria in Faecal Samples.** *Front. Microbiol.* 2021. 12. p. 639948-639948. IF:5,640. (Q1).

- Mesonero F, Castro Poceiro J, Benítez JM, Camps B, Iborra M, López García A, Torres P, Esteve M, Tosca J, Bertolletti F, Almela P, Calvet X, Vera I, Bujanda L, Gomollón F, Rodríguez C, Antolín B, Busquets D, Hernández A, Rivero M, Monfort I, Miquel D, Castaño García A, Gisbert JP, Domènech E, López Sanromán A, ENEIDA Project of G. **Effectiveness and safety of methotrexate monotherapy in patients with Crohn's disease refractory to anti-TNF-α: results from the ENEIDA registry.** *Aliment. Pharmacol. Ther.* 2021. 53. (9):p. 1021-1029. IF:8,171. (Q1).

- Algaba A, Guerra I, Ricart E, Iglesias E, Mañosa M, Gisbert JP, Guardiola J, Mínguez M, Castro B, de Francisco R, Nos P, Bertolletti F, Mesonero F, Barrio J, Martín Arranz MD, Calvet X, García López S, Sicilia B, Alcaín G, Esteve M, Márquez L, Piqueras M, Jiménez L, Pérez Calle JL, Bujanda L, García Sepulcre M, Fernández A, Moraleja I, Lorente RH, García Bosch O, Lambán A, Blázquez I, Rodríguez E, Huguet JM, Lucendo AJ, Almela P, Busquets D, Ramírez de la Piscina P, Pérez M, Domenech E, Bermejo F, Spanish GETECCU Group (ENEIDA P. **Extraintestinal Manifestations in Patients with Inflammatory Bowel Disease: Study Based on the ENEIDA Registry.** *Dig. Dis. Sci.* 2021. 66. (6):p. 2014-2023. IF:3,199. (Q3).

- Chaparro M, Garre A, Núñez Ortiz A, Díz Lois Palomares MT, Rodríguez C, Riester S, Vela M, Benítez JM, Fernández Salgado E, Sánchez Rodríguez E, Hernández V, Ferreiro Iglesias R, Ponferrada Díaz Á, Barrio J, Huguet JM, Sicilia B, Martín Arranz MD, Calvet X, Ginard D, Alonso Abreu I, Fernández Salazar L, Varela Trastoy P, Rivero M, Vera Mendoza I, Vega P, Navarro P, Sierra M, Cabriada JL, Aguas M, Vicente R, Navarro Llavat M, Echarri A, Gomollón F, Guerra Del Río E, Piñero C, Casanova MJ, Spicakova K, Ortiz de Zarate J, Torrella Cortés E, Gutiérrez A, Alonso Galán H, Hernández Martínez Á, Marrero JM, Lorente Poyatos R, Calafat M, Martí Romero L, Robledo P, Bosch O, Jiménez N, Esteve Comas M, Duque JM, Fuentes Coronel

- AM,Josefa Sampedro M,Sesé Abizanda E,Herreros Martínez B,Pozzati L,Fernández Rosáenz H,Crespo Suarez B,López Serrano P,Lucendo AJ,Muñoz Vicente M,Bermejo F,Ramírez Palanca JJ,Menacho M,Carmona A,Camargo R,Torra Alsina S,Maroto N,Nerín de la Puerta J,Castro E,Marín Jiménez I,Botella B,Sapiña A,Cruz N,Forcelledo JLF,Bouhmidi A,Castaño Milla C,Opio V,Nicolás I,Kutz M,Abraldes Bechiarelli A,Gordillo J,Ber Y,Torres Domínguez Y,Novella Durán MT,Rodríguez Mondéjar S,Martínez Cerezo FJ,Kolle L,Sabat M,Ledezma C,Iyo E,Roncero Ó,Irisarri R,Lluís L,Blázquez Gómez I,Zapata EM,José Alcalá M,Martínez Pascual C,Montealegre M,Mata L,Monrobel A,Hernández Camba A,Hernández L,Tejada M,Mir A,Galve ML,Soler M,Hervías D,Gómez Valero JA,Barreiro de Acosta M,Rodríguez Artalejo F,García Esquinas E,Gisbert JP, On Behalf Of The EpidemiIBD Study Group Of Geteccu. **Incidence, Clinical Characteristics and Management of Inflammatory Bowel Disease in Spain: Large-Scale Epidemiological Study.** J Clin Med. 2021. 10. (13):2885. IF:4,241. (Q1).
- 7.** Alfranca R,Salvans M,López C,Giralt C,Ramírez M,Calvo F. **Hepatitis C in homeless people: reaching a hard-to-reach population.** Rev. Esp. Enferm. Dig. 2021. 113. (7):p. 529-532. IF:2,086. (Q4).
- 8.** Mur P,Bonifaci N,Díez Villanueva A,Munté E,Alonso MH,Obón Santacana M,Aiza G,Navarro M,Piñol V,Brunet J,Tomlinson I,Capellá G,Moreno V,Valle L. **Non-Lynch Familial and Early-Onset Colorectal Cancer Explained by Accumulation of Low-Risk Genetic Variants.** Cancers. 2021. 13. (15):3857. IF:6,639. (Q1).
- 9.** Lluansí A,Llirós M,Oliver L,Bahí A,Elias Masiques N,Gonzalez M,Benejam P,Cueva E,Termes M,Ramió Pujol S,Malagón M,Amoedo J,Serrano M,Busquets D,Torreableba L,Sabat M,Buxó M,Cambra M,Serra Pagès M,Delgado Aros S,García Gil LJ,Elias I,Aldeguer X. **In vitro Prebiotic Effect of Bread-Making Process in Inflammatory Bowel Disease Microbiome.** Front. Microbiol. 2021. 12. p. 716307-716307. IF:5,640. (Q1).
- 10.** Pamplona J,Solano R,Ramírez M,Durández R,Mohamed F,PARDO L,Sàbat M. **High prevalence of SARS-CoV-2 infection in patients scheduled for digestive endoscopy after the peak of the first wave of the pandemic.** Gastroenterol. Hepatol. 2021. 44. (9):p. 614-619. IF:2,102. (Q4).
- 11.** Reig A,Álvarez Navascués C,Vergara M,Gómez Domínguez E,Gallego Moya A,Pérez Medrano IM,Fábrega E,Hernández Guerra M,Berenguer M,Estevez P,Arencibia A,Morillas RM,Horta D,Albilllos A,Casado M,De la Cruz G,Fernandez Bonilla E,Molina E,Hijona L,Diago M,Fernández Rodríguez CM,González Santiago JM,Sala M,Gómez Camarero J,Romero Gomez M,Suárez F,Vargas V,Ferre Aracil C,Andrade RJ,Chahri N,Parés A. **Obeticholic Acid and Fibrates in Primary Biliary Cholangitis: Comparative Effects in a Multicentric Observational Study.** Am. J. Gastroenterol. 2021. 116. (11):p. 2250-2257. IF:10,864. (Q1).
- 12.** Chaparro M,Garre A,Iborra M,Sierra Ausín M,Barreiro de Acosta M,Fernández Clotet A,de Castro L,Boscá Watts M,Casanova MJ,López García A,Lorente R,Rodríguez C,Carbajo AY,Arroyo MT,Gutiérrez A,Hinojosa J,Martínez Pérez T,Villoria A,Bermejo F,Busquets D,Camps B,Cañete F,Manceñido N,Monfort D,Navarro Llavat M,Pérez Calle JL,Ramos L,Rivero M,Angueira T,Camo Monterde P,Carpio D,García Filia I,González Muñoz C,Hernández L,Huguet JM,Morales VJ,Sicilia B,Vega P,Vera I,Zabana Y,Nos P,Suárez Álvarez P,Calviño Suárez C,Ricart E,Hernández V,Mínguez M,Márquez L,Hervías Cruz D,Rubio Iturria S,Barrio J,Gargallo Puyuelo C,Francés R,Hinojosa E,Del Moral M,Calvet X,Algaba A,Aldeguer X,Guardiola J,Mañoso M,Pajares R,Piquerias M,García Bosch O,López Serrano P,Castro B,Lucendo AJ,Montoro M,Castro Ortiz E,Mesonero F,García Planella E,Fuentes DA,Bort I,Delgado Guillena P,Arias L,Iglesias A,Calvo M,Esteve M,Domènech E,Gisbert JP. **Effectiveness and Safety of Ustekinumab in Ulcerative Colitis: Real-world Evidence from the ENEIDA Registry.** J. Crohns Colitis. 2021. 15. (11):p. 1846-1851. IF:9,071. (Q1).
- 13.** Busquets D,Oliver L,Amoedo J,Ramió Pujol S,Malagón M,Serrano M,Bahí A,Capdevila M,Lluansí A,Torreableba L,Peries L,Chavero R,Gilabert P,Sàbat M,Guardiola J,Serra Pagès M,García Gil J,Aldeguer X. **RAID Prediction: Pilot Study of Fecal Microbial Signature With Capacity to Predict Response to Anti-TNF Treatment.** Inflamm. Bowel Dis. 2021. 27. (Suppl 2):p. 63-66. IF:5,325. (Q2). 06
- CONSORTIUM PUBLICATIONS/ I.F.: 3.73**
- 1.** Garre Olmo J,Turró Garriga O,Martí Lluch R,Zacarías Pons L,Alves Cabratosa L,Serrano Sarbosa D,Vilalta Franch J,Ramos R,Girona Healthy Region Study Group. **Changes in lifestyle resulting from confinement due to COVID-19 and depressive symptomatology: A cross-sectional a population-based study.** Compr. Psychiat. 2021. 104. p. 152214-152214. IF:3,735. (Q2).
-
- GRANTS**
- Principal Investigator: Xavier Aldeguer
Project Title: Analysis of microbiota patterns linked to pancreatic cancer and their role in host inflammation, oxidative stress, and immune status
Project Code: La Marató 201912-31
Funding Agency: FUNDACIÓ LA MARATÓ TV3
Duration: 30/09/2020 to 30/09/2023
- Principal Investigator: Xavier Aldeguer
Project Title: Assaig clínic controlat, aleatoritzat i a doble cec per

avaluar l'efecte in vivo del pa Elias Boulanger de llarga fermentació (EBLF) comparat amb el pa industrial de curta fermentació (PCF) en pacients amb Colitis Ulcerosa (CU) quiescent

Project Code: RTC-2017-6467-2

Funding Agency: MINISTERIO DE ECONOMIA Y COMPETITIVIDAD
MINECO

Duration: 18/09/2018 to 30/09/2021

MEMBERSHIP OF COLLABORATIVE RESEARCH NETWORKS

SPANISH

- Grupo español de trabajo en enfermedades de Crohn y colitis ulcerosa (GETECCU)
-

DOCTORAL THESES

Thesis author: Josep Oriol Miquel Cusachs

Title: Monitoratge de la malaltia inflamatòria intestinal en la pràctica clínica mitjançant marcadors de la microbiota intestinal en mostres fecals. Estudi prospectiu.

Thesis directors: Xavier Aldeguer Manté / Jesús L. Garcia-Gil

International mention: No

Infections, sepsis and multi-organ dysfunction in the patient

KEYWORDS

Critical care
Infection
Sepsis
Septic shock
Microbiota
Inflammatory Bowel diseases
Biomarker
Molecular microbial ecology

RELATED DISEASES

Pneumonia
Sepsis and Septic Shock
Microbiome

GROUP LEADER - R4

Josep Maria Sirvent Calvera (ICS/Trueta)

PRE-DOCTORAL RESEARCHERS - R1

Carolina Lorencio Cardenas (ICS/Trueta)
Silvia Maritza Cuenca Barrero (ICS/Trueta)
Cristina Murcia Gubianas (ICS/Trueta)
Patricia Ortiz Ballujera (ICS/Trueta)

COLLABORATORS

Josep Miquel Morales Pedrosa (IAS)
Juliana Gonzalez Londoño (IAS)



OVERVIEW

PROBLEM

Our aim is understanding the pathogenesis of infections and sepsis in the critically ill patient.

APPROACH

The physiological mechanisms that are altered during the hospitalization and in the intensive care unit (ICU) contribute to the pathobiota's growth. In this sense, the group research is focused on the study of predictive biomarkers of mortality in critically ill patients. We also focus on molecular analysis of the microbiome of critically ill patients. Finally, as severe sepsis remains the most common cause of death in intensive care units (ICUs), the group also focuses on creating a sepsis registry by collecting data that describe the management and outcomes of severe sepsis patients in ICUs.

IMPACT

The ambition is to develop better treatments for the improvement of critically ill patient prognostic and survival. Also, a growing understanding of the microbiome may offer important tools in changing antibiotic stewardship and management of the critically ill patient.

MAIN RESEARCH LINES

- Studies of Microbiology and Infections in the critically ill patient.
- Study of sepsis.
- Study of community-acquired pneumonia.
- Study of sepsis in glycemia.
- Procedure in security and sepsis in critical patient.

PUBLICATIONS

ORIGINALS / I.F.: 2.49

1. Sirvent JM,Cordon C,Cuenca S,Fuster C,Lorencio C,Ortiz P.
Application, verification and correction from an elaborate checklist with some of the recommendations («do and do not do») of the SEMICYUC working groups.Med Intensiva. 2021. 45. (2):p. 88-95. IF:2,491. (Q3).

LETTERS/ I.F.: 4.48

1. Murcia C,Yébenes JC,Buxó M,Sirvent JM,Pinart E.**Dynamics**

of high-sensitivity troponin T and myocardial dysfunction during the first 72 h of septic shock. Eur. J. Intern. Med. 2021. 91p. 104-106. IF:4,487. (Q1).

CONSORTIUM PUBLICATIONS/ I.F.: 36.25

1. Pun BT,Badenes R,Heras La Calle G,Orun OM,Chen W,Raman R,Simpson BK,Wilson Linville S,Hinojal Olmedillo B,Vallejo de la Cueva A,van der Jagt M,Navarro Casado R,Leal Sanz P,Orun G,Ferrer Gómez C,Núñez Vázquez K,Piñeiro Otero P,Taccone FS,Gallego Curto E,Caricato A,Woien H,Lacave G,O'Neal HR,Peterson SJ,Brummel NE,Girard TD,Ely EW,Pandharipande PP,COVID 19 Intensive Care International Study Group.
Prevalence and risk factors for delirium in critically ill patients with COVID-19 (COVID-D): a multicentre cohort study.Lancet Respir Med. 2021. 9. (3):p. 239-250. IF:30,700. (Q1).
2. Mayneris Perxachs J,Russo MF,Ramos R,de Hollanda A,Arxé AA,Rottoli M,Arnoriaga Rodríguez M,Comas Cufí M,Bartoletti M,Verrastro O,Gudiol C,Fages E,Giménez M,Gil AG,Bernante P,Tinahones F,Carratalà J,Pagotto U,Hernández Aguado I,Fernández Aranda F,Meira F,Castro Guardiola A,Mingrone G,Fernández Real JM,Obesity T2DM Covid19 Study Group.
Blood Hemoglobin Substantially Modulates the Impact of Gender, Morbid Obesity, and Hyperglycemia on COVID-19 Death Risk: A Multicenter Study in Italy and Spain.Front. Endocrinol. 2021. 12. p. 741248-741248. IF:5,555. (Q1).

MEMBERSHIP OF COLLABORATIVE RESEARCH NETWORKS

SPANISH

- Grupo ÍTACA

Internal medicine

KEYWORDS

Venous Thromboembolism
Heart Failure
Infectious diseases
COVID-19
Sarcoidosis

RELATED DISEASES

Infectious diseases
Heart failure
Venous thromboembolic disease
Systemic-autoimmune disease

GROUP LEADER - R4

Antoni Castro Guardiola (ICS/Trueta)

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Ariadna De Genover Gil (ICS/Trueta)

TECHNICIANS

Àngela Llop Hernández (IDIBGI)

COLLABORATORS

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Ferran Garcia-Bragado Dalmau (ICS/Trueta)
Abelardo Hurtado Ganoza (ICS/Trueta)
Marta Lora Diez (ICS/Trueta)
Anna Oller Perez-Hita (ICS/Trueta)
Guillem Policarpo Torres (ICS/Trueta)
Xavier Salgado Serrano (ICS/Trueta)



OVERVIEW

PROBLEM

The scientific challenge of our group is to acquire new knowledge in the study of risk factors, diagnosis and treatment of diseases within our field of action.

APPROACH

The research of our Group is basically the study of epidemiological risk factors and associations, as well as diagnostic clinical data, of the diseases object of our expertise. It also includes participation in clinical trials of different treatments for these diseases. Some of the actions are participation in national and international registries of diseases such as heart failure, venous thromboembolic disease, sarcoidosis, Sjögren's disease and nosocomial infections.

We are also interested in publishing for the dissemination of acquired knowledge and to involve young internists in research.

IMPACT

The result of our research must allow us to advance in the study and management of the different pathologies mentioned to improve quality of life, better outcome and diagnosis of our patients.

MAIN RESEARCH LINES

- Venous thromboembolic disease
- Heart failure
- Infectious diseases
- Systemic autoimmune diseases

PUBLICATIONS

ORIGINALS/ I.F: 10.80

1. Mayneris Perxachs J, Russo MF, Ramos R, de Hollanda A, Arxé AA, Rottoli M, Arnoriaga Rodríguez M, Comas Cufí M, Bartoletti M, Verrastro O, Gudiol C, Fages E, Giménez M, Gil AG, Bernante P, Tinahones F, Carratalà J, Pagotto U, Hernández Aguado I, Fernández Aranda F, Meira F, Castro Guardiola A, Mingrone G, Fernández Real JM, Obesity T2DM Covid19 Study Group. Blood Hemoglobin Substantially Modulates the Impact of Gender, Morbid Obesity, and Hyperglycemia on COVID-19

Death Risk: A Multicenter Study in Italy and Spain. Front. Endocrinol. 2021. 12. p. 741248-741248. IF:5,555. (Q1).

2. Dubois Silva Á, Barbagelata López C, Piñeiro Parga P, Francisco J, Falgá C, Tirado R, Suriñach JM, Vela JR, Mella C, Quere I, Siniscalchi C, Montreal M, RIETE I. Prognostic Significance of Concomitant Superficial Vein Thrombosis in Patients with Deep Vein Thrombosis of the Lower Limbs. Thromb. Haemost. 2021. 121. (12):p. 1650-1659. IF:5,249. (Q1).

CONSORTIUM PUBLICATIONS/ I.F: 49.50

1. Rodríguez-Baño J, Pachón J, Carratalà J, Ryan P, Jarrín I, Yllescas M, Arribas JR, Berenguer J; SAM-COVID Study Group; Hospital Josep Trueta; et. al. **Treatment with tocilizumab or corticosteroids for COVID-19 patients with hyperinflammatory state: a multicentre cohort study (SAM-COVID-19).** Clin. Microbiol. Infect. 2021. 27. (2):p. 244-252. IF:8,067. (Q1).
2. Fanlo P, Espinosa G, Adan A, Fonollosa A, Segura A; en nombre del Grupo de Trabajo de Enfermedades Autoinmunes Sistémicas de la Sociedad Española de Medicina Interna (GEAS-SEMI) y Sociedad Española de Inflamación Ocular (SEIOC); Miembros del Grupo de Trabajo de Enfermedades Autoinmunes Sistémicas de la Sociedad Española de Medicina Interna (GEAS-SEMI) y Sociedad Española de Inflamación Ocular (SEIOC). **Multidisciplinary care and units for uveitis in the internal medicine departments in Spain: Survey of the Systemic Autoimmune Diseases Group.** Rev. Clin. Esp. 2021. 221. (4):p. 221-225. IF:1,556. (Q3).
3. Gutiérrez-Gutiérrez B, Del Toro MD, Borobia AM, Carcas A, Jarrín I, Yllescas M, Ryan P, Pachón J, Carratalà J, Berenguer J, Arribas JR, Rodríguez-Baño J; REIPI-SEIMC COVID-19 group and COVID@HULP groups. Identification and validation of clinical phenotypes with prognostic implications in patients admitted to hospital with COVID-19: a multicentre cohort study. Lancet Infect. Dis. 2021. 21. (6):p. 783-792. IF:25,071. (Q1).
4. Avendaño-Solá C, Ramos-Martínez A, Muñoz-Rubio E, Ruiz-Antorán B, Malo de Molina R, Torres F, Fernández-Cruz A, Calderón-Parra J, Payares-Herrera C, Díaz de Santiago A, Romera-Martínez I, Pintos I, Lora-Tamayo J, Mancheño-Losa M, Paciello ML, Martínez-González AL, Vidán-Estevez J, Nuñez-Ortiz MJ, Saez-Serrano MI, Porras-Leal ML, Jarilla-Fernández MC, Villares P, de Oteyza JP, Ramos-Garrido A, Blanco L, Madrigal-Sánchez ME, Rubio-Batlles M, Velasco-Iglesias A, Paño-Pardo JR, Moreno-Chulilla JA, Muñiz-Díaz E, Casas-Flecha I, Pérez-Olmeda M, García-Pérez J, Alcamí J, Bueno JL, Duarte RF; ConPlas-19 Study Group. A multicenter randomized open-label clinical trial for convalescent plasma in patients hospitalized with COVID-19 pneumonia. J Clin

Invest. 2021. 131. (20):e152740. IF:14,808. (Q1).

GRANTS

Principal Investigator: Ramon Brugada, Antoni Castro, Rafel Ramos
Project Title: RBD Dimer recombinant protein vaccine against SARS-CoV2
Project Code: 101046118- RBDCOV
Funding Agency: European Commission
Duration: 01/12/2021 to 31/05/2024

Principal Investigator: Antoni Castro
Project Title: Beca FIS. Estudio multicéntrico para comparar dos estrategias quirúrgicas: recambio en un tiempo versus dos tiempos en la infección crónica de una prótesis de rodilla
Project Code: Codi PI19/01390
Funding Agency: INSTITUTO DE SALUD CARLOS III
Duration: 11/07/2019 to 2022

MEMBERSHIP OF COLLABORATIVE RESEARCH NETWORKS

SPANISH

- Registro Español de Sarcoidosis (RESAR)
- Registro de Insuficiencia Cardíaca (RICA)
- Registro Informatizado de Pacientes con Enfermedad Trombo-Embólica (RIETE)

Metabolic and maternal-fetal

Part of a consolidated research group recognized by AGAUR (Generalitat de Catalunya) - 2017 SGR 1236.

KEYWORDS

Pregnancy
Pre and postnatal growth
Metabolic programming

RELATED DISEASES

Gestational obesity
Childhood obesity
Intra-uterine growth restriction (IUGR)

GROUP LEADER - R4

Judit Bassols Casadevall (IDIBGI)

PRE-DOCTORAL RESEARCHERS - R1

Ariadna Gómez Vilarrubla (IDIBGI)
Jose Maria Martínez-Calcerrada Collell
(Institut Medicina Legal de Girona)

COLLABORATORS

Alexandra Bonmatí Santané (ICS/Trueta)
Montserrat Gispert-Sauch Puigdevall (ICS/
Trueta)
Mercè Montesinos Costa (ICS/Trueta)



OVERVIEW

PROBLEM

To investigate metabolic and epigenetic markers during pregnancy and in early life that could be used to predict obesity and metabolic outcomes in the offspring.

APPROACH

The predisposition to metabolic diseases is primed in utero by unfavourable prenatal environments and the mechanistic underpinnings of this phenomenon include alterations in the epigenome.

IMPACT

The early identification of the population at risk of obesity and cardiometabolic disorders may help to design intervention strategies to reduce disease burden in the national healthcare system.

MAIN RESEARCH LINES

- Epigenetic markers of pregnancy and offspring
- Metabolic programming during pregnancy
- Obesity and cardiometabolic risk markers in the pediatric age
- Pathophysiological bases of SGA and PCOS

PUBLICATIONS

ORIGINALS/ I.F.: 12.23

1. Carreras Badosa G, Gómez Vilarrubla A, Mas Parés B, Xargay Torrent S, Prats Puig A, Puerto Carranza E, de Zegher F, Ibáñez L, Bassols J, López Bermejo A. **Longitudinal association of the anti-inflammatory serum marker GDF-15 with serum IgA and IgG in apparently healthy children.** Sci Rep. 2021; 11: (1):p. 18215-18215. IF:4,379. (Q1).
2. Xargay Torrent S, Puerto Carranza E, Marcelo I, Mas Parés B, Gómez Vilarrubla A, Martínez Calcerrada JM, de Zegher F, Ibáñez L, López Bermejo A, Bassols J. **Estimated glomerular filtration rate and cardiometabolic risk factors in a longitudinal cohort of children.** Sci Rep. 2021; 11: (1):p. 11702-11702. IF:4,379. (Q1).
3. Gómez Vilarrubla A, Mas Parés B, Díaz M, Xargay Torrent S, Carreras Badosa G, Jové M, Martín Gari M, Bonmatí Santané

A, de Zegher F, Ibáñez L, López Bermejo A, Bassols J. **Fatty acids in the placenta of appropriate- versus small-for-gestational-age infants at term birth.** Placenta. 2021; 109: p. 4-10. IF:3,481. (Q2).

CONSORTIUM PUBLICATIONS/ I.F.: 3.73

1. Garre Olmo J, Turró Garriga O, Martí Lluch R, Zácaras Pons L, Alves Cabratosa L, Serrano Sarbosa D, Vilalta Franch J, Ramos R, Girona Healthy Region Study Group. **Changes in lifestyle resulting from confinement due to COVID-19 and depressive symptomatology: A cross-sectional a population-based study.** Compr. Psychiatr. 2021; 104: p. 152214-152214. IF:3,735. (Q2).

GRANTS

Principal Investigator: Judit Bassols
Project Title: Ayuda de personal Miquel Servet II
Project Code: MSII17/00013
Funding Agency: INSTITUTO DE SALUD CARLOS III
Duration: 01/01/2018 to 31/05/2021

Principal Investigator: Judit Bassols
Project Title: Ayuda de personal PFIS
Project Code: FI18/00144
Funding Agency: INSTITUTO DE SALUD CARLOS III
Duration: 01/01/2019 to 31/05/2023

Principal Investigator: Judit Bassols
Project Title: Perfil desfavorable d'àcids grassos en placenta i epigenètica del desenvolupament
Project Code: SCE 2017
Funding Agency: Fundació Acadèmia Ciències Mèdiques
Duration: 21/03/2017 to 31/12/2021

Principal Investigator: Judit Bassols
Project Title: Análisis longitudinal de las marcas de metilación del DNA asociadas con la obesidad infantil
Project Code: PI20/00399
Funding Agency: INSTITUTO DE SALUD CARLOS III
Duration: 01/01/2021 to 30/06/2021

Principal Investigator: Judit Bassols
Project Title: Perfil de ácidos grasos y programación epigenética en placenta: prevención del riesgo cardiovascular y obesidad en la infancia.
Project Code: PI17/00557
Funding Agency: INSTITUTO DE SALUD CARLOS III
Duration: 01/01/2018 to 30/06/2021

COLLABORATIVE GRANTS

Principal Investigator: Abel López-Bermejo

Project Title: PCOS in adolescent girls and young women: toward a treatment guided by pathophysiology (SPIOMET4HEALTH)

Project Code: H2020-SC1-BHC-2018-2020

Funding Agency: European Commission

Duration: 2021 to 2025

Principal Investigator: Abel López-Bermejo

Project Title: Impronta genética y crecimiento recuperativo postnatal en recién nacidos con bajo peso al nacimiento

Project Code: AEP2019

Funding Agency: Asociación Española de Pediatría (AEP)

Duration: 2019 to 2021

Principal Investigator: Abel López-Bermejo

Project Title: Función cognitiva y obesidad en niños

prepuberales: Efecto de la obesidad materna, crecimiento pre y postnatal y factores ambientales

Project Code: Merck Salud Abel

Funding Agency: Fundación Merck-Salud

Duration: 2019 to 2021

MEMBERSHIP OF COLLABORATIVE RESEARCH NETWORKS

INTERNATIONAL

- International Childhood Vascular Structure Evaluation Consortium (ICVSEC)
- International Consortium on Thyroid and Pregnancy (ICTP)

SPANISH

- i4KIDS, Hub especializado en Innovación Pediátrica y Maternal

Nephrology

KEYWORDS

Nephrology
Dialysis
Hypertension
Therapeutic aphaeresis

RELATED DISEASES

Chronic kidney disease
Arterial hypertension
Diabetic nephropathy

GROUP LEADER - R4

Jordi Calabia Martínez (ICS/Trueta)

ESTABLISHED RESEARCHERS - R3

Xoana Barros Freiría (ICS/Trueta)

PRE-DOCTORAL RESEARCHERS - R1

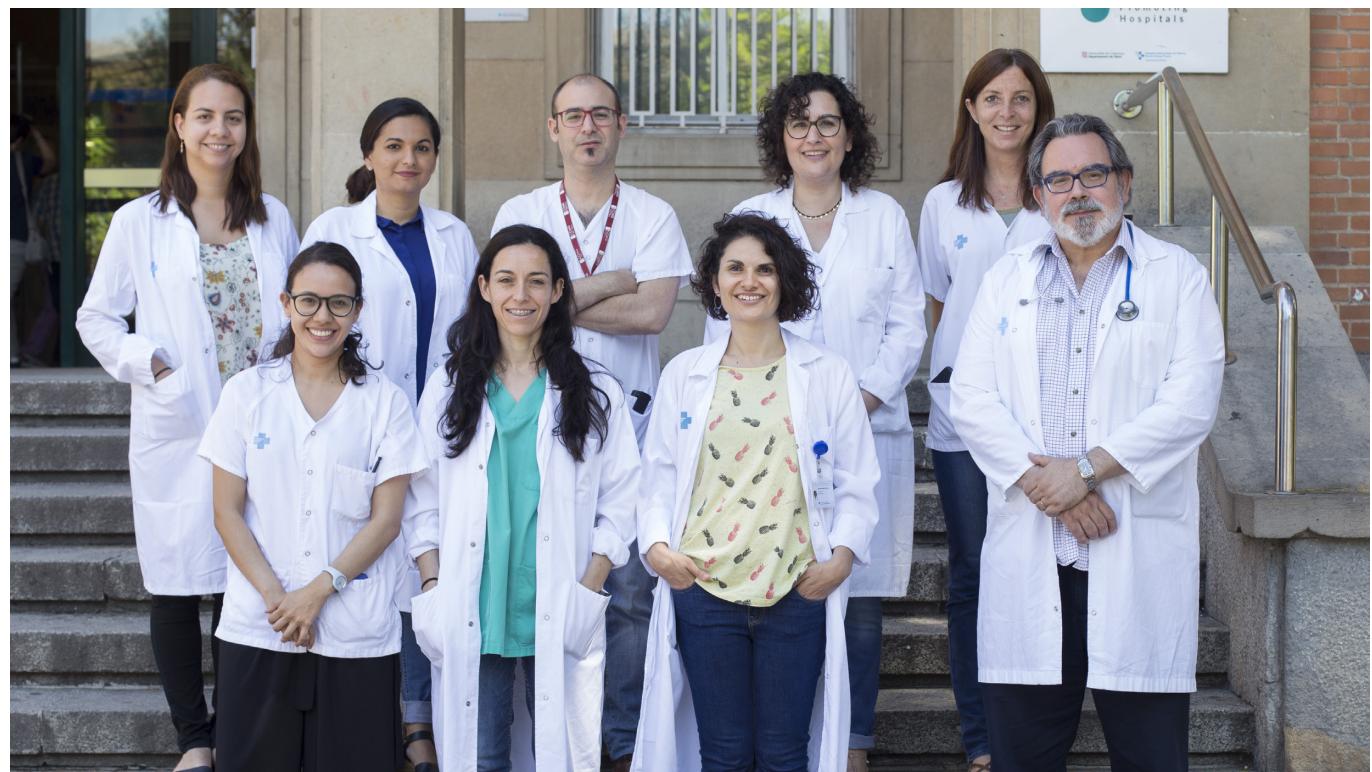
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TECHNICIANS

Berta Bover Sànchez (IDIBGI)
Maria Teresa Cullell Pardo (IDIBGI - ICS/
Trueta)

COLLABORATORS

Nadia Martin Alemany (ICS/Trueta)



OVERVIEW

PROBLEM

Consolidate the method for studying cardiovascular risk and the atheroma burden in patients with chronic kidney disease, high blood pressure and Diabetes Mellitus with diabetic nephropathy. Consolidating the methodology for the study of stiffness and vascular calcification in patients with chronic kidney disease.

APPROACH

Study of the macro and microvascular affection of inflammatory markers and bone-mineral metabolism markers in chronic kidney disease and their most frequent pathologies: high blood pressure and diabetic nephropathy.

IMPACT

The Nephrology Group aims to develop renal substitutive home treatments, mainly peritoneal dialysis. Also, growing development of different research lines will have a significantly beneficial impact on the health system and contribute to better guide clinical management decisions.

MAIN RESEARCH LINES

- Study of cardiovascular risk and atheroma burden
- Biomarkers of macro and microvascular affection in chronic kidney disease
- Study of high blood pressure and diabetic nephropathy

PUBLICATIONS

ORIGINALS / I.F.: 14.5

1. Caravaca Fontán F, Trujillo H, Alonso M, Díaz Encarnación M, Cabello V, Ariceta G, Quintana LF, Marco H, Barros X, Ramos N, Rodríguez Mendiola N, Cruz S, Fernández Juárez G, Rodríguez E, de la Cerda F, Pérez de José A, López I, Fernández L, Gómez VP, Ávila A, Bravo L, Lumbreras J, Allende N, Sanchez de la Nieta MD, Olea T, Melgosa M, Huerta A, Miquel R, Mon C, Fraga G, de Lorenzo A, Draibe J, González F, Shabaka A, Illescas ML, Calvo C, Oviedo V, Da Silva I, Goicoechea de Jorge E, Caravaca F, Praga M, Study Group of the Spanish Group for the Study of Glomerular Diseases (GLOSE C3G). **Validation of a Histologic Scoring Index for C3 Glomerulopathy.** Am. J. Kidney Dis. 2021; 77. (5):p. 684-684. IF:8,860. (Q1).
2. Costa C, Merino Ribas A, Ferreira C, Campos C, Silva N, Pereira L, García A, Azevedo Á, Mesquita RBR, Rangel A, Manaia CM, Sampaio Maia B. **Characterization of Oral Enterobacteriaceae Prevalence and Resistance Profile in Chronic Kidney Disease Patients Undergoing Peritoneal Dialysis.** Front Microbiol. 2021; 12. p. 736685-736685. IF:5,640. (Q1).

CASE REPORTS / I.F.: 3.85

1. Pilco Teran M, Merino Ribas A, Martín Alemany N, Barros Freiría X, Rubio Casadevall J, Pérez Bueno F, García Méndez I, Castillo Devia M, Noboa Paez C, Torguet Escuder P, Calabria Martínez J. **Acute tubulointerstitial nephritis induced by the tyrosine kinase inhibitor vandetanib.** Invest. New Drugs. 2021; 39. (1):p. 237-239. IF:3,850. (Q2).

MEMBERSHIP OF COLLABORATIVE RESEARCH NETWORKS

SPANISH

- GRUPO SOBRE ENFERMEDADES GLOMERULARES (GLOSEN)

CATALAN

- GRUP DE MALALTIES GLOMERULARS (GloM-CAT)

Nutrition, eumetabolism and health



Centro de Investigación Biomédica en Red
Fisiopatología de la Obesidad y Nutrición

Recognized as a consolidated research group by AGAUR (Generalitat de Catalunya) - 2017 SGR 734.

MEMBER OF
CIBER-OBN

KEYWORDS
Inflammation
Iron
Insulin Resistance
Type 2 diabetes
Obesity

RELATED DISEASES
Obesity
Type 2 diabetes
Neurocognitive impairment

GROUP LEADER - R4

José Manuel Fernández-Real Lemos (ICS/
Trueta)

ESTABLISHED RESEARCHERS - R3

José María Moreno Navarrete (CIBER)
Francisco José Ortega Delgado (IDIBGI)
Jordi Mayneris Perxachs (IDIBGI)
Wifredo Ricart Engel (ICS/Trueta)

POST-DOCTORAL RESEARCHERS - R2

Anna Castells Nobau (IDIBGI)
Eduard Esteve Lafuente (ICS/Trueta)
Mercè Fernández Balsells (ICS/Trueta)
Jessica Latorre Luque (CIBER)
Yenny Leal Moncada (IDIBGI)
Cristina Planella Farrugia (ICS/Trueta)

PRE-DOCTORAL RESEARCHERS - R1

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TECHNICIANS

Elena De La Calle Vargas (IDIBGI)
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Oscar Rovira Gómez (CIBER)
Kenia Melissa Vasquez Vasquez (CIBER)
Cristina Zapata Tona (IDIBGI)

NON-SCIENTIFIC RESEARCH SUPPORT STAFF

Anna Pibernat Tornabell (ICS/Trueta)



OVERVIEW**PROBLEM**

To delve deeper into the study of the pathophysiology of obesity and type 2 diabetes mellitus and their complications. To investigate further their relationship with gut microbiota composition and their relationships with cognitive function.

APPROACH

The group's research is focused on the study of inflammatory factors and the association of various genetic inflammatory polymorphisms of the innate immune system with insulin resistance and other parameters of the metabolic syndrome. The group is also focused on the role of iron (systemic, circulating and tissue content of the liver, brain, adipose tissue and muscle) as a modulator of chronic inflammation and metabolic disease. We also study the role of gut and adipose tissue microbiota on systemic metabolism and their implications for a correct function of the central nervous system.

IMPACT

The ambition is to develop novel diagnostic and therapeutic targets for the improvement of patients with metabolic disease.

MAIN RESEARCH LINES

- Innate immune system, inflammation and metabolic diseases.
- Diabetes and obesity genomic/genetic type 2 (microRNAs and long non-coding RNAs).
- Biology of adipose tissue.
- Iron as a modulator of inflammation in metabolic pathology.
- The role of the microbiota in obesity and type 2 diabetes.
- Non-alcoholic steatohepatitis and fatty liver disease.
- The brain as a metabolic organ.
- Stratification of Obese Phenotypes to Optimize Future Obesity Therapy.
- Drosophila as a cognition model for metabolic diseases and cognitive impairment.

PUBLICATIONS**ORIGINALS / I.F.: 216.20**

1. Morón Ros S, Uriarte I, Berasain C, Avila MA, Sabater M, Masdeu M, Moreno Navarrete JM, Fernández Real JM, Giralt M, Villarroya F, Gavaldà Navarro A. **FGF15/19 is required for adipose tissue plasticity in response to thermogenic adaptations.** Mol Metab. 2021. 43. p. 101113-101113. IF:7,422. (Q1).
2. Izquierdo AG, Carreira MC, Rodriguez Carnero G, Fernandez Quintela A, Sueiro AM, Martinez Olmos MA, Guzman G, De Luis D, Pinhel M, Nicoletti CF, Nonino CB, Ortega FJ, Portillo MP, Fernandez Real JM, Casanueva FF, Crujeiras AB. **Weight loss normalizes enhanced expression of the oncogene survivin in visceral adipose tissue and blood leukocytes from individuals with obesity.** Int J Obes (Lond). 2021. 45. (1):p. 206-216. IF:5,095. (Q2).
3. Comas F, Latorre J, Ortega F, Arnoriaga Rodríguez M, Lluch A, Sabater M, Rius F, Ribas X, Costas M, Ricart W, Lecube A, Fernández Real JM, Moreno Navarrete JM. **Morbidly obese subjects show increased serum sulfide in proportion to fat mass.** Int J Obes (Lond). 2021. 45. (2):p. 415-426. IF:5,095. (Q2).
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6. Escrichs A, Biarnes C, Garre Olmo J, Fernández Real JM, Ramos R, Pamplona R, Brugada R, Serena J, Ramió Torrentà L, Coll Tuero G, Gallart L, Barretina J, K, Mayneris Perxachs J, Essig M, Figley CR, Pedraza S, Puig J, Deco G. **Whole-Brain Dynamics in Aging: Disruptions in Functional Connectivity and the Role of the Rich Club.** Cereb Cortex. 2021. 31. (5):p. 2466-2481. IF:5,357. (Q1).
7. Rodríguez Hermosa JI, Delisau O, Planellas Giné P, Cornejo L, Ranea A, Maldonado E, Fernández Real JM, Codina Cazador A. **Factors associated with prolonged hospital stay after laparoscopic adrenalectomy.** Updates Surg. 2021. 73. (2):p.

- 693-702. IF:2,797. (Q2).
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9. Mayneris Perxachs J, Amaral W, Lubach GR, Lyte M, Phillips GJ, Posma JM, Coe CL, Swann JR. Gut Microbial and Metabolic Profiling Reveal the Lingering Effects of Infantile Iron Deficiency Unless Treated with Iron. *Mol. Nutr. Food Res.* 2021. 65. (8):e2001018. IF:5,914. (Q1).
10. Rodríguez Hermosa JI, Planellas Giné P, Cornejo L, Gironès J, Recasens M, Ortega FJ, Moreno Navarrete JM, Latorre J, Fernández Real JM, Codina Cazador A. Comparison of Outcomes between Obese and Nonobese Patients in Laparoscopic Adrenalectomy: A Cohort Study. *Dig Surg.* 2021. 38. (3):p. 237-246. IF:2,588. (Q2).
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19. Mayneris Perxachs J, Meikle P, Mousa A, Naderpoor N, Fernández Real JM, de Courten B. Novel Relationship Between Plasmalogen Lipid Signatures and Carnosines in Humans. *Mol. Nutr. Food Res.* 2021. 65. (20):e2100164. IF:5,914. (Q1).
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- 23.** Mayneris Perxachs J,Moreno Navarrete JM,Ballanti M,Monteleone G,Alessandro Paoluzi O,Mingrone G,Lefebvre P,Staela B,Federici M,Puig J,Garre J,Ramos R,Fernández Real JM. **Lipidomics and metabolomics signatures of SARS-CoV-2 mediators/receptors in peripheral leukocytes, jejunum and colon.**Comp. Struct. Biotechnol. J.. 2021. 19. p. 6080-6089. IF:7,271. (Q1).
- 24.** Karczewska Kupczewska M,Nikolajuk A,Stefanowicz M,Matulewicz N,Arnoriaga Rodriguez M,Fernandez Real JM,Straczkowski M. **Novel Laboratory Index, Based on Fasting Blood Parameters, Accurately Reflects Insulin Sensitivity.**J. Clin. Endocrinol. Metab. 2021. 106. (12):p. 5208-5221. IF:5,958. (Q1).
- 25.** Díaz Sáez F,Blanco Sinfreu C,Archilla Ortega A,Sebastian D,Romero M,Hernández Alvarez MI,Mora S,Testar X,Ricart W,Fernández Real JM,Moreno Navarrete JM,Aragonés J,Camps M,Zorzano A,Gumà A. **Neuregulin 4 Downregulation Induces Insulin Resistance in 3T3-L1 Adipocytes through Inflammation and Autophagic Degradation of GLUT Vesicles.**Int J Mol Sci. 2021. 22. (23):12960. IF:5,923. (Q1).
- 26.** Arnoriaga Rodríguez M,Mayneris Perxachs J,Contreras Rodríguez O,Burokas A,Ortega Sanchez JA,Blasco G,Coll C,Biarnés C,Castells Nobau A,Puig J,Garre Olmo J,Ramos R,Pedraza S,Brugada R,K,Serena J,Barretina J,Gich J,Pérez Brocal V,Moya A,Fernández Real X,Ramío Torrentà L,Pamplona R,Sol J,Jové M,Ricart W,Portero Otin M,Maldonado R,Fernández Real JM. **Obesity-associated deficits in inhibitory control are phenocopied to mice through gut microbiota changes in one-carbon and aromatic amino acids metabolic pathways.**Gut. 2021. 70. (12):p. 2283-2296. IF:23,059. (Q1).
- 27.** Testa G,Mora Maltas B,Camacho Barcia I,Granero R,Lucas I,Agüera Z,Jiménez Murcia S,Baños R,Bertaina Anglade V,Botella C,Bulló M,Casanueva FF,Dalsgaard S,Fernández Real JM,Franke B,Frühbeck G,Fitó M,Gómez Martínez C,Pintó X,Poelmans G,Tinahones FJ,Torre R,Salas Salvadó J,Serra Majem L,Vos S,Wimberley T,Fernández Aranda F. **Transdiagnostic Perspective of Impulsivity and Compulsivity in Obesity: From Cognitive Profile to Self-Reported Dimensions in Clinical Samples with and without Diabetes.**Nutrients. 2021. 13. (12):4426. IF:5,717. (Q1).
- 28.** Bañas I,Etxandi M,Munguía I,Granero R,Mestre Bach G,Sánchez I,Ortega E,Andreu A,Moize VL,Fernández Real JM,Tinahones FJ,Diéguez C,Frühbeck G,Le Grange D,Tchanturia K,Karwautz A,Zeiler M,Imgart H,Zanko A,Favaro A,Claes L,Shekrladze I,Serrano Troncoso E,Cecilia Costa R,Rangil T,Loran Meler ME,Soriano Pacheco J,Carceller Sindreu M,Navarrete R,Lozano M,Linares R,Gudiol C,Carratala J,Plana MT,Graell M,González Parra D,Gómez Del Barrio JA,Sepúlveda AR,Sánchez González J,Machado PPP,Håkansson A,Túry F,Pászthy B,Stein D,Papezová H,Gricova J,Bax B,Borisenkova MF,Popov SV,Gubin DG,Petrov IM,Isakova D,Mustafina SV,Kim YR,Nakazato M,Godart N,van Voren R,Ilnytska T,Chen J,Rowlands K,Voderholzer U,Monteleone AM,Treasure J,Jiménez Murcia S,Fernández Aranda F. **Impact of COVID-19 Lockdown in Eating Disorders: A Multicentre Collaborative International Study.**Nutrients. 2021. 14. (1):100. IF:5,717. (Q1).
- REVIEWS/ I.F.: 20.72**
- Seoane Collazo P,Diéguez C,Nogueiras R,Rahmouni K,Fernández Real JM,López M. **Nicotine' actions on energy balance: Friend or foe?** Pharmacol Ther. 2021. 219. p. 107693-107693. IF:12,310. (Q1).
 - Comas F,Moreno Navarrete JM. **The Impact of H 2 S on Obesity-Associated Metabolic Disturbances.**Antioxidants. 2021. 10. (5):633. IF:6,312. (Q1).
 - Álvarez J,Fernández Real JM,Guarner F,Gueimonde M,Rodríguez JM,Saenz de Pipaon M,Sanz Y. **Gut microbes and health.**Gastroenterol. Hepatol. 2021. 44. (7):p. 519-535. IF:2,102. (Q4).
- LETTERS/ I.F.: 8.98**
- Arnoriaga Rodríguez M,Mayneris Perxachs J,Coll C,Pérez Brocal V,Ricart W,Moya A,Ramíó Torrentà L,Pamplona R,Jové M,Portero Otin M,Fernández Real JM. **Subjects with detectable Saccharomyces cerevisiae in the gut microbiota show deficits in attention and executive function.**J. Intern. Med. 2021. 290. (3):p. 740-743. IF:8,989. (Q1).
- CASE REPORTS/ I.F.: 2.37**
- Oriola J,Sánchez A,Paniello B,de la Bellacasa JP,Biarnés J. **A novel germline variant in RET gene resulting in an additional cysteine in a family with familial medullary thyroid carcinoma.**Fam Cancer. 2021. 20. (3):p. 253-256. IF:2,375. (Q3).
- CONSORTIUM PUBLICATIONS/ I.F.: 3.73**
- Garre Olmo J,Turró Garriga O,Martí Lluch R,Zacarías Pons L,Alves Cabratosa L,Serrano Sarbosa D,Vilalta Franch J,Ramos

R,Girona Healthy Region Study Group. **Changes in lifestyle resulting from confinement due to COVID-19 and depressive symptomatology: A cross-sectional a population-based study.** Compr. Psychiat. 2021. 104. p. 152214-152214. IF:3,735. (Q2).

COMMENTS / I.F.: 23.05

- Fernández Real JM, Mayneris Perxachs J. Is the jejunum the fulcrum of glucose metabolism?** Gut. 2021. 70. (6):p. 1005-1006. IF:23,059. (Q1).

GRANTS

Principal Investigator: José Manuel Fernández-Real
 Project Title: Ajuda de personal PERIS
 Project Code: SLT017/20/000164
 Funding Agency: GENERALITAT DE CATALUNYA
 Duration: 12/07/2021 to 31/12/2024

Principal Investigator: José Manuel Fernández-Real
 Project Title: Ayuda de personal Sara Borrell
 Project Code: CD20/00051
 Funding Agency: INSTITUTO DE SALUD CARLOS III
 Duration: 01/01/2021 to 31/12/2023

Principal Investigator: José Manuel Fernández-Real
 Project Title: Ayuda de personal Río Hortega
 Project Code: CM19/00190
 Funding Agency: INSTITUTO DE SALUD CARLOS III
 Duration: 01/01/2020 to 31/05/2022

Principal Investigator: José Manuel Fernández-Real
 Project Title: Ayuda de personal para la intensificación
 Project Code: INT19/00013
 Funding Agency: INSTITUTO DE SALUD CARLOS III
 Duration: 01/01/2020 to 31/12/2021

Principal Investigator: José Manuel Fernández-Real
 Project Title: Ayuda de personal PFIS
 Project Code: FI19/00293
 Funding Agency: INSTITUTO DE SALUD CARLOS III
 Duration: 01/01/2020 to 31/12/2023

Principal Investigator: José Manuel Fernández-Real
 Project Title: Evaluating Microbiome Causality in the Gut-Liver Axis and Impact on Insulin Resistance
 Project Code: 19/0006059
 Funding Agency: DIABETES UK
 Duration: 31/02/2020 to 02/02/2024

Principal Investigator: José Manuel Fernández-Real
 Project Title: Precision medicine through integrative metagenomics and phenomics in a human NAFLD cohort

Project Code:
 Funding Agency: GUTS UK
 Duration: 01/03/2019 to 2022

Principal Investigator: José Manuel Fernández-Real
 Project Title: Gut-brain-axis: Targets for improvement of cognition in the elderly
 Project Code: SMARTAGE
 Funding Agency: European Commission
 Duration: 01/09/2020 to 31/08/2024

Principal Investigator: José Manuel Fernández-Real
 Project Title: Stratification of Obese Phenotypes to Optimize Future Obesity Therapy
 Project Code: 875534- SOPHIA
 Funding Agency: European Commission
 Duration: 01/07/2020 to 30/06/2025

Principal Investigator: José Manuel Fernández-Real
 Project Title: Predicción personalizada de la cognición a través de la microbiota humana
 Project Code: EFA345/19- THINKGUT
 Funding Agency: CONSORCIO DE LA CTP. INTERREG POCTEFA
 Duration: 01/11/2019 to 31/05/2022

Principal Investigator: José Manuel Fernández-Real
 Project Title: Herencia epigenética mediada por ARN paterno de trastornos metabólicos: impacto de la pérdida de peso en el epitranscriptoma de los espermatozoides humanos
 Project Code: AC18/00012- HEROS
 Funding Agency: INSTITUTO DE SALUD CARLOS III / JPI HDHL
 Duration: 01/01/2019 to 30/06/2023

Principal Investigator: José Manuel Fernández-Real
 Project Title: Anàlisi integrat de les interaccions entre la glucèmica i la composició de la microbiota, i del seu impacte sobre l'acumulació de ferro cerebral i la congoció en subjectes obesos
 Project Code: PI18/01022
 Funding Agency: INSTITUTO DE SALUD CARLOS III
 Duration: 01/01/2019 to 30/06/2023

Principal Investigator: José Manuel Fernández-Real
 Project Title: SUCCINATE/SUCNR1 AXIS: A NOVEL TARGET FOR ANTI-OBESITY THERAPIES
 Project Code: METASUCC
 Funding Agency: FUND. BANCARIA "LA CAIXA"
 Duration: 01/12/2020 to 31/11/2023

Principal Investigator: José Manuel Fernández-Real
 Project Title: Plataforma Red Nacional de Biobancos
 Project Code: Plataforma Red Nacional de Biobancos
 Funding Agency: INSTITUTO DE SALUD CARLOS III
 Duration: 01/01/2021 to 31/12/2023

Principal Investigator: Jordi Mayneris
 Project Title: Ayuda de personal Miquel Servet. Systems biology approach to unravel the pathogenesis of non-alcoholic fatty liver

disease (NAFLD)

Project Code: MS18/00009

Funding Agency: INSTITUTO DE SALUD CARLOS III

Duration: 01/01/2019 to 31/12/2023

Principal Investigator: Jordi Mayneris

Project Title: Metabolismo del triptófano. ¿La conexión entre la microbiota intestinal y la función cognitiva en la obesidad y otras patologías relacionadas con la infamación crónica de bajo grado?

Project Code: PI20/01090

Funding Agency: INSTITUTO DE SALUD CARLOS III

Duration: 01/01/2021 to 31/12/2023

Principal Investigator: Jose Maria Moreno

Project Title: Identification of molecular mediators of signaling from intestine to insulin sensitization and the browning of adipose tissue: role of LBP and FGF15/19

Project Code: La Marató 201612-31

Funding Agency: FUNDACIÓ LA MARATO TV3

Duration: 08/02/2017 to 31/01/2021

Principal Investigator: Jose Maria Moreno

Project Title: Are there any links between microbial products accumulation in adipose tissue and obesity-associated insulin resistance? The possible role LBP and lysozyme

Project Code: PI19/01712

Funding Agency: INSTITUTO DE SALUD CARLOS III

Duration: 2020 to 2022

Principal Investigator: Jose Maria Moreno

Project Title: Estudio de la biosíntesis de H2S en el tejido adiposo humano y su posible efecto en la adipogénesis y en la sensibilidad a la insulin

Project Code: PI16/01173

Funding Agency: INSTITUTO DE SALUD CARLOS III

Duration: 2017 to 2021

Principal Investigator: Francisco José Ortega

Project Title: Ayuda de personal Miquel Servet

Project Code: MS19/00109

Funding Agency: INSTITUTO DE SALUD CARLOS III

Duration: 01/01/2020 to 31/12/2024

Principal Investigator: Francisco José Ortega

Project Title: Ayuda de personal PFIS

Project Code: FI19/00045

Funding Agency: INSTITUTO DE SALUD CARLOS III

Duration: 01/01/2020 to 31/12/2023

Principal Investigator: Francisco José Ortega

Project Title: RESTRINGINT EL FETGE GRAS NO ALCHOLIC: UTILITAT TERAPEUTICA DEL MIR-30B

Project Code: ACD 2019- SED 2019

Funding Agency: FUNDACIÓ ACADÈMIA CIÈNCIES MÈDIQUES-SOCIEDAD ESPAÑOLA DE DIABETES

Duration: 16/04/2019 to 31/12/2021

Principal Investigator: Francisco José Ortega

Project Title: Papel de la Olfactomedina 2 (OLFM2) en el tejido adiposo en relación con la obesidad

Project Code: PI18/00550

Funding Agency: INSTITUTO DE SALUD CARLOS III

Duration: 01/01/2019 to 31/12/2022

Principal Investigator: Wifredo Ricart

Project Title: Potenciación de la actividad mitocondrial en el tejido adiposo como estrategia terapéutica para la obesidad y diabetes tipo 2: Interacción entre la respuesta a oxígeno y la señalización de neuregulina

Project Code: La Marató 201626-30

Funding Agency: FUNDACIÓ LA MARATÓ TV3

Duration: 10/05/2017 to 28/02/2021

Principal Investigator: Wifredo Ricart

Project Title: Estudio de la biosíntesis intestinal de LBP y células de Paneth en relación con la sensibilidad a insulina y obesidad

Project Code: PI16/02173

Funding Agency: INSTITUTO DE SALUD CARLOS III

Duration: 01/01/2017 to 31/03/2021

MEMBERSHIP OF COLLABORATIVE RESEARCH NETWORKS

INTERNATIONAL

- ECNP Network

SPANISH

- CIBER-OBN (Fisiopatología de la Obesidad y Nutrición) - CB06/03/0010

PATENTS

Title: Bacteriófago para uso terapéutico

Application number: P202130786

National Patent

Applicants: Fundació Institut d'Investigació Biomèdica de Girona Dr. Josep Trueta (IDIBGI), Universitat Pompeu Fabra (UPF), Consorcio Centro De Investigación Biomédica En Red, M.P. (CIBER), Universitat de València (UV), Fundación para el Fomento de la Investigación Sanitaria y Biomédica de la Comunitat Valenciana (FISABIO)

Inventors: Maldonado López, Rafael; Moya Simarro, Andrés; Pérez Brocal, Vicente; Fernández-Real Lemos, José Manuel; Mayneris Perxachs, Jordi; Arnoriaga Rodríguez, María; Castells Nobau, Anna.

Licensed: No

DOCTORAL THESES

Thesis author: Ferran Comas Vila

Title: The relevance of Hydrogen Sulfide (H₂S) in obesity and adipose tissue physiology

Thesis directors: Dr. José Manuel Fernández-Real Lemos / Dr. José Ma. Moreno Navarrete

International mention: No

AWARDS

Title: Premio Alberto Sols de la Fundación de la Sociedad Española de Diabetes (F-SED)

Institution: Spanish Society of Diabetes. Sponsored by Novonordisk

Awardee/s: Dr. José Manuel Fernández-Real Lemos

Title: Publicaciones relevantes socios Sociedad Española de Diabetes (SED)-2020. (Publicación: Obesity Impairs Short-Term and Working Memory through Gut Microbial Metabolism of Aromatic Amino Acids. Cell Metab. 2020;32:548-560.e7. doi: 10.1016/j.cmet.2020.09.002. PMID: 33027674)

Institution: Spanish Society of Diabetes

Awardee/s: Dr. José Manuel Fernández-Real Lemos

Obesity and cardiovascular risk in children

Part of a consolidated research group recognized by AGAUR (Generalitat de Catalunya) - 2017 SGR 1236.

KEYWORDS

Obesity
Cardiovascular risk
Metabolic programming
Developmental epigenetics
Intrauterine growth retardation

RELATED DISEASES

Obesity
Insulin resistance
Small for gestational age (SGA) children
Polycystic ovarian syndrome (PCOS)

GROUP LEADER - R4

Abel López Bermejo (IDIBGI)

POST-DOCTORAL RESEARCHER - R2

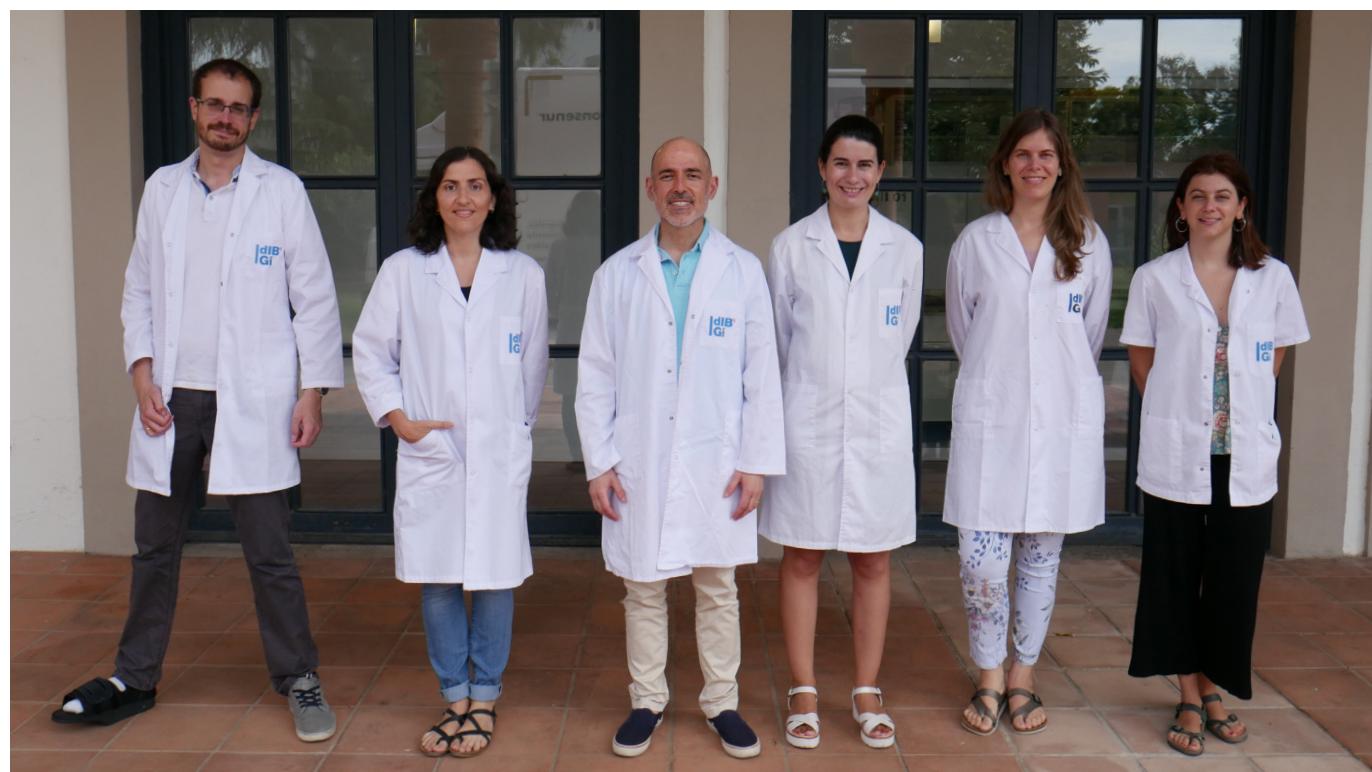
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PRE-DOCTORAL RESEARCHERS - R1

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Berta Mas Pares (IDIBGI)
Elsa Puerto Carranza (IDIBGI)
Fidanka Vasileva (IDIBGI)

COLLABORATORS

Montserrat Gispert-Sauch Puigdevall (ICS/
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Inés Osiniri Kippes (Clínica Bofill)
Anna Prats Puig (EUSES)
Elena María Riera Pérez (Fundació Salut
Empordà)
Pilar Soriano Rodríguez (Fundació Salut
Empordà)



OVERVIEW

PROBLEM

The main research team aim is to identify new metabolic, genetic, and epigenetic markers during pre- and post-natal life for the early prevention of obesity and cardiometabolic risk later in life.

APPROACH

The research approach focuses on the design of new strategies for disease prevention. The identification of new therapeutic target molecules related to paediatric obesity is crucial for this aim. Methods include clinical, biochemical, molecular and image studies as well as *in vivo* studies in experimental animals.

IMPACT

We expect to advance in the early identification of the population at risk of developing obesity and cardiometabolic disorders later in life.

MAIN RESEARCH LINES

- Prevention of obesity and cardiovascular risk in childhood: Pathophysiology of paediatric obesity and identification of risk markers for cardiometabolic disorders in infancy.
- Developmental epigenetics: identification of pre- and post-natal basis of metabolic programming through the study of microRNAs, ADN methylation and genetic imprinting.
- New technologies in health: utilization of new technologies for newborn surveillance.
- Pathophysiology and treatment of polycystic ovarian syndrome (PCOS) in adolescent girls: development of new therapeutic strategies in PCOS.

PUBLICATIONS

ORIGINALS / I.F.: 24.61

1. de Zegher F,Díaz M,Villarroya J,Cairó M,López Bermejo A,Villarroya F,Ibáñez L. **The relative deficit of GDF15 in adolescent girls with PCOS can be changed into an abundance that reduces liver fat**.Sci Rep. 2021. 11. (1):p. 7018-7018. IF:4,379. (Q1).
2. Garcia Beltran C,Malpique R,Carbonetto B,González Torres

P,Henares D,Brotóns P,Muñoz Almagro C,López Bermejo A,de Zegher F,Ibáñez L. **Gut microbiota in adolescent girls with polycystic ovary syndrome: Effects of randomized treatments**.Pediatr. Obes. 2021. 16. (4):e12734. IF:4,000. (Q1).

3. Gómez Vilarrubla A,Mas Parés B,Díaz M,Xargay Torrent S,Carreras Badosa G,Jové M,Martin Gari M,Bonmatí Santané A,de Zegher F,Ibáñez L,López Bermejo A,Bassols J. **Fatty acids in the placenta of appropriate- versus small-for-gestational-age infants at term birth**.Placenta. 2021. 109. p. 4-10. IF:3,481. (Q2).
4. Xargay Torrent S,Puerto Carranza E,Marcelo I,Mas Parés B,Gómez Vilarrubla A,Martínez Calcerrada JM,de Zegher F,Ibáñez L,López Bermejo A,Bassols J. **Estimated glomerular filtration rate and cardiometabolic risk factors in a longitudinal cohort of children**.Sci Rep. 2021. 11. (1):p. 11702-11702. IF:4,379. (Q1).
5. Carreras Badosa G,Gómez Vilarrubla A,Mas Parés B,Xargay Torrent S,Prats Puig A,Puerto Carranza E,de Zegher F,Ibáñez L,Bassols J,López Bermejo A. **Longitudinal association of the anti-inflammatory serum marker GDF-15 with serum IgA and IgG in apparently healthy children**.Sci Rep. 2021. 11. (1):p. 18215-18215. IF:4,379. (Q1).

6. Díaz M,Blasco Roset A,Villarroya J,López Bermejo A,de Zegher F,Villarroya F,Ibáñez L. **Circulating diazepam-binding inhibitor in infancy: Relation to markers of adiposity and metabolic health**.Pediatr. Obes. 2021. 16. (11):e12802. IF:4,000. (Q1).

REVIEWS / I.F.: 3.41

1. Netchine I,van der Steen M,López Bermejo A,Koledova E,Maghnie M. **New Horizons in Short Children Born Small for Gestational Age**.Front. Pediatr. 2021. 9. p. 655931-655931. IF:3,418. (Q1).

CONSORTIUM PUBLICATIONS / I.F.: 3.73

1. Garre Olmo J,Turró Garriga O,Martí Lluch R,Zacarías Pons L,Alves Cabratosa L,Serrano Sarbosa D,Vilalta Franch J,Ramos R,Girona Healthy Region Study Group. **Changes in lifestyle resulting from confinement due to COVID-19 and depressive symptomatology: A cross-sectional a population-based study**.Compr. Psychiat. 2021. 104. p. 152214-152214. IF:3,735. (Q2).

GRANTS

Principal Investigator: Abel López Bermejo

Project Title: Genomic imprinting in postnatal growth and impact

thereon of parental obesity

Project Code: PI19/00451

Funding Agency: INSTITUTO DE SALUD CARLOS III

Duration: 01/01/2020 to 31/12/2022

Project Code: 210653186- SPIOMET4HEALTH

Funding Agency: European Commission

Duration: 01/04/2021 to 31/03/2026

Principal Investigator: Abel López Bermejo

Project Title: Ajuda de personal FI (granted to Fidanka Vasileva)

Project Code: 2021 FI_B 000293

Funding Agency: AGENCIA DE GESTIO D'AJUTS UNIV. I RECER.

Duration: 01/07/2021 to 30/06/2024

Principal Investigator: Abel López Bermejo

Project Title: Ayuda de personal PFIS (granted to Berta Mas Parés)

Project Code: FI20/00138

Funding Agency: INSTITUTO DE SALUD CARLOS III

Duration: 01/01/2021 to 31/12/2024

Principal Investigator: Abel López Bermejo

Project Title: Ayuda de personal Sara Borrell (granted to Gemma Carreras Badosa)

Project Code: CD19/00172

Funding Agency: INSTITUTO DE SALUD CARLOS III

Duration: 01/01/2020 to 26/06/2023

Principal Investigator: Abel López Bermejo

Project Title: Ayuda de personal Río Hortega (granted to Elsa Puerto Carranza)

Project Code: CM18/00236

Funding Agency: INSTITUTO DE SALUD CARLOS III

Duration: 01/01/2019 to 31/05/2021

Principal Investigator: Abel López Bermejo

Project Title: Efecto de la sobrenutrición materna en las marcas epigenéticas de programación metabólica: identificación y posible reversibilidad farmacológica

Project Code: PI16/01335

Funding Agency: INSTITUTO DE SALUD CARLOS III

Duration: 01/01/2017 to 31/06/2021

Principal Investigator: Abel López Bermejo

Project Title: Función cognitiva y obesidad en niños prepúberales: efecto de la obesidad materna, crecimiento pre y postnatal y factores ambientales

Project Code: Merck Salud Abel

Funding Agency: FUNDACION MERCK SALUD

Duration: 15/07/2019 to 14/07/2022

Principal Investigator: Abel López Bermejo

Project Title: Impronta genética y crecimiento recuperativo postnatal en recién nacidos con bajo peso al nacimiento

Project Code: INVEST-AEP 2019

Funding Agency: Asociación Española de Pediatría

Duration: 01/01/2020 to 31/12/2021

Principal Investigator: Abel López Bermejo

Project Title: PCOS in Adolescent Girls and Young Women: Toward a Treatment Guided by Pathophysiology

MEMBERSHIP OF COLLABORATIVE RESEARCH NETWORKS

INTERNATIONAL

- International Childhood Vascular Structure Evaluation Consortium (ICVSEC)
- International Consortium on Thyroid and Pregnancy (ICTP)



NEUROSCIENCE

AGING, DISABILITY AND HEALTH

CEREBROVASCULAR PATHOLOGY

NEURODEGENERATION AND NEUROINFLAMMATION

Aging, disability and health

Recognized as a preconsolidated research group by AGAUR (Generalitat de Catalunya) - 2017 SGR 731.

KEYWORDS

Ageing
Disability
Dementia
Alzheimer's disease
Epidemiology
Neuropsychology
Depression
Caregivers

RELATED DISEASES

Dementia
Alzheimer's disease
Multimorbidity / Chronic conditions

GROUP LEADER - R4

Josep Garre Olmo (UdG)

ESTABLISHED RESEARCHERS - R3

Josep Lluís Conde Sala (UB)
Oriol Turró Garriga (IAS)

PRE-DOCTORAL RESEARCHERS - R1

Vanesa Viñas Diez (UB)
Lluís Zacarías Pons (IDIBGI)

COLLABORATORS

Joan Vilalta Franch (Clínica Bofill)



OVERVIEW

PROBLEM

Aging is a process that can be associated with disability and chronic diseases that compromise the quality of life and well-being.

APPROACH

Clinical and population-based studies addressed to study risk factors for disability and chronic diseases in advanced ages.

IMPACT

Health promotion interventions addressed to modify the risk factors for disability and chronic diseases identified.

MAIN RESEARCH LINES

- Epidemiology of aging related diseases
 - Affective disorders
 - Development and validation of psychometric measures
-

PUBLICATIONS

ORIGINALS / I.F: 54.66

1. Garre Olmo J,Turró Garriga O,Martí Lluch R,Zacarías Pons L,Alves Cabratosa L,Serrano Sarbosa D,Vilalta Franch J,Ramos R,Girona Healthy Region Study Group. Changes in lifestyle resulting from confinement due to COVID-19 and depressive symptomatology: A cross-sectional a population-based study. Compr. Psychiat. 2021. 104. p. 152214-152214. IF:3,735. (Q2).
2. Calvo F,Turró Garriga O,Fàbregas C,Alfranca R,Calvet A,Salvans M,Giralt C,Castillejos S,Rived Ocaña M,Calvo P,Castillo P, Garre Olmo J,Carbonell X. Mortality Risk Factors for Individuals Experiencing Homelessness in Catalonia (Spain): A 10-Year Retrospective Cohort Study. Int J Environ Res Public Health. 2021. 18. (4):1762. IF:3,390. (Q1).
3. Escrichs A,Biarnés C, Garre Olmo J, Fernández Real JM, Ramos R, Pamplona R, Brugada R, Serena J, Ramió Torrentà L, Coll Tuero G, Gallart L, Barretina J, K, Mayneris Perxachs J, Essig M, Figley CR, Pedraza S, Puig J, Deco G. Whole-Brain Dynamics in Aging: Disruptions in Functional Connectivity and the Role of the Rich Club. Cereb Cortex. 2021. 31. (5):p. 2466-2481. IF:5,357. (Q1).

4. Calvó Perxas L,Vilalta Franch J,Litwin H,Mira P, Garre Olmo J. A longitudinal study on public policy and the health of in-house caregivers in Europe. Health Policy. 2021. 125. (4):p. 436-441. IF:2,980. (Q2).
5. Calvo F,Turró Garriga O,Carbonell X. Evaluation of the efficacy of WhatsApp through a harm reduction intervention group for injecting drug users. Adicciones. 2021. 0. (0):p. 1329-1329. IF:2,979. (Q3).
6. Zacarías Pons L,Vilalta Franch J,Turró Garriga O,Saez M, Garre Olmo J. Multimorbidity patterns and their related characteristics in European older adults: A longitudinal perspective. Arch. Gerontol. Geriatr. 2021. 95. p. 104428-104428. IF:3,250. (Q3).
7. Mayneris Perxachs J,Moreno Navarrete JM,Ballanti M,Monteleone G,Alessandro Paoluzi O,Mingrone G,Lefebvre P,Staels B,Federici M,Puig J, Garre J,Ramos R,Fernández Real JM. Lipidomics and metabolomics signatures of SARS-CoV-2 mediators/receptors in peripheral leukocytes, jejunum and colon. Comp. Struct. Biotechnol. J.. 2021. 19. p. 6080-6089. IF:7,271. (Q1).
8. Arriaga Rodríguez M,Mayneris Perxachs J,Contreras Rodríguez O,Burokas A,Ortega Sanchez JA,Blasco G,Coll C,Biarnés C,Castells Nobau A,Puig J, Garre Olmo J,Ramos R,Pedraza S,Brugada R, K,Serena J,Barretina J,Gich J,Pérez Brocal V,Moya A,Fernández Real X,Ramíro Torrentà L,Pamplona R,Sol J,Jové M,Ricart W,Portero Otin M,Maldonado R,Fernández Real JM. Obesity-associated deficits in inhibitory control are phenocopied to mice through gut microbiota changes in one-carbon and aromatic amino acids metabolic pathways. Gut. 2021. 70. (12):p. 2283-2296. IF:23,059. (Q1).
9. Turró Garriga O,Fernández Adarve MDM,Monreal Bosch P. Needs Detection for Carers of Family Members with Dementia. Healthcare. 2021. 10. (1):45. IF:2,645. (Q2).

EDITORIALS / I.F: 4.16

1. Orfei MD, Garre J, Starkstein S. Editorial: "We Know What We Are, but Know Not What We May Be": Metacognition and Self-Awareness in the Aging Brain. Front. Psychiatry. 2021. 12p. 745071-745071. IF:4,157. (Q2).

GRANTS

Principal Investigator: Josep Garre
 Project Title: Ajuts per donar suport a les activitats dels grups de recerca (SGR)
 Project Code: 2017SGR00731

Funding Agency: AGÈNCIA DE GESTIÓ D'AJUTS UNIV. I RECER.

Duration: 01/01/2017 to 30/09/2021

Principal Investigator: Josep Garre

Project Title: Trastorns afectius i risc cardiovascular en població general: efecte diferencial dels mecanismes fisiopatològics

Project Code: SLT006/17/00234

Funding Agency: Generalitat De Catalunya

Duration: 01/01/2018 to 31/12/2021

Principal Investigator: Josep Garre

Project Title: Prevalencia y fenotipos de multimorbilidad crónica según agregación de enfermedades o trayectorias individuales en pacientes con demencia frente a población general

Project Code: PI19/00998

Funding Agency: INSTITUTO DE SALUD CARLOS III

Duration: 01/01/2020 to 31/12/2022

Principal Investigator: Oriol Turró

Project Title: El sentit de coherència (SOC) de les persones cuidadores com a factor determinant dels costos assistencials de la malaltia d'Alzheimer. Cod. SOC & DEM.

Project Code: PI17/00029

Funding Agency: INSTITUTO DE SALUD CARLOS III

Duration: 01/01/2018 to 31/12/2021

Principal Investigator: Josep Garre, Josep Puig, Rafel Ramos

Project Title: Girona, Regió Saludable- Imagenoma de la Salut

Project Code: GO03-001848- PECT

Funding Agency: Generalitat de Catalunya (Fons FEDER), Diputació de Girona

Duration: 01/01/2017 to 31/12/2021

MEMBERSHIP OF COLLABORATIVE RESEARCH NETWORKS

INTERNATIONAL

- Survey of Health, Ageing and Retirement in Europe (SHARE)

Cerebrovascular pathology



Recognized as a preconsolidated research group by AGAUR (Generalitat de Catalunya) - 2017 SGR 1730.

MEMBER OF
RED INVICTUS + ISCIII

KEYWORDS
 Acute Stroke
 Ischaemic stroke
 Haemorrhagic stroke
 Thrombolysis
 Stroke unit
 Endovascular treatment
 Cryptogenic stroke
 In vitro models
 Molecular and cellular neuroscience
 Atherosclerosis
 Vulnerable plaque
 Biomarkers

RELATED DISEASES
 Ischaemic stroke
 Haemorrhagic stroke
 Atherothrombotic stroke

GROUP LEADER - R4

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 Elisabet Kádár García (UdG)
 Yolanda Silva Blas (ICS/Trueta)
 Mikel Terceño Izaga (ICS/Trueta)

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 Dolores Puigoriol Illamola (IDIBGI)

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 Laia Carballo Perich (IDIBGI)
 Marina Guasch Jiménez (IDIBGI)

TECHNICIANS

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Pilar Tarifa Romera (IDIBGI)

COLLABORATORS

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 Victor Augusto Vera Monge (ICS/Trueta)



OVERVIEW

PROBLEM

Stroke is a health and social challenge. It is the second cause of death and the leading cause of serious disability in our population. It has a very high cost, both direct (hospitalisation) and indirect (rehabilitation), as well as non-quantifiable personal and social cost due to disability. According to the expected increase in incidence in the coming years from World Health Organization data, it is mandatory to prevent and improve the effectiveness of stroke management in the acute phase.

APPROACH

The different lines of research of our group have a translational focus for human health analysing biomarkers, pathophysiological mechanisms and/or therapeutic options for both ischaemic and haemorrhagic stroke with the aim of transferring this knowledge to clinical practice for the prevention of stroke and its associated disability.

IMPACT

It is expected to delve a greater understanding of pathophysiology of ischaemic and haemorrhagic stroke, as well as, carotid plaque vulnerability, to identify biomarkers that allow a better stratification of patients at high risk of stroke or poor outcome after a cerebrovascular event. Positive results of the different lines of research will have a significantly beneficial impact on the health system as well as citizen's quality of life.

MAIN RESEARCH LINES

- Identification of blood and tissue biomarkers of vulnerable carotid plaque and associated molecular mechanisms.
- Study of predictive blood and radiological biomarkers of evolution/progression in cerebral ischaemia and haemorrhage, as well as, the molecular mechanisms involved.
- Etiopathogenic stroke markers using blood and tissue biomarkers obtained from patients treated with mechanical thrombectomy.
- Determination of clinical aspects in the identification of the underlying etiopathogenesis in cryptogenic stroke and infrequent cause stroke.
- Evaluation of the effect of immersive reality systems on

improving motor rehabilitation in stroke patients.

PUBLICATIONS

ORIGINALS / I.F.: 113.34

1. **Silva Blas Y,Diringer MN, B,Masjuan J,Pérez de la Ossa N,Cardinal M,Yong F,Zhu T,Li G,Arkin S. Phase 1b Study to Evaluate Safety, Tolerability, and Maximum Tolerated Dose of PF-05230907 for Intracerebral Hemorrhage.** *Stroke.* 2021. 52. (1):p. 294-298. IF:7,914. (Q1).
2. **Pérez Pelegrí M,Biarnés C,Thió Henestrosa S,Remollo S,Gimeno A,Cuba V,Teceno M,Martí Navas M,Serena J,Pedraza S,Ruiz Constantino JS,Puig J. Higher agreement in endovascular treatment decision-making than in parametric quantifications among automated CT perfusion software packages in acute ischemic stroke.** *J Xray Sci Technol.* 2021. 29. (5):p. 823-834. IF:1,535. (Q3).
3. **Rudilosso S,Laredo C,Amaro S,Renú A,Llull L,Obach V,Moreno J,Ribó M,Abilleira S,Cardona P,Martí Fàbregas J,Pérez de la Ossa N,Ramos A,Roquer J,Serena J,Purroy F,Urra X,Chamorro Á. Clinical improvement within 24 hours from mechanical thrombectomy as a predictor of long-term functional outcome in a multicenter population-based cohort of patients with ischemic stroke.** *J. NeuroInterventional Surg.* 2021. 13. (2):p. 119-123. IF:5,836. (Q1).
4. **Faura J,Bustamante A,Reverté S,García Berrocoso T,Millán M,Castellanos M,Lara Rodríguez B,Zaragoza J,Ventura O,Hernández Pérez M,van Eendenburg C,Cardona P,López Cancio E,Cánovas D,Serena J,Rubiera M,Dávalos A,Montaner J. Blood Biomarker Panels for the Early Prediction of Stroke-Associated Complications.** *J. Am. Heart Assoc.* 2021. 10. (5):e018946. IF:5,501. (Q1).
5. **Ramiro L,Abraira L,Quintana M,García Rodríguez P,Santamarina E,Álvarez Sabín J,Zaragoza J,Hernández Pérez M,Ustrell X,Lara B,Terceño M,Bustamante A,Montaner J. Blood Biomarkers to Predict Long-Term Mortality after Ischemic Stroke.** *Life (Basel).* 2021. 11. (2):135. IF:3,817. (Q2).
6. **Terceño M,Remollo S,Silva Y,Bashir S,Werner M,Vera Monge VA,Serena J,Castaño C. Effect of combined acetylsalicylic acid and statins treatment on intracranial aneurysm rupture.** *PLoS One.* 2021. 16. (2):e0247153. IF:3,240. (Q2).
7. **Ramos Pachón A,López Cancio E,Bustamante A,Pérez de la Ossa N,Millán M,Hernández Pérez M,García Berrocoso T,Cardona P,Rubiera M,Serena J,Ustrell X,Garcés M,Terceño M,Dávalos A,Montaner J. D-Dimer as Predictor of Large**

- Vessel Occlusion in Acute Ischemic Stroke.** Stroke. 2021. 52. (3):p. 852-858. IF:7,914. (Q1).
8. Escrichs A,Biarnes C,Garre Olmo J,Fernández Real JM,Ramos R,Pamplona R,Brugada R,Serena J,Ramió Torrentà L,Coll Tuero G,Gallart L,Barretina J,K,Mayneris Perxachs J,Essig M,Figley CR,Pedraza S,Puig J,Deco G. **Whole-Brain Dynamics in Aging: Disruptions in Functional Connectivity and the Role of the Rich Club.** Cereb Cortex. 2021. 31. (5):p. 2466-2481. IF:5,357. (Q1).
9. Ramos Pachón A,García Tornel Á,Millán M,Ribó M,Amaro S,Cardona P,Martí Fàbregas J,Roquer J,Silva Y,Ustrell X,Purroy F,Gómez Choco M,Zaragoza Brunet J,Cánovas D,Krupinski J,Sala NM,Palomeras E,Cocho D,Redondo L,Repullo C,Sanjurjo E,Carrión D,López M,Almendros MC,Barceló M,Monedero J,Catena E,Rybyeba M,Diaz G,Jiménez Fàbrega X,Solà S,Hidalgo V,Pueyo MJ,Pérez de la Ossa N,Urra X,Catalan Stroke Code and Reperfusion Consortium (. **Bottlenecks in the Acute Stroke Care System during the COVID-19 Pandemic in Catalonia.** Cerebrovasc. Dis. 2021. 50. (5):p. 551-559. IF:2,762. (Q3).
10. Königsberg A,Sehner S,Arlt S,Cheng B,Simonsen CZ,Boutitie F,Serena J,Thijs V,Ebinger M,Endres M,Fiebach JB,Lemmens R,Muir KW,Nighoghossian N,Pedraza S,Gerloff C,Thomalla G,WAKE UP I. **Effect of intravenous alteplase on post-stroke depression in the WAKE UP trial.** Eur. J. Neurol. 2021. 28. (6):p. 2017-2025. IF:6,089. (Q1).
11. Abramova V,Clèrigues A,Quiles A,Figueredo DG,Silva Y,Pedraza S,Oliver A,Iladó X. **Hemorrhagic stroke lesion segmentation using a 3D U-Net with squeeze-and-excitation blocks.** Comput. Med. Imaging Graph. 2021. 90. p. 101908-101908. IF:4,790. (Q1).
12. Millán M,DeGregorio Rocasolano N,Pérez de la Ossa N,Reverté S,Costa J,Giner P,Silva Y,Sobrino T,Rodríguez Yáñez M,Nombela F,Campos F,Serena J,Vivancos J,Martí Sistac O,Cortés J,Dávalos A,Gasull T. **Targeting Pro-Oxidant Iron with Deferoxamine as a Treatment for Ischemic Stroke: Safety and Optimal Dose Selection in a Randomized Clinical Trial.** Antioxidants. 2021. 10. (8):1270. IF:6,312. (Q1).
13. Blasco J,Puig J,Daunis Estadella P,González E,Fondevila Monso JJ,Manso X,Oteros R,Jimenez Gomez E,Bravo Rey I,Vega P,Murias E,Jimenez JM,López Rueda A,Renú A,Aixut S,Chirife Chaparro O,Rosati S,Moreu M,Remollo S,Aguilar Tejedor Y,Terceño M,Mosqueira A,Nogueira RG,San Roman L. **Balloon guide catheter improvements in thrombectomy outcomes persist despite advances in intracranial aspiration technology.** J. NeuroInterventional Surg. 2021. 13. (9):p. 773-778. IF:5,836. (Q1).
14. Rudilosso S,Ríos J,Rodríguez A,Gomis M,Vera V,Gómez Choco M,Renú A,Matos N,Llull L,Purroy F,Amaro S,Terceño M,Obach V,Serena J,Martí Fàbregas J,Cardona P,Molina C,Rodríguez Campello A,Cánovas D,Krupinski J,Ustrell X,Torres F,Román LS,Salvat Plana M,Jiménez Fàbrega FX,Palomeras E,Catena E,Colom C,Cocco D,Baiges J,Aragones JM,Diaz G,Costa X,Almendros MC,Rybyeba M,Barceló M,Carrión D,López MN,Sanjurjo E,de la Ossa NP,Urra X,Chamorro Á,Catalan Stroke Code and Reperfusion (Cat SCR) C. **Effectiveness of Thrombectomy in Stroke According to Baseline Prognostic Factors: Inverse Probability of Treatment Weighting Analysis of a Population-Based Registry.** J. Stroke. 2021. 23. (3):p. 401-410. IF:6,967. (Q1).
15. Terceño M,Silva Y,Bashir S,Vera Monge VA,Cardona P,Molina C,Chamorro Á,de la Ossa NP,Hernández Pérez M,Werner M,Camps Renom P,Rodríguez Campello A,Cánovas D,Purroy F,Serena J,Catalan Stroke Code and Reperfusion Consortium (. **Impact of general anesthesia on posterior circulation large vessel occlusions after endovascular thrombectomy.** Int J Stroke. 2021. 16. (7):p. 792-797. IF:5,266. (Q1).
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1. Fuentes B,Amaro S,Alonso de Leciñana M,Arenillas JF,Ayo

Martín O,Castellanos M,Freijo M,García Pastor A,Gomis M,Gómez Choco M,López Cancio E,Martínez Sánchez P,Morales A,Palacio Portilla EJ,Rodríguez Yáñez M,Roquer J,Segura T,Serena J,Vivancos Mora J,Comité ad hoc del Grupo de Estudio de Enfermedades Cerebrovasculares de la S. **Stroke prevention in patients with type 2 diabetes or prediabetes. Recommendations from the Cerebrovascular Diseases Study Group, Spanish Society of Neurology.** Neurologia. 2021. 36. (4):p. 305-323. IF:3,109. (Q3).

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GRANTS

Principal Investigator: Joaquín Serena
Project Title: Ayuda de personal PFIS. miRNAs circulantes como biomarcadores no invasivos de placa vulnerable en pacientes con estenosis carotídea
Project Code: FI20/00305
Funding Agency: INSTITUTO DE SALUD CARLOS III
Duration: 01/01/2021 to 31/12/2024

Principal Investigator: Joaquín Serena
Project Title: Ayuda de personal para la intensificación
Project Code: INT20/00056
Funding Agency: INSTITUTO DE SALUD CARLOS III
Duration: 01/01/2021 to 31/12/2022

Principal Investigator: Joaquín Serena
Project Title: Ajuts per donar suport a les activitats dels grups de recerca (SGR)
Project Code: 2017SGR01730
Funding Agency: AGÈNCIA DE GESTIÓ D'AJUTS UNIV. I RECER.
Duration: 01/01/2017 to 30/09/2021

Principal Investigator: Joaquín Serena
Project Title: Aproximación proteómica para la identificación de placa vulnerable y posterior validación de biomarcadores no invasivos en pacientes con estenosis carotídea: biomarcadores en sangre periférica y neuroimagen de alta resolución
Project Code: PI16/01540
Funding Agency: INSTITUTO DE SALUD CARLOS III
Duration: 01/01/2017 to 30/06/2021

Principal Investigator: Joaquín Serena
Project Title: Circulating miRNAs as predictive biomarkers of vulnerable plaque in patients with carotid stenosis. Clinical and pre-clinical study
Project Code: PI19/01776
Funding Agency: INSTITUTO DE SALUD CARLOS III
Duration: 01/01/2020 to 31/12/2022

Principal Investigator: Joaquín Serena
Project Title: Red de Enfermedades Vasculares Cerebrales. INVICTUS PLUS
Project Code: RD16/0019/0003
Funding Agency: INSTITUTO DE SALUD CARLOS III
Duration: 01/01/2017 to 31/12/2021

Principal Investigator: Yolanda Silva
Project Title: Prediction of intracerebral hemorrhage growth by CT-perfusion: a prospective study
Project Code: La Marató 201734.10
Funding Agency: FUNDACIÓ LA MARATÓ TV3
Duration: 01/01/2018 to 31/01/2022

Principal Investigator: Elisabet Kádár, Gemma Huguet
Project Title: Estimulación eléctrica reforzante como tratamiento protector del deterioro cognitivo en enfermedad de Alzheimer: biomarcadores y verificación en muestras de pacientes
Project Code: PSI2020-117101RB-C22
Funding Agency: Ministerio de Ciencia, Innovación y Universidades (MCIU)
Duration: 01/09/2021 to 30/09/2024

Principal Investigator: Gemma Huguet, Elisabet Kádár
Project Title: Potenciación de la plasticidad neural en ratas sanas y en un modelo de enfermedad de Alzheimer: estimulación cerebral reforzante y sinergias con suplementos dietéticos (PlastAEICdietAD)
Project Code: PSI2017-83202-C2-2-P
Funding Agency: Ministerio de Economía, Industria y Competitividad
Duration: 01/01/2018 to 31/12/2021

Principal Investigator: Yolanda Silva
Project Title: Desenvolupament d'un projecte de realitat virtual per a la rehabilitació motora i funcional dels pacients amb ictus
Project Code: e-Health COMG
Funding Agency: Col·legi Oficial de Metges de Girona
Duration: 2021 to 2023

MEMBERSHIP OF COLLABORATIVE RESEARCH NETWORKS

INTERNATIONAL

- The International PFO Consortium Study Group

SPANISH

- The Morpheus Stroke Registry
 - Rossetti Registry
 - RETICS: Red Enfermedades Vasculares Cerebrales (INVICTUS PLUS) (RD16/0019/0003)
-

AWARDS

Title: The WSO Award winners – Diamond Status

Institution: World Stroke Organization

Awardee/s: Stroke unit of Hospital Dr. Josep Trueta

Title: 1er Premio Honorífico por la trayectoría científica y contribución a la neurosonología

Institution: Sociedad Española de Neurosonología

Awardee/s: Dr. Joaquín Serena Leal

Neurodegeneration and neuroinflammation

redEspañola de
esclerosis múltiple

Recognized as a preconsolidated research group by AGAUR (Generalitat de Catalunya) - 2017 SGR 1444.

MEMBER OF
REEM ISCIII

KEYWORDS
Multiple sclerosis
Neurodegeneration
Neuroinflammation
Cognitive impairment
Neuroimmunology
Epigenetics
eHealth

RELATED DISEASES
Multiple sclerosis
Neuromyelitis optica
Parkinson's disease
Alzheimer's disease
Genetic Ataxia

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OVERVIEW

PROBLEM

Neurodegenerative diseases are the second leading cause of disability in the world, very prevalent and devastating in terms of quality of life. Neuroinflammation is activated after an immune stimulation and, chronically, it is a risk factor for the development of these diseases. Given the complexity of our central nervous system and the lack of knowledge about how it works, research is the main tool for advancing in the treatment and prevention of these diseases.

APPROACH

Our approach is fully translational (clinical-basic) and proposes a precision medicine strategy by detecting specific mechanisms and biomarkers for improving the diagnosis, prognosis, therapeutic adequacy, and response to treatment in patients with multiple sclerosis and other neurodegenerative conditions. The goal is that questions that are asked at the clinical level can be answered in the lab and, conversely, the findings that are given in the lab can be quickly transferred to the clinic.

IMPACT

The causes that trigger the neurodegenerative process are unknown and currently, the process is irreversible. Current treatments alleviate the symptoms, have an impact in their natural history and allow a better quality of life, but do not cure them. The personal, social, health and economic costs are very high and will increase in the coming years due to the aging population. Faced with this complex situation, it is necessary to focus on discovering the underlying causes to improve the management of the disease and address new therapies that can stop these processes.

MAIN RESEARCH LINES

- Epigenetic and molecular biomarkers in multiple sclerosis.
- Cognitive function and associated biomarkers in patients with multiple sclerosis.
- Cellular mechanisms and molecular bases of the neurodegenerative process.

PUBLICATIONS

ORIGINALS / I.F.: 126.72

1. Escrichs A,Biarnes C,Garre Olmo J,Fernández Real JM,Ramos R,Pamplona R,Brugada R,Serena J,Ramió Torrentà L,Coll Tuero G,Gallart L,Barretina J,K,Mayneris Perxachs J,Essig M,Figley CR,Pedraza S,Puig J,Deco G. **Whole-Brain Dynamics in Aging: Disruptions in Functional Connectivity and the Role of the Rich Club**. Cereb Cortex. 2021. 31. (5):p. 2466-2481. IF:5,357. (Q1).
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3. Santos García D,De Deus FT,Cores BC,Valdés AL,Suárez CE,Aneiros Á,Jesús S,Aguilar M,Pastor P,Planellas L,Cosgaya M,García CJ,Caballol N,Legarda I,Hernández VJ,Cabo I,López ML,González Al,Ávila R,José CM,Nogueira V,Puente V,García MJM,Borrue C,Solano VB,Álvarez SM,Vela L,Escalante S,Cubo E,Carrillo PF,Martínez CJC,Sánchez AP,Alonso LMG,López AN,Gastón I,Kulisevsky J,Blázquez EM,Seijo M,Rúiz MJ,Valero C,Kurtis M,de Fábregues Boixar O,González AJ,Prieto JC,López DL,McAfee D,Mir P,COPPDIS Study Group. **Mood in Parkinson's disease: From early- to late-stage disease**. Int. J. Geriatr. Psychiatr. 2021. 36. (5):p. 627-646. IF:3,485. (Q1).
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11. Fernandez O, Costa Frossard L, Martínez Ginés ML, Montero P, Prieto González JM, Ramió Torrentà L. **Integrated Management of Multiple Sclerosis Spasticity and Associated Symptoms Using the Spasticity-Plus Syndrome Concept: Results of a Structured Specialists' Discussion Using the Workmat® Methodology**. Front. Neurol. 2021. 12. p. 722801-722801. IF:4,003. (Q2).
12. Santos García D, de Deus Fonticoba T, Cores Bartolomé C, Naya Ríos L, García Roca L, Martínez Miró C, Canfield H, Jesús S, Aguilar M, Pastor P, Cosgaya M, García Caldentey J, Caballol N, Legarda I, Hernández Vara J, Cabo I, López Manzanares L, González Aramburu I, Ávila Rivera MA, Gómez Mayordomo V, Nogueira V, Puente V, Dotor J, Borré C, Solano Vila B, Álvarez Saucó M, Vela L, Escalante S, Cubo E, Carrillo Padilla F, Martínez Castrillo JC, Sánchez Alonso P, Alonso Losada MG, López Ariztegui N, Gastón I, Kulisevsky J, Blázquez Estrada M, Seijo M, Ruiz Martínez J, Valero C, Kurtis M, de Fábregues O, González Ardura J, Alonso Redondo R, Ordás C, López Díaz LM, McAfee D, Martinez Martin P, Mir P, COPPDIS Study Group. **Predictors of Loss of Functional Independence in Parkinson's Disease: Results from the COPPDIS Cohort at 2-Year Follow-Up and Comparison with a Control Group**. Diagnostics. 2021. 11. (10):IF:3,706. (Q2).
13. Gonzalez Rio M, Bertran Noguer C, Ramió Torrentà L, Zabaleta Olmo E. **Disease-related knowledge measurement instruments of people affected by multiple sclerosis: protocol for a systematic psychometric review**. BMJ Open. 2021. 11. (10):e049580. IF:2,692. (Q2).
14. Ziemssen T, Giovannoni G, Alvarez E, Bhan V, Hersh C, Hoffmann O, Oreja Guevara C, Robles Cedeño RR, Trojano M, Vermersch P, Dobay P, Khwaja M, Stadler B, Rauser B, Hach T, Piani Meier D, Burton J. **Multiple Sclerosis Progression Discussion Tool Usability and Usefulness in Clinical Practice: Cross-sectional, Web-Based Survey**. J. Med. Internet Res. 2021. 23. (10):e29558. IF:5,428. (Q1).
15. Walo Delgado PE, Monreal E, Medina S, Quintana E, Sainz de la Maza S, Fernández Velasco JI, Lapuente P, Comabella M, Ramió Torrentà L, Montalban X, Midaglia L, Villarrubia N, Carrasco Sayalero A, Rodríguez Martín E, Roldán E, Meca Lallana J, Alvarez Lafuente R, Masjuan J, Costa Frossard L, Villar LM. **Role of B Cell Profile for Predicting Secondary Autoimmunity in Patients**

- Treated With Alemtuzumab.**Front Immunol. 2021. 12. p. 760546-760546. IF:7,561. (Q1).
16. Meca Lallana JE,Oreja Guevara C,Muñoz D,Olascoaga J,Pato A,Ramió Torrentà L,Meca Lallana V,Hernández MA,Marzo ME,Álvarez Cermeño JC,Rodríguez Antigüedad A,Montalbán X,Fernández O,Spanish GILENYA Registry I. **Four-year safety and effectiveness data from patients with multiple sclerosis treated with fingolimod: The Spanish GILENYA registry.**PLoS One. 2021. 16. (10):e0258437. IF:3,240. (Q2).
17. Arnoriga Rodríguez M,Mayneris Perxachs J,Contreras Rodríguez O,Burokas A,Ortega Sanchez JA,Blasco G,Coll C,Biarnés C,Castells Nobau A,Puig J,Garre Olmo J,Ramos R,Pedraza S,Brugada R,K,Serena J,Barretina J,Gich J,Pérez Brocal V,Moya A,Fernández Real X,Ramíó Torrentà L,Pamplona R,Sol J,Jové M,Ricart W,Portero Otin M,Maldonado R,Fernández Real JM. **Obesity-associated deficits in inhibitory control are phenocopied to mice through gut microbiota changes in one-carbon and aromatic amino acids metabolic pathways.**Gut. 2021. 70. (12):p. 2283-2296. IF:23,059. (Q1).
18. Trojano M,Ramió Torrentà L,Grimaldi LM,Lubetzki C,Schippling S,Evans KC,Ren Z,Muralidharan KK,Licata S,Gafson AR. **A randomized study of natalizumab dosing regimens for relapsing-remitting multiple sclerosis.**Mult Scler. 2021. 27. (14):p. 2240-2253. IF:6,312. (Q1).
19. Coll Martinez C,Quintana E,Salavedra Pont J,Buxó M,González Rio M,Gómez I,Muñoz San Martín M,Villar LM,Álvarez Bravo G,Robles Cedeño R,Ramió Torrentà L,Gich J. **Assessing the presence of oligoclonal IgM bands as a prognostic biomarker of cognitive decline in the early stages of multiple sclerosis.**Brain Behav. 2021. 11. (12):e2405. IF:2,708. (Q3).
20. Martínez Horta S,Bejr Kasem H,Horta Barba A,Pascual Sedano B,Santos García D,de Deus Fonticoba T,Jesús S,Aguilar M,Planellas L,García Caldentey J,Caballol N,Vives Pastor B,Hernández Vara J,Cabo Lopez I,López Manzanares L,González Aramburu I,Ávila Rivera MA,Catalán MJ,López Díaz LM,Puente V,García Moreno JM,Borrué C,Solano Vila B,Álvarez Sauco M,Vela L,Escalante S,Cubo E,Carrillo Padilla F,Martínez Castrillo JC,Sánchez Alonso P,Alonso Losada MG,López Ariztegui N,Gastón I,Kulisevsky J,Blázquez Estrada M,Seijo M,Rúiz Martínez J,Valero C,Kurtis M,de Fábregues O,González Ardura J,Alonso Redondo R,Ordás C,López Díaz LM,McAfee D,Martinez Martin P,Mir P. **Diplopia Is Frequent and Associated with Motor and Non-Motor Severity in Parkinson's Disease: Results from the COPPADIS Cohort at 2-Year Follow-Up.**Diagnostics. 2021. 11. (12):2380. IF:3,706. (Q2).
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22. Aliaga Gaspar P,Hurtado Guerrero I,Ciano Petersen NL,Urbaneja P,Brichette Mieg I,Reyes V,Rodriguez Bada JL,Álvarez Lafuente R,Arroyo R,Quintana E,Ramió Torrentà L,Alonso A,Leyva L,Fernández O,Oliver Martos B. **Soluble Receptor Isoform of IFN-Beta (sIFNAR2) in Multiple Sclerosis Patients and Their Association With the Clinical Response to IFN-Beta Treatment.**Front Immunol. 2021. 12. p. 778204-778204. IF:7,561. (Q1).
23. Santos García D,Naya Ríos I,de Deus Fonticoba T,Cores Bartolomé C,García Roca I,Feal Paineiras M,Martínez Miró C,Canfield H,Jesús S,Aguilar M,Pastor P,Cosgaya M,García Caldentey J,Caballol N,Legarda I,Hernández Vara J,Cabo I,López Manzanares L,González Aramburu I,Ávila Rivera MA,Gómez Mayordomo V,Nogueira V,Puente V,Dotor J,Borrué C,Solano Vila B,Álvarez Sauco M,Vela L,Escalante S,Cubo E,Carrillo Padilla F,Martínez Castrillo JC,Sánchez Alonso P,Alonso Losada MG,López Ariztegui N,Gastón I,Kulisevsky J,Blázquez Estrada M,Seijo M,Rúiz Martínez J,Valero C,Kurtis M,de Fábregues O,González Ardura J,Alonso Redondo R,Ordás C,López Díaz LM,McAfee D,Martinez Martin P,Mir P. **Diplopia Is Frequent and Associated with Motor and Non-Motor Severity in Parkinson's Disease: Results from the COPPADIS Cohort at 2-Year Follow-Up.**Diagnostics. 2021. 11. (12):2380. IF:3,706. (Q2).
24. Ramo Tello C,Blanco Y,Brieva L,Casanova B,Martínez Cáceres E,Ontaneda D,Ramió Torrentà L,Rovira À. **Recommendations for the Diagnosis and Treatment of Multiple Sclerosis Relapses.**J. Pers. Med. 2021. 12. (1):6. IF:4,945. (Q1).
- LETTERS / I.F.: 8.98**
1. Arnoriga Rodríguez M,Mayneris Perxachs J,Coll C,Pérez Brocal V,Ricart W,Moya A,Ramió Torrentà L,Pamplona R,Jové M,Portero Otin M,Fernández Real JM. **Subjects with detectable *Saccharomyces cerevisiae* in the gut microbiota show deficits in attention and executive function.**J. Intern. Med. 2021. 290. (3):p. 740-743. IF:8,989. (Q1).
21. DSG,de Deus Fonticoba T,Cores C,Muñoz G,Paz González

CASE REPORTS / I.F.: 18.30

1. **Álvarez Bravo G. Creutzfeldt-Jakob Disease as a Novel Cause of Wing-Beating Tremor.** JAMA Neurol. 2021. 78. (2):p. 249-250. IF:18,302. (Q1).

CONSORTIUM PUBLICATIONS / I.F.: 47.91

1. Garre Olmo J,Turró Garriga O,Martí Lluch R,Zacarías Pons L,Alves Cabratosa L,Serrano Sarbosa D,Vilalta Franch J,Ramos R,Girona Healthy Region Study Group. **Changes in lifestyle resulting from confinement due to COVID-19 and depressive symptomatology: A cross-sectional a population-based study.** Compr. Psychiat. 2021. 104. p. 152214-152214. IF:3,735. (Q2).
2. Reich DS,Arnold DL,Vermersch P,Bar Or A,Fox RJ,Matta A,Turner T,Wallström E,Zhang X,Mareš M,Khabirov FA,Traboulsee A,Tolebrutinib Phase 2b Study Group. **Safety and efficacy of tolebrutinib, an oral brain-penetrant BTK inhibitor, in relapsing multiple sclerosis: a phase 2b, randomised, double-blind, placebo-controlled trial.** Lancet Neurol. 2021. 20. (9):p. 729-738. IF:44,182. (Q1).

GRANTS

Principal Investigator: Lluís Ramió

Project Title: Ajuda de personal PERIS

Project Code: SLT017/20/000115

Funding Agency: Generalitat De Catalunya

Duration: 01/07/2021 to 31/12/2023

Principal Investigator: Lluís Ramió

Project Title: Ajuts per donar suport a les activitats dels grups de recerca (SGR)

Project Code: 2017SGR01444

Funding Agency: AGÈNCIA DE GESTIÓ D'AJUTS UNIV. I RECER.

Duration: 01/01/2017 to 30/09/2021

Principal Investigator: Lluís Ramió

Project Title: Red Española de Esclerosis Múltiple

Project Code: RD16/0015/0006

Funding Agency: INSTITUTO DE SALUD CARLOS III

Duration: 01/01/2017 to 31/12/2021

Principal Investigator: Lluís Ramió

Project Title: Proyectos Binaurales EME-REEM 2020

Project Code:

Funding Agency: ASOC. ESCLEROSIS MULTIPLE ESPAÑA

Duration: 01/07/2020 to 30/06/2022

MEMBERSHIP OF COLLABORATIVE RESEARCH NETWORKS**SPANISH**

- RETICS - Red Española de Esclerosis Múltiple (REEM)-RD16/0015/0006

DOCTORAL THESES

Thesis author: María Muñoz San Martín

Title: Role of miRNAs in multiple sclerosis: study of miRNAs in cerebrospinal fluid for different clinical conditions

Thesis directors: Lluís Ramió i Torrentà / Ester Quintana Camps

International mention: Yes



ONCOLOGY AND HAEMATOLOGY

CHROMOSOMAL REPLICATION

DESCRIPTIVE EPIDEMIOLOGY, GENETICS AND CANCER PREVENTION

GENERAL AND DIGESTIVE SURGERY

HAEMATOLOGY

METABOLISM AND CANCER

Chromosomal replication

KEYWORDS

Genomic duplication
DNA replication
Cell cycle
Cancer

RELATED DISEASES

Cancer
Meier-Gorlin syndrome

GROUP LEADER - R4

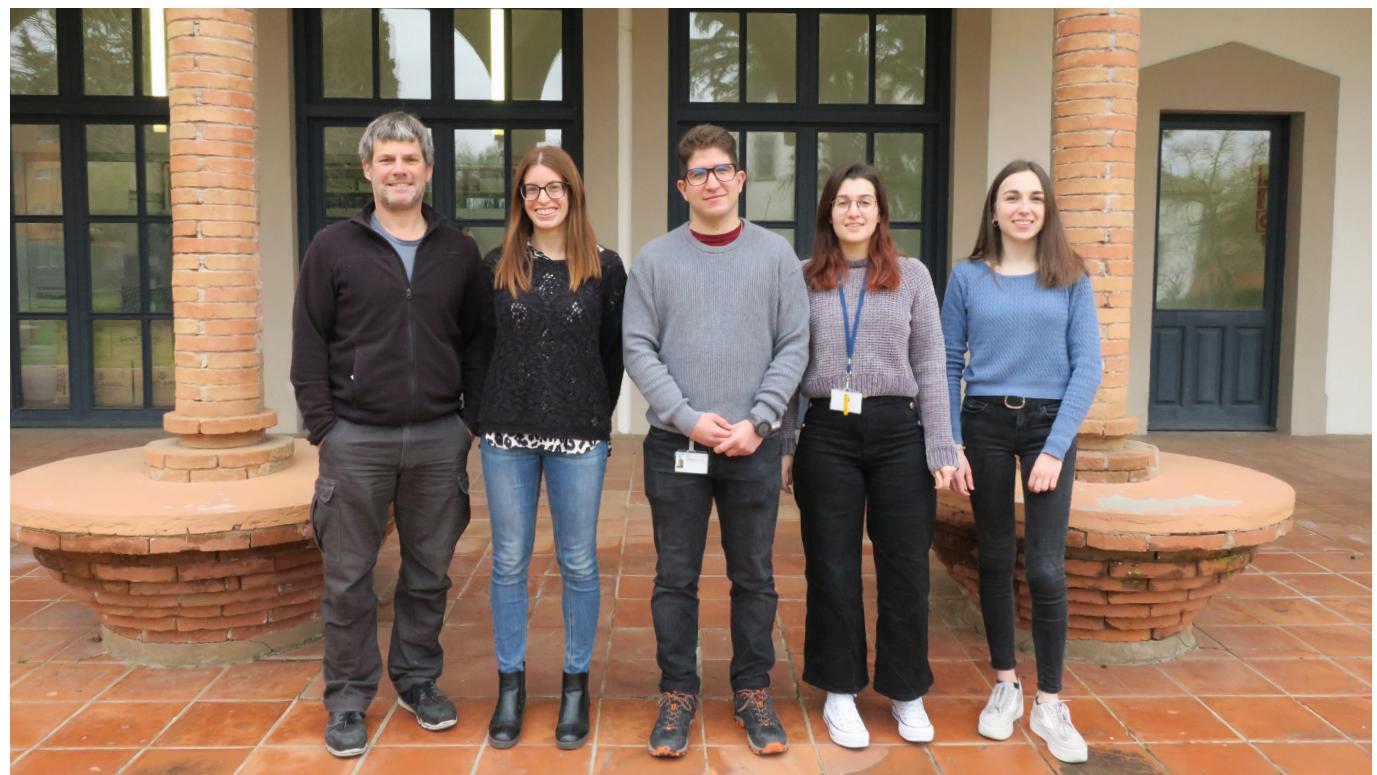
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OVERVIEW

PROBLEM

Classic radiation and most of the chemotherapeutic classic treatments (alkylating agents, antimetabolites, antibiotics and topoisomerase inhibitors), share the same objective: stop chromosome replication to halt cell proliferation. These treatments inhibit genomic duplication by either damaging DNA or the replication machinery. At present, all these treatments are extensively used as a curative and/or palliative care. However, because of their mutagenic nature and lack of tumour specificity, the main limitation is their high toxicity.

APPROACH

We are using the state-of-the-art technology in the field, reconstitution of chromosome replication with purified proteins. These powerful assays allow us to understand the different mechanisms behind genome duplication. We used both yeast and human proteins to dissect the critical steps involved on the first stages of chromosome replication. Ultimately, all the gained knowledge will allow us to design new ways to halt cell proliferation, in a more specific and less invasive manner, than current cancer treatments.

IMPACT

Our research contributes towards the understanding of the different mechanisms behind genome duplication. The gained knowledge offers the possibility to tackle the high toxicity of current treatments with a new set of eyes. Our ultimate goal is to design and develop new ways to stop cell proliferation without the need to induce vast amounts of DNA damage.

MAIN RESEARCH LINES

- Studies of chromosome replication in *S. cerevisiae*.
- Evaluate the conservation of the mechanisms behind chromosome replication in human cells.
- Study, design and development of new cancer therapies.

PUBLICATIONS

ORIGINALS / I.F.: 14.91

1. Guerrero Puigdevall M, Fernandez Fuentes N, Frigola J. Stabilisation of half MCM ring by Cdt1 during DNA insertion.
Nat Commun. 2021. 12. (1):p. 1746-1746. IF:14,919. (Q1).

GRANTS

Principal Investigator: Jordi Frigola

Project Title: Ajuda de personal PERIS

Project Code: SLT017/20/000213

Funding Agency: Generalitat De Catalunya

Duration: 23/06/2021 to 31/12/2024

Principal Investigator: Jordi Frigola

Project Title: Ayuda de personal Ramon y Cajal

Project Code: RYC-2014-15837

Funding Agency: Ministerio de Ciencia e Innovación

Duration: 31/10/2015 to 31/03/2021

Principal Investigator: Jordi Frigola

Project Title: Chromosome replication, formation and disassembly of the double hexamer

Project Code: PID2020-120518GB-I00

Funding Agency: Ministerio de Ciencia e Innovación

Duration: 01/09/2021 to 31/08/2024

Descriptive epidemiology, genetics and cancer prevention



Part of a consolidated research group recognized by AGAUR (Generalitat de Catalunya) - 2017 SGR 733.

MEMBER OF
CIBER-ESP

KEYWORDS

Cancer epidemiology
Prognostic and predictive markers
Cancer risk factors

RELATED DISEASES
Cancer

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OVERVIEW

PROBLEM

Cancer is a leading cause of death and reduces the life expectancy in every country of the world. The incidence and mortality of this disease is rapidly growing worldwide. However, there are important differences between regions and type of cancers. To analyze the key epidemiologic indicators at population-level in Girona is the main objective of our group.

APPROACH

The research focuses on the analysis of data whose main source is the Girona Cancer Registry and with the following objectives:

- To establish the prevalence, incidence and survival of cancer overall and according to the specific location at the population-level.
- To analyze the temporal trend of the incidence and survival of cancer in the context of the therapeutic changes that are being developed.
- To determine the epidemiological parameters based on sex and age.
- To carry out etiological studies of cancer according to each of the histological subtypes.

IMPACT

The results obtained from the research objectives can have an impact on different biomedical issues. Specifically:

- Facilitate the coding of diagnoses as a basis for research into these pathologies.
- Deepen the knowledge of the prognosis of the disease, facilitating clinical decision-making and the different care needs.
- Design and implement strategic programs for the rehabilitation and improvement of the quality of life of patients with specific.
- Determine risk factors for different type of cancer in order to implement specific prevention measures and improve public health programs.

MAIN RESEARCH LINES

- Breast and female genital cancer.
- Haematological neoplasms.
- Childhood neoplasms.

- Coding and cancer information systems.

PUBLICATIONS

ORIGINALS / I.F.: 281.78

1. Villavicencio A, Solans M, Zacarías Pons L, Vidal A, Puigdemont M, Roncero JM, Saez M, Marcos Gragera R. Comorbidities at Diagnosis, Survival, and Cause of Death in Patients with Chronic Lymphocytic Leukemia: A Population-Based Study. Int J Environ Res Public Health. 2021; 18: (2):701. IF:3,390. (Q1).
2. Esteve Codina A, Alameda F, Carrato C, Pineda E, Arpí O, Martinez Garcia M, Mallo M, Gut M, Dabad M, Tortosa A, Del Barco S, Capellades J, Puig J, Gallego O, Pujol T, Oleaga L, Gil MJ, de Quintana Schmidt C, Valduvieco I, Martinez Cardus A, Bellosillo B, Muñoz Mármos AM, Esteve A, Domenech M, Camins A, Craven Bartle J, Villa S, Marruecos J, Domenech S, de la Iglesia N, Balana C. RNA-Sequencing and immunohistochemistry reveal ZFN7 as a stronger marker of survival than molecular subtypes in G-CIMP-negative glioblastoma. Clin. Cancer Res. 2021; 27: (2):p. 645-655. IF:12,531. (Q1).
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4. Stiller CA, Botta L, Sánchez Perez MJ, Chirlaque López MD, Marcos Gragera R, Scuderi T, Huws DW, Trama A, RARECAREN WG. Kaposi sarcoma incidence, survival and trends: Data from the information network on rare cancers in Europe (RARECAREN). Cancer Epidemiol. 2021; 70: p. 101877-101877. IF:2,984. (Q2).
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6. Hinchliffe A, Kogevinas M, Pérez Gómez B, Ardanaz E, Amiano P, Marcos Delgado A, Castaño Vinyals G, Llorca J, Moreno V, Alguacil J, Fernandez Tardón G, Salas D, Marcos Gragera R, Aragónés N, Guevara M, Gil L, Martin V, Benavente Y, Gomez Acebo I, Santibáñez M, Ángel Alba M, García AM, Pollán M, Turner MC. Occupational Heat Exposure and Breast Cancer Risk in the MCC-Spain Study. Cancer Epidemiol Biomarkers Prev. 2021; 30: (2):p. 364-372. IF:4,254. (Q1).

- 7.** Martínez Trufero J, De Sande González LM, Luna P, Martín Broto J, Álvarez R, Marquina G, Diaz Beveridge R, Poveda A, Cano JM, Cruz Jurado J, López Pouso A, Vaz Salgado MA, Valverde Morales CM, Sevilla I, Martínez García J, Rubio Casadevall J, De Juan A, Carrasco JA, Moura DS, Gurruchaga Sotes I, Gutiérrez A. **A Growth Modulation Index-Based GEISTRA Score as a New Prognostic Tool for Trabectedin Efficacy in Patients with Advanced Soft Tissue Sarcomas: A Spanish Group for Sarcoma Research (GEIS) Retrospective Study.** Cancers. 2021; 13: (4):792. IF:6,639. (Q1).
- 8.** Dettorre GM, Dolly S, Loizidou A, Chester J, Jackson A, Mukherjee U, Zambelli A, Aguilar Company J, Bower M, SNGCCT, Salazar R, Bertuzzi A, Brunet J, Mesia R, Sita Lumsden A, Seguí E, Biello F, Generali D, Grisanti S, Seeva P, Rizzo G, Libertini M, Maconi A, Moss C, Russell B, Harbeck N, Vincenzi B, Bertulli R, Ottaviani D, Liñan R, Marrari A, Carmona García MC, Chopra N, Tondini CA, Mirallas O, Tovazzi V, Fotia V, Cruz CA, Saoudi Gonzalez N, Felipe E, Roqué A, Lee A, Newsom Davis T, García Illescas D, Reyes R, Wong YNS, Ferrante D, Scotti L, Marco Hernández J, Ruiz Camps I, Patriarca A, Rimassa L, Chiudinelli L, Franchi M, Santoro A, Prat A, Gennari A, Van Hemelrijck M, Tabernero J, Diamantis N, Pinato DJ, OnCovid study G. **Systemic pro-inflammatory response identifies patients with cancer with adverse outcomes from SARS-CoV-2 infection: the OnCovid Inflammatory Score.** J. Immunother. Cancer. 2021; 9: (3):e002277. IF:13,751. (Q1).
- 9.** Gómez Acebo I, Dierssen Sotos T, Mirones M, Pérez Gómez B, Guevara M, Amiano P, Sala M, Molina AJ, Alonso Molero J, Moreno V, Suárez Calleja C, Molina Barceló A, Alguacil J, Marcos Gragera R, Fernández Ortiz M, Sanz Guadarrama O, Castaño Vinyals G, Gil Majuelo L, Moreno Iribas C, Aragón N, Kogevinas M, Pollán M, Llorca J. **Adequacy of early-stage breast cancer systemic adjuvant treatment to Saint Gallen-2013 statement: the MCC-Spain study.** Sci Rep. 2021; 11: (1):p. 5375-5375. IF:4,379. (Q1).
- 10.** Weitzer J, Castaño Vinyals G, Aragón N, Gómez Acebo I, Guevara M, Amiano P, Martín V, Molina Barceló A, Alguacil J, Moreno V, Suárez Calleja C, Jiménez Moleón JJ, Marcos Gragera R, Papantoniou K, Pérez Gómez B, Llorca J, Ascunce N, Gil L, Gracia Lavedan E, Casabonne D, Lope V, Pollán M, Kogevinas M. **Effect of time of day of recreational and household physical activity on prostate and breast cancer risk (MCC-Spain study).** Int J Cancer. 2021; 148: (6):p. 1360-1371. IF:7,396. (Q1).
- 11.** Barceló MA, Povedano M, Vázquez Costa JF, Franquet Á, Solans M, Saez M. **Estimation of the prevalence and incidence of motor neuron diseases in two Spanish regions: Catalonia and Valencia.** Sci Rep. 2021; 11: (1):p. 6207-6207. IF:4,379. (Q1).
- 12.** Rubió Casadevall J, Galceran J, Ameijide A, Puigdemont M, Llauradó L, Marruecos J, Izquierdo A, Carulla M, Borràs JL, Marcos Gragera R, Gumà J. **Population-based risk assessment of second primary cancers following a first head and neck cancer: patterns of association and difficulties of its analysis.** Clin Transl Oncol. 2021; 23: (4):p. 788-798. IF:3,405. (Q3).
- 13.** Romaguera D, Fernández Barrés S, Gracia Lavedán E, Vendrell E, Azpiri M, Ruiz Moreno E, Martín V, Gómez Acebo I, Obón M, Molinuevo A, Fresán U, Molina Barceló A, Olmedo Requena R, Tardón A, Alguacil J, Solans M, Huerta JM, Ruiz Dominguez JM, Aragón N, Fernández Villa T, Dierssen Sotos T, Moreno V, Guevara M, Vanaclocha Espi M, Lozano Lorca M, Fernández Tardón G, Castaño Vinyals G, Pérez Gómez B, Molina AJ, Llorca J, Gil L, Castilla J, Pollán M, Kogevinas M, Amiano P. **Consumption of ultra-processed foods and drinks and colorectal, breast, and prostate cancer.** Clin. Nutr. 2021; 40: (4):p. 1537-1545. IF:7,324. (Q1).
- 14.** Saberi Hosnijeh F, Casabonne D, Nieters A, Solans M, Naudin S, Ferrari P, McKay JD, Benavente Y, Weiderpass E, Freisling H, Severi G, Boutron Ruault MC, Besson C, Agnoli C, Masala G, Sacerdote C, Tumino R, Huerta JM, Amiano P, Rodriguez Barranco M, Bonet C, Barricarte A, Christakoudi S, Knuppel A, Bueno Mesquita B, Schulze MB, Kaaks R, Canzian F, Späth F, Jerkeman M, Rylander C, Tjønneland A, Olsen A, Borch KB, Vermeulen R. **Association between anthropometry and lifestyle factors and risk of B-cell lymphoma: An exposome-wide analysis.** Int J Cancer. 2021; 148: (9):p. 2115-2128. IF:7,396. (Q1).
- 15.** Bouvier AM, Jooste V, Sanchez Perez MJ, Bento MJ, Rocha Rodrigues J, Marcos Gragera R, Carmona García MC, Luque Fernandez MA, Minicozzi P, Bouvier V, Innos K, Sant M, Working Group on Colorectum. **Differences in the management and survival of metastatic colorectal cancer in Europe. A population-based study.** Dig Liver Dis. 2021; 53: (5):p. 639-645. IF:4,088. (Q2).
- 16.** Pinto Carbó M, Peiró Pérez R, Molina Barceló A, Vanaclocha Espi M, Alguacil J, Castaño Vinyals G, O'Callaghan Gordo C, Gràcia Lavedan E, Pérez Gómez B, Lope V, Aragón N, Molina AJ, Fernández Villa T, Gil Majuelo L, Amiano P, Dierssen Sotos T, Gómez Acebo I, Guevara M, Moreno Iribas C, Obón Santacana M, Rodríguez Suárez MM, Salcedo Bellido I, Delgado Parrilla A, Marcos Gragera R, Chirlaque MD, Kogevinas M, Pollán M, Salas D. **Social mobility and healthy behaviours from a gender perspective in the Spanish multicase-control study (MCC-Spain).** PLoS One. 2021; 16: (5):e0251447. IF:3,240. (Q2).
- 17.** Solans M, Fernández Barrés S, Romaguera D, Benavente Y, Marcos Gragera R, Gracia Lavedan E, Costas L, Robles C, Gonzalez Barca E, de la Banda E, Alonso E, Aymerich M, Campo E, Llorca J, Fernández Tardón G, Olmedo Requena R, Gimeno E, Castaño Vinyals G, Aragón N, Kogevinas M, Pollán M, de Sanjose S, Amiano P, Casabonne D. **Consumption of Ultra-**

- Processed Food and Drinks and Chronic Lymphocytic Leukemia in the MCC-Spain Study.** Int J Environ Res Public Health. 2021. 18. (10):5457. IF:3,390. (Q1).
18. Pinato DJ, Scotti L, Gennari A, Colomba Blameble E, Dolly S, Loizidou A, Chester J, Mukherjee U, Zambelli A, Aguilar Company J, Bower M, Galazi M, Salazar R, Bertuzzi A, Brunet J, Mesia R, Sita Lumsden A, Colombia J, Pommeret F, Seguí E, Biello F, Generali D, Grisanti S, Rizzo G, Libertini M, Moss C, Evans JS, Russell B, Wuerstlein R, Vincenzi B, Bertulli R, Ottaviani D, Liñan R, Marrari A, Carmona García MC, SNGCCT, Tondini C, Mirallas O, Tovazzi V, Fotia V, Cruz CA, Saoudi Gonzalez N, Felip E, Lloveras R, Lee A, Newsom Davis T, Sharkey R, Chung C, García Illescas D, Reyes R, Sophia Wong YN, Ferrante D, Marco Hernández J, Ruiz Camps I, Gaidano G, Patriarca A, Sureda A, Martínez Vila C, Sanchez de Torre A, Rimassa L, Chiudinelli L, Franchi M, Krengli M, Santoro A, Prat A, Tabernero J, Hemelrijck VM, Diamantis N, Cortellini A, OnCovid study Group. **Determinants of enhanced vulnerability to coronavirus disease 2019 in UK patients with cancer: a European study.** Eur. J. Cancer. 2021. 150. p. 190-202. IF:9,162. (Q1).
19. Redondo Sánchez D, Marcos Gragera R, Carulla M, Lopez de Munain A, Sabater Gregori C, Jimenez Chillarón R, Guevara M, Nuñez O, Fernández Navarro P, Sánchez MJ, Luque Fernandez MA. **Lung, Breast and Colorectal Cancer Incidence by Socioeconomic Status in Spain: A Population-Based Multilevel Study.** Cancers. 2021. 13. (11):2820. IF:6,639. (Q1).
20. Lopes de Castro C, Fundowicz M, Roselló A, Jové J, Deantonio L, Aguiar A, Pisani C, Villà S, Boladeras A, Konstanty E, Kruszyna Mochalska M, Milecki P, Jurado Bruggeman D, Lencart J, Modolell I, Muñoz Montplet C, Aliste L, Torras MG, Puigdemont M, Carvalho L, Krengli M, Guedea F, Malicki J. **Results of the IROCA international clinical audit in prostate cancer radiotherapy at six comprehensive cancer centres.** Sci Rep. 2021. 11. (1):p. 12323-12323. IF:4,379. (Q1).
21. Chang Chan DY, Ríos Tamayo R, Rodríguez Barranco M, Redondo Sánchez D, Y González DRA, Marcos Gragera R, Sánchez MJ. **Trends of incidence, mortality and survival of multiple myeloma in Spain. A twenty-three-year population-based study.** Clin Transl Oncol. 2021. 23. (7):p. 1429-1439. IF:3,405. (Q3).
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- REVIEWS / I.F.: 5.96**
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- CLINICAL GUIDELINES / I.F.: 3.40**
- 1.** Luque R,Benavides M,Del Barco S,Egaña L,García J,Martínez M,Pérez P,Pineda E,Sepúlveda JM,Vieito M. **SEOM clinical guideline for management of adult medulloblastoma (2020).** Clin Transl Oncol. 2021. 23(5):p. 940-947. IF:3,405. (Q3).

CASE REPORTS / I.F.: 3.85

- 1.** Pilco M, Merino A, Martin N, Barros X, Rubio J, Pérez F, García I, Castillo M, Noboa C, Torguet P, Calabia J. **Acute tubulointerstitial nephritis induced by the tyrosine kinase inhibitor vandetanib.** Invest. New Drugs. 2021; 39(1):p. 237-239. IF:3,850. (Q2).

CONSORTIUM PUBLICATIONS / I.F.: 50.77

- 1.** Garre Olmo J, Turró Garriga O, Martí Lluch R, Zácaras Pons L, Alves Cabratosa L, Serrano Sarbosa D, Vilalta Franch J, Ramos R, Girona Healthy Region Study Group. **Changes in lifestyle resulting from confinement due to COVID-19 and depressive symptomatology: A cross-sectional a population-based study.** Compr. Psychiatr. 2021; 104. p. 152214-152214. IF:3,735. (Q2).
- 2.** Guigay J, Aupérin A, Fayette J, Saada Bouzid E, Lafond C, Taberna M, Geoffrois L, Martin L, Capitain O, Cupissol D, Castanie H, Vansteene D, Schafhausen P, Johnson A, Even C, Sire C, Duplomb S, Evrard C, Delord JP, Laguerre B, Zanetta S, Chevassus Clément C, Fraslin A, Louat F, Sinigaglia L, Keilholz U, Bourhis J, Mesia R, GORTEC; AIO; TTCC, and UniCancer Head and Neck groups. **Cetuximab, docetaxel, and cisplatin versus platinum, fluorouracil, and cetuximab as first-line treatment in patients with recurrent or metastatic head and neck squamous-cell carcinoma (GORTEC 2014-01 TPExtrême): a multicentre, open-label, randomised, phase 2 trial.** Lancet Oncol. 2021; 22. (4):p. 463-475. IF:41,316. (Q1).
- 3.** Zamora V, Garin O, Pardo Y, Pont À, Gutiérrez C, Cabrera P, Gómez Veiga F, Pijoan JL, Litwin MS, Ferrer M, Multicentric Spanish Group of Clinically Localized Prostate Cancer. **Mapping the Patient-Oriented Prostate Utility Scale From the Expanded Prostate Cancer Index Composite and the Short-Form Health Surveys.** Value Health. 2021; 24. (11):p. 1676-1685. IF:5,725. (Q1).

GRANTS

Principal Investigator: Arantxa Eraso
Project Title: MEDIRAD "Implications of Medical Low Dose Radiation Exposure"
Project Code: MEDIRAD (EARLY-HEART)
Funding Agency: European Commission
Duration: 01/06/2017 to 28/02/2022

Principal Investigator: Jordi Rubio
Project Title: Análisis en base poblacional de la prevalencia de la mutación de BRAF en los pacientes diagnosticados de melanoma en Girona en el período 2009-2011 y su correlación con supervivencia y

otros factores pronósticos

Project Code: RCG-MEL-2017-01

Funding Agency: Acadèmia de Ciències Mèdiques

Duration: 01/01/2017 to 31/12/2021

COLLABORATIVE GRANTS

Principal Investigator: Manolis Kogevinas

Project Title: COVID-19 Cohort in Spain: Social dynamics, mental health and inequalities (CONTENT)

Project Code:

Funding Agency: Fundació La Caixa

Duration: 01/01/2020 to 31/12/2022

Principal Investigator: Kathy Pritchard-Jones, Gemma Gatta

Project Title: International benchmarking of population-based Childhood cancer survival by stage at diagnosis. BENCHISTA – Benchmarking International Survival by Toronto stAge

Project Code:

Funding Agency: Children with Cancer UK

Duration: 01/01/2021 to 30/06/2023

Principal Investigator: M José Sánchez Pérez

Project Title: High Resolution Study of Social Inequalities in Cancer: a population- based multilevel study (HiReSIC)

Project Code: AECC 10981

Funding Agency: FAECC- Fundación Científica de la Asociación Española contra el Cáncer (AECC)

Duration: 01/01/2020 to 31/12/2023

Principal Investigator: Víctor Moreno Aguado

Project Title: Genetic and metabolomics screening towards the precision medicine in cancer prevention (GenRisk)

Project Code: GCTRA18022MORE Grupos coordinados traslacionales AECC 2018

Funding Agency: FAECC- Fundación Científica de la Asociación Española contra el Cáncer (AECC)

Duration: 01/01/2018 to 30/09/2023

Principal Investigator: Judith Balmaña

Project Title: Hacia una estimación precisa de cáncer y la individualización del tratamiento médico mediante la aplicación del riesgo poligénico en cáncer de mama y ovario hereditario

Project Code: PI19/01195

Funding Agency: Instituto de Salud Carlos III, Ministerio de Ciencia e Innovación

Duration: 01/01/2020 to 31/12/2022

Principal Investigator: Joaquim Bosch Barrera

Project Title: Organ-specific biomarkers and therapies to improve the management of brain metastasis

Project Code: 141/C/2019

Funding Agency: Fundació La Marató TV3

Duration: 01/01/2020 to 31/12/2022

Principal Investigator: Ramon Clèries

Project Title: Modelo predictivo de supervivencia poblacional del cáncer de mama según el estadio, el subtipo molecular en el momento del diagnóstico y la adherencia al tratamiento

Project Code: PI18/01836

Funding Agency: Instituto de Salud Carlos III, Ministerio de Ciencia e Innovación

Duration: 01/01/2019 to 31/12/2021

Principal Investigator: Rosa Peracaula

Project Title: Glicosilación alterada en cáncer de páncreas: Base para el desarrollo de nuevos biomarcadores y dianas terapéuticas (GLYCOPAC)

Project Code: PID2020-115686RB-I00

Funding Agency: Ministerio de Ciencia e Innovación

Duration: 01/01/2021 to 31/12/2024

Principal Investigator: Miguel Ángel Luque-Fernández, María José Sánchez Pérez

Project Title: Estudio Poblacional Multinivel de las Desigualdades Socioeconómicas en la Distribución Geográfica de la Incidencia, la Mortalidad y la Supervivencia Neta del Cáncer en España

Project Code: PI18/01593

Funding Agency: Instituto de Salud Carlos III, Ministerio de Ciencia e Innovación

Duration: 01/01/2019 to 31/12/2021

MEMBERSHIP OF COLLABORATIVE RESEARCH NETWORKS

INTERNATIONAL

- Cancer Incidence in Five Continents (CI5)
- European Cancer Information System (ECIS)
- EUROPean CAncer Registry (EUROCARE)
- European Network of Cancer Registries (ENCR)
- Global Surveillance of cancer survival (CONCORD programme)
- Innovative Partnershipfor Action Against Cancer (iPAAC)
- International Association of Cancer Registries (IACR)
- International Incidence of Childhood Cancer (IICC)
- International Lymphoma Epidemiology Consortium (InterLymph) (Multicentre case-control studies)
- RARECAREN project
- The High Resolution studies (HR)

SPANISH

- GenRisk cáncer
- La Red Española de Registros de Cáncer (REDECAN)
- MCC-Spain (Multicentre case-control studies)
- Sistema de Información Epidemiológica del Cáncer en España (SIEC)
- CIBER-ESP (Epidemiología y Salud Pública) – CB06/02/1002

General and digestive surgery

KEYWORDS

Oncology Surgery
Endocrine - Obesity surgery

RELATED DISEASES

Colorectal diseases
Liver and pancreatic diseases
Gastric esophagus diseases

GROUP LEADER - R4

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Jose Ignacio Rodriguez Hermosa (ICS/Trueta)

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OVERVIEW

PROBLEM

The general and digestive surgery service is organized in different functional units and its aim is to try to deepen the development of the treatment lines for its main diseases.

The challenge of research in surgery focuses on the one hand on the surgical treatment of diseases and on the other hand, on the treatment of surgical complications.

APPROACH

In the case of conducting studies focused on surgical pathology, the approach is based on prospective, randomized studies and, in some cases, the intention is that they be multicenter studies.

In the case of studies based on postoperative complications, the studies are based on our own results and experience.

IMPACT

As our research is fundamentally clinical, the main beneficiaries of the results of clinical trials are our patients. The objective of

our research is to apply the results of our clinical trials to daily clinical practice and improve the results of our treatments and the patients' quality of life.

MAIN RESEARCH LINES

- Colorectal surgery.
- Endocrine and obesity surgery.
- Hepatobiliarypancreatic surgery.

PUBLICATIONS

ORIGINALS / I.F.: 63.3

1. Guerrero PE, Duran A, Ortiz MR, Castro E, Garcia Velasco A, Llop E, Peracaula R. **Microfibril associated protein 4 (MFAP4) is a carrier of the tumor associated carbohydrate sialyl-Lewis x (sLe(x)) in pancreatic adenocarcinoma.** J. Proteomics. 2021; 231: p. 104004-104004. IF:4,044. (Q2).

- 2.** Pellino G, Alós R, Biondo S, Codina Cazador A, Enríquez Navascués JM, Espín Basany E, Roig Vila JV, Cervantes A, García Granero E, Spanish Rectal Cancer Project Collaborators. **Trends and outcome of neoadjuvant treatment for rectal cancer: A retrospective analysis and critical assessment of a 10-year prospective national registry on behalf of the Spanish Rectal Cancer Project.** EJSO. 2021. 47. (2):p. 276-284. IF:4,424. (Q1).
- 3.** Ramia JM, de Vicente E, Pardo F, Sabater L, Lopez Ben S, Quijano Y, Villegas T, Blanco Fernandez G, Diez Valladares L, Lopez Rojo I, Martin Perez E, Pereira F, Gonzalez AJ, Herrera J, Garcia Domingo MI, Serradilla M. **Spanish multicenter study of surgical resection of pancreatic tumors infiltrating the celiac axis: does the type of pancreatectomy affect results?** Clin Transl Oncol. 2021. 23. (2):p. 318-324. IF:3,405. (Q3).
- 4.** Planellas P, Salvador H, Cornejo L, Buxó M, Farrés R, Molina X, Maroto A, Ortega N, Rodríguez Hermosa JI, Codina Cazador A. **Risk factors for suboptimal laparoscopic surgery in rectal cancer patients.** Langenbecks Arch. Surg. 2021. 406. (2):p. 309-318. IF:3,445. (Q2).
- 5.** García Botella A, Gómez Bravo MA, Di Martino M, Gastaca M, Sánchez Cabús S, Sánchez Pérez B, López Ben S, Rodríguez Sanjuán JC, López Andújar R, Barrera M, Balibrea JM, Rubio Pérez I, Badía JM, Martín Antona E, Álvarez Peña E, García Botella A, Martín Pérez E, Álvarez Gallego M, Martínez Cortijo S, Pascual Migueláñez I, Pérez Díaz L, Ramos Rodríguez JL, Espín Basany E, Sánchez Santos R, Guirao Garriga X, Aranda Narváez JM, Morales Conde S, Grupo colaborativo C. **Recommendations on intervention for hepatobiliary oncological surgery during the COVID-19 pandemic.** Cir. Espan. 2021. 99. (3):p. 174-182. IF:1,653. (Q3).
- 6.** Rodríguez Hermosa JI, Delisau O, Planellas Giné P, Cornejo L, Ranea A, Maldonado E, Fernández Real JM, Codina Cazador A. **Factors associated with prolonged hospital stay after laparoscopic adrenalectomy.** Updates Surg. 2021. 73. (2):p. 693-702. IF:2,797. (Q2).
- 7.** Rodríguez Hermosa JI, Planellas Giné P, Cornejo L, Gironès J, Recasens M, Ortega FJ, Moreno Navarrete JM, Latorre J, Fernández Real JM, Codina Cazador A. **Comparison of Outcomes between Obese and Nonobese Patients in Laparoscopic Adrenalectomy: A Cohort Study.** Dig Surg. 2021. 38. (3):p. 237-246. IF:2,588. (Q2).
- 8.** Maldonado Marcos E, Caula Freixa C, Planellas Giné P, Rodríguez Hermosa JI, López Ben S, Delisau Puig O, Codina Cazador A. **Impact of SARS-CoV-2 pandemic on elective and emergency surgery in a university hospital.** Cir. Espan. 2021. 99. (5):p. 368-373. IF:1,653. (Q3).
- 9.** Osorio J, Jericó C, Miranda C, Santamaría M, Artigau E, Galofré G, Garsot E, Luna A, Puértolas N, Aldeano A, Olona C, Molinas J, Feliu J, Videla S, Tebe C, Pera M. **Improved postoperative outcomes and reduced transfusion rates after implementation of a Patient Blood Management program in gastric cancer surgery.** EJSO. 2021. 47. (6):p. 1449-1457. IF:4,424. (Q1).
- 10.** Litta F, Marra AA, Ortega Torrecilla N, Orefice R, Parella A, De Simone V, Campenni P, Goglia M, Ratto C. **Implant of Self-Expandable Artificial Anal Sphincter in Patients With Fecal Incontinence Improves External Anal Sphincter Contractility.** Dis. Colon Rectum. 2021. 64. (6):p. 706-713. IF:4,585. (Q1).
- 11.** López Ben S. **ASO Author Reflections: Segment 8 Resections: Perhaps Not so Hidden....** Ann. Surg. Oncol. 2021. 28. (7):p. 3698-3698. IF:5,344. (Q1).
- 12.** Ramia JM, de Vicente E, Pardo F, Sabater L, Lopez Ben S, Quijano MY, Villegas T, Blanco Fernandez G, Diez Valladares L, Lopez Rojo I, Martin Perez E, Pereira F, Gonzalez AJ, Herrera J, Garcia Domingo MI, Serradilla Martín M. **Preoperative hepatic artery embolization before distal pancreatectomy plus celiac axis resection does not improve surgical results: A Spanish multicentre study.** Surgeon. 2021. 19. (5):p. 117-124. IF:2,392. (Q3).
- 13.** Di Martino M, Primavesi F, SYNN, Dorcaratto D, de la Hoz Rodríguez Á, Dupré A, Piardi T, Rhaiem R, Blanco Fernández G, Prada Villaverde A, Rodríguez Sanjuán JC, Fernández Santiago R, Fernández Moreno MC, Ferret G, López Ben S, Suárez Muñoz MÁ, Perez Alonso AJ, Koh YX, Jones R, Martín Pérez E. **Perioperative chemotherapy versus surgery alone for resectable colorectal liver metastases: an international multicentre propensity score matched analysis on long-term outcomes according to established prognostic risk scores.** HPB. 2021. 23. (12):p. 1873-1885. IF:3,647. (Q1).
- 14.** Cero MD, Rodríguez Santiago J, Miró M, Castro S, Miranda C, Santamaría M, Gobbini Y, Garsot E, Pujadas M, Luna A, Momblán D, Balagué C, Aldeano A, Olona C, Molinas J, Pulido L, Sánchez Cano JJ, Güell M, Salazar D, Gimeno M, Grande L, Pera M, Spanish EURECCA Esophagogastric Cancer Group. **Evaluation of data quality in the Spanish EURECCA Esophagogastric Cancer Registry.** EJSO. 2021. 47. (12):p. 3081-3087. IF:4,424. (Q1).
- 15.** Osorio J, Madrazo Z, Videla S, Sainz B, Rodríguez-González A, Campos A, Santamaría M, Pelegrina A, González-Serrano C, Aldeano A, Sarriugarte A, Gómez-Díaz CJ, Ruiz-Luna D, García-Ruiz-de-Gordejuela A, Gómez-Gavara C, Gil-Barriónuevo M, Vila M, Clavell A, Campillo B, Millán L, Olona C, Sánchez-Cordero S, Medrano R, López-Arévalo CA, Pérez-Romero N, Artigau E, Calle M, Echenagusia V, Otero A, Tebe C, Pallares N, Biondo S; COVID-CIR Collaborative Group Members of the COVID-CIR Collaborative Group. **Analysis of outcomes of**

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16. Planellas P,Cornejo L,Rodríguez Hermosa JI,Maldonado E,Timoteo A,Hernández Yagüe X,Farrés R,Codina Cazador A. **Is Metformin Associated With Improved Response to Neoadjuvant Chemoradiotherapy in Locally Advanced Rectal Cancer?** J. Surg. Res. 2021. 268. p. 465-473. IF:2,192. (Q3).
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CASE REPORTS / I.F.: 11.42

1. Maldonado E,Planellas P,Gil J,Farrés R,Codina A. **Altemeier procedure for rectal prolapse after intersphincteric low anterior resection with transanal total mesorectal excision.** Cir. Espan. 2021. 99(5):p. 389-391. IF:1,653. (Q3).
2. Rodríguez JI,Planellas P,Cornejo L,Maldonado E,Ranea A,Gironès J,Codina A. **Endocrine cancer surgery complicated by COVID-19: Lessons from the initial phase of the outbreak.** EJSO. 2021. 47(6):p. 1489-1490. IF:4,424. (Q1).
3. López S,Albiol MT,Falgueras L,Caula C,Collado F,Castro E,Casellas M,Garcia J,Codina A. **Pure Laparoscopic Anatomic Resection of the Segment 8 Dorsal Area Using the Dorsal Approach of the Right Hepatic Vein.** Ann. Surg. Oncol. 2021. 28(7):p. 3697-3697. IF:5,344. (Q1).

GRANTS

Principal Investigator: Antoni Codina
 Project Title: Impacto del Microbioma Mesorectal como factor pronóstico en pacientes con cáncer de recto y análisis de su aplicabilidad en el tratamiento Neoadyuvante. Estudio BIORECTO
 Project Code: Estudio BIORECTO
 Funding Agency: F. Asoc. Esp. Coloproctología
 Duration: 01/11/2021 to 31/08/2023

Principal Investigator: Cristina Farres
 Project Title: BIORECTE
 Project Code:
 Funding Agency: Fundació Joan Bruguera
 Duration: 01/04/2021 to 01/04/2022

Haematology

Recognized as a consolidated research group by AGAUR (Generalitat de Catalunya) - 2017 SGR 733.

KEYWORDS

Hematology
Leukemia
Immune checkpoints

RELATED DISEASES

Acute myeloblastic leukemia
Multiple myeloma
Chronic Lymphocytic leukemia
Graft-versus-host disease

GROUP LEADER - R4

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ESTABLISHED RESEARCHERS - R3

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Rocío Rodríguez Romanos (IDIBGI)

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Nichollas John Kelleher (ICO)
Natalia Lloveras Guelque (ICO)
Carla Moret Puig (ICO)
Silvia Zdenka Mostacedo Marasovic (ICO)



OVERVIEW

PROBLEM

Hematological diseases are a frequent health problem. Our goal is to investigate strategies to offer a better diagnosis, prognosis and treatment to the patients with hematological malignancies and hematology-related diseases.

APPROACH

We are increasing the number of clinical trials, and we have a Clinical Research Unit with nurses and technicians dedicated exclusively to these trials. We have also a monographic medical consultation on clinical trials.

Beyond clinical research, we are also doing translational research. Our research is focused on immune response modulation both in the autologous and the allogeneic setting, but also in pharmacogenomics, intracellular signaling pathways, flow cytometry characterization of hematological malignancies and germinal hematological neoplasms.

IMPACT

Our research has contributed to the better understanding of several hematological malignancies and to the characterization of the immunological responses after allogeneic hematopoietic transplantation. Several doctoral theses have been developed and many others will be finished within next years.

MAIN RESEARCH LINES

- Allogeneic stem cell transplantation (alloSCT).
- Multiple myeloma (MM).
- Acute Myeloblastic Leukemia (AML).
- Lymphoma.
- Study of Germline Hematological Malignancies.
- Flow cytometry characterization of hematological malignancies.

PUBLICATIONS

ORIGINALS / I.F.: 91.68

1. Garcia Gisbert N,Fernández Ibarrodo L,Fernández Rodríguez

C,Gibert J,Andrade Campos M,Arenillas L,Camacho L,Angona A,Longarón R,Salar A,Calvo X,Besses C,Bellosillo B. **Circulating cell-free DNA improves the molecular characterisation of Ph-negative myeloproliferative neoplasms**. Br. J. Haematol. 2021. 192. (2):p. 300-309. IF:6,998. (Q1).

2. Cabezón M,Malinvernini R,Bargay J,Xicoy B,Marcé S,Garrido A,Tormo M,Arenillas L,Coll R,Borras J,Jiménez MJ,Hoyos M,Valcárcel D,Escoda L,Vall Llovera F,Garcia A,Font LL,Rámila E,Buschbeck M,Zamora L,CETLAM G. **Different methylation signatures at diagnosis in patients with high-risk myelodysplastic syndromes and secondary acute myeloid leukemia predict azacitidine response and longer survival**. Clin. Epigenetics. 2021. 13. (1):p. 9-9. IF:6,551. (Q1).
3. Villavicencio A,Solans M,Zacarías Pons L,Vidal A,Puigdemont M,Roncero JM,Saez M,Marcos Gragera R. **Comorbidities at Diagnosis, Survival, and Cause of Death in Patients with Chronic Lymphocytic Leukemia: A Population-Based Study**. Int J Environ Res Public Health. 2021. 18. (2):701. IF:3,390. (Q1).
4. Barbui T,Vannucchi AM,Alvarez Larran A,Iurlo A,Masciulli A,Carobbio A,Ghirardi A,Ferrari A,Rossi G,Elli E,Andrade Campos MM,Kabat MG,Kiladjian JJ,Palandri F,Benevolo G,Garcia Gutierrez V,Fox ML,Foncillas MA,Morcillo CM,Rumi E,Osorio S,Papadopoulos P,Bonifacio M,Cervantes KSQ,Serrano MS,Carreno Tarragona G,Sobas MA,Lunghi F,Patriarca A,Elorza BN,Angona A,Mazo EM,Koschmieder S,Ruggeri M,Cuevas B,Hernandez Boluda JC,Abadia EL,Cirici BX,Guglielmelli P,Garrote M,Cattaneo D,Daffini R,Cavalca F,Bellosillo B,Benajiba L,Curto Garcia N,Bellini M,Betti S,De Stefano V,Harrison C,Rambaldi A. **High mortality rate in COVID-19 patients with myeloproliferative neoplasms after abrupt withdrawal of ruxolitinib**. Leukemia. 2021. 35. (2):p. 485-493. IF:11,528. (Q1).
5. Barbui T,De Stefano V,Alvarez Larran A,Iurlo A,Masciulli A,Carobbio A,Ghirardi A,Ferrari A,Cancelli V,Elli EM,Andrade Campos MM,Kabat MG,Kiladjian JJ,Palandri F,Benevolo G,Garcia Gutierrez V,Fox ML,Foncillas MA,Morcillo CM,Rumi E,Osorio S,Papadopoulos P,Bonifacio M,Cervantes KSQ,Serrano MS,Carreno Tarragona G,Sobas MA,Lunghi F,Patriarca A,Elorza BN,Angona A,Mazo EM,Koschmieder S,Carli G,Cuevas B,Hernandez Boluda JC,Abadia EL,Cirici BX,Guglielmelli P,Garrote M,Cattaneo D,Daffini R,Cavalca F,Bellosillo B,Benajiba L,Curto Garcia N,Bellini M,Betti S,Harrison C,Rambaldi A,Vannucchi AM. **Among classic myeloproliferative neoplasms, essential thrombocythemia is associated with the greatest risk of venous thromboembolism during COVID-19**. Blood Cancer J. 2021. 11. (2):p. 21-21. IF:11,037. (Q1).
6. Alvarez Larrán A,Angona A,Andrade Campos M,Soledad Noya M,Teresa Gómez Casares M,Cuevas B,Caballero G,García

- Hernández C,García Gutiérrez V,Palomino A,Ferrer Marín F,Isabel Mata Vázquez M,Moretó A,Magro E,Murillo I,Manuel Alonso Domínguez J,María Guerra J,Guerrero L,María Raya J,Pérez Encinas M,Carreño Tarragona G,Fox I,Pastor Galán I,Belloillo B,Hernández Boluda JC,Spanish Group (GEMFIN) MPN. **Cytoreductive treatment in patients with CALR-mutated essential thrombocythaemia: a study comparing indications and efficacy among genotypes from the Spanish Registry of Essential Thrombocythaemia.** Br. J. Haematol. 2021. 192. (6):p. 988-996. IF:6,998. (Q1).
7. Ribera JM,Morgades M,Ciudad J,Montesinos P,Esteve J,Genescà E,Barba P,Ribera J,García Cadena I,Moreno MJ,Martínez Carballera D,Torrent A,Martínez Sánchez P,Monsalvo S,Gil C,Tormo M,Artola MT,Cervera M,González Campos J,Rodríguez Medina C,Bermúdez A,Novo A,Soria B,Coll R,Amigo ML,López A,Fernández Martín R,Serrano J,Mercadal S,Cladera A,Giménez Conca AD,Peñarrubia MJ,Abella E,Vall Llovera F,Hernández Rivas JM,García A,Bergua Burgues JM,de Rueda B,Sánchez MJ,Serrano A,Calbacho M,Alonso Vence N,Méndez Sánchez JÁ,García Boyero R,Olivares M,Barrena S,Zamora L,Granada I,Lhermitte L,Feliu E,Orfao A. **Chemotherapy or Allogeneic Transplantation in High-Risk Philadelphia Chromosome-Negative Adult Lymphoblastic Leukemia.** Blood. 2021. 137. (14):p. 1879-1894. IF:22,113. (Q1).
8. Chang Chan DY,Ríos Tamayo R,Rodríguez Barranco M,Redondo Sánchez D,Y González DRA,Marcos Gragera R,Sánchez MJ. **Trends of incidence, mortality and survival of multiple myeloma in Spain. A twenty-three-year population-based study.** Clin Transl Oncol. 2021. 23. (7):p. 1429-1439. IF:3,405. (Q3).
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12. Ribera JM,Morgades M,Genescà E,Chapchap EC,Montesinos P,Acuña Cruz E,Gil C,García Cadena I,Barba P,González Campos J,Queipo de Llano MP,Torrent A,Ribera J,Granada I,Bernal T,Díaz Beyá M,Amigo ML,Coll R,Tormo M,Vall Llovera F,Gómez Centurión I,Sánchez MJ,Soria B,Cladera A,Artola MT,García Guiñon A,Giménez Conca A,Amador ML,Martínez Sánchez P,Algarra JL,Vidal MJ,Alonso N,Maluquer C,Llorente L,García Boyero R,Ciudad J,Feliu E,Orfao A,on behalf of the PETHEMA G. **Outcomes and prognostic factors of adults with refractory or relapsed T-cell acute lymphoblastic leukemia included in measurable residual disease-oriented trials.** Hematol. Oncol. 2021. 39. (4):p. 529-538. IF:5,271. (Q2).
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- LETTERS / I.F.: 28.38**
1. Acha P,Hoyos M,Pratcorona M,Fuster F,Palomo L,Ortega E,Zamora L,Vives S,Granada I,Montoro J,García A,Arnan M,Cervera M,Canet M,Gallardo D,Arenillas L,Esteve J,Baragay J,Salamero O,Motlló C,Ortín X,Sierra J,Solé F. **Genetic characterization of acute myeloid leukemia patients with mutations in IDH1/2 genes.** Leuk. Res. 2021. 101p. 106492-106492. IF:3,156. (Q3).
2. Garcia V,Luna A,Alonso JM,Estrada N,Boque C,Xicoy B,Giraldo P,Angona A,Alvarez A,Sánchez F,Ramírez MJ,Mora E,Vélez P,Rosell A,Colorado M,Cuevas B,Sagüés M,Cortes M,Encinas MP,Casado LF,Moreno M,Serrano L,Gomez V,García C,Lakhwani S,Paz A,de Paz R,Suarez S,Fernandez A,Perez R,Ortiz A,Jiménez A,Steegmann JL,Hernández JC. **Safety and efficacy of asciminib treatment in chronic myeloid leukemia patients in real-life clinical practice.** Blood Cancer J. 2021. 11(2):p. 16-16. IF:11,037. (Q1).
3. Barbui T,Iurlo A,Masciulli A,Carobbio A,Ghirardi A,Rossi G,Harrison C,Alvarez A,Elli EM,Kiladjian JJ,Gasior M,Marin A,Palandri F,Andrade MM,Vannucchi AM,Carreno

G,Papadopoulos P,Quiroz K,Angeles M,Fox ML,Sagues M,Rumi E,Osorio S,Benevolo G,Patriarca A,Navas B,Garcia V,Magro E,Lunghi F,Bonifacio M,De Stefano V,Hernandez JC,Lopez E,Angona A,Xicoy B,Ruggeri M,Koschmieder S,Sobas MA,Cuevas B,Cattaneo D,Daffini R,Bellini M,Curto N,Garrote M,Cavalca F,Benajiba L,Bellosillo B,Guglielmelli P,Borsani O,Betti S,Salmoiragh S,Rambaldi A. **Long-term follow-up of recovered MPN patients with COVID-19.** Blood Cancer J. 2021; 11(6):p. 115-115. IF:11,037. (Q1).

4. Martinez L,Estrada N,Cabezón M,Palomo L,García O,Arnan M,Coll R,Xicoy B,Zamora L. **Mutational profile and relative telomere length in Chronic Myelomonocytic Leukemia subgroups according to the 2016 World Health Organization classification.** Leuk. Res. 2021; 111p. 106726-106726. IF:3,156. (Q3).

GRANTS

Principal Investigator: David Gallardo

Project Title: RED TRANSFRONTERIZA DE IMMUNOTERAPIAS PERSONALIZADAS PARA LINFOMAS NO HODGKIN (IMLINFO)

Project Code: EFA281/16- IMLINFO

Funding Agency: CONSORCIO DE LA CTP. INTERREG POCTEFA

Duration: 01/01/2018 to 31/12/2021

Principal Investigator: David Gallardo

Project Title: Modulación de respuesta inmune en trasplante alogénico de progenitores hematopoyéticos por el genotipo de moléculas inhibidoras de checkpoint. Biobanco español de aloTHP

Project Code: PI17/00815

Funding Agency: INSTITUTO DE SALUD CARLOS III

Duration: 01/01/2018 to 30/06/2022

Principal Investigator: David Gallardo

Project Title: Genotipo de las moléculas inhibidoras de respuesta inmune: más allá del trasplante alogénico. Banco nacional de ADN de pacientes tratados con terapia CAR-T

Project Code: PI20/01353

Funding Agency: INSTITUTO DE SALUD CARLOS III

Duration: 01/01/2021 to 31/12/2023

COLLABORATIVE GRANTS

Principal Investigator: Joaquim Bosch

Project Title: Organ-specific biomarkers and therapies to improve the management of brain metastasis

Project Code: La Marató 201906-30

Funding Agency: Fundació La Marató TV3

Duration: 30/09/2020 to 29/09/2023

MEMBERSHIP OF COLLABORATIVE RESEARCH NETWORKS

INTERNATIONAL

- European Society for Blood and Marrow Transplantation (EBMT)

SPANISH

- Grupo Cooperativo de Estudio y Tratamiento de las Leucemias Agudas y Mielodisplásicas (CETLAM)
- Grupo de Estudio de Hemostasia y Trombosis (GEHT)
- Grupo Español de Enfermedades Mieloproliferativas Crónicas Filadelfia Negativas (GEMFIN)
- Grupo Español de Leucemia Linfocítica Crónica (GELLC)
- Grupo Español de Linfomas/Trasplante Autólogo de Médula Ósea (GELTAMO)
- Grupo Español de Mieloma (GEM)
- Grupo Español de Síndromes Mielodisplásicos (GESMD)
- Grupo Español de Trasplante Hematopoyético y Terapia Celular (GETH)
- Programa Español de Tratamientos en Hematología (PETHEMA)

CATALAN

- Grup Català de Citologia Hematològica (GCCH)
- Grup Català de Citometria Hematopatològica (FLOWCAT)

DOCTORAL THESES

Thesis author: Anna Marull i Arnall

Title: Algoritme diagnòstic en el laboratori. Impacte dels nous índex hematimètrics.

Thesis directors: David Gallardo Giralt / Maite Serrando Querol

International mention: No

Metabolism and cancer

Part of a consolidated research group recognized by AGAUR (Generalitat de Catalunya) - 2017 SGR 673.

KEYWORDS

Metabolism

Cancer

Aging

RELATED DISEASES

Cancer

Aging-related diseases

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OVERVIEW

PROBLEM

Dysregulation of metabolism is an established hallmark of aging-diseases, including cancer. However, most of the fundamental mechanistic questions at the interface of metabolism, cancer, immunity, and aging-related tissue degeneration remain unanswered. Thus, whether metabolic alterations drive tumorigenesis, therapeutic resistance, and metastatic progression or are a consequence of malignant transformation is still a matter of debate. Moreover, whether novel approaches to target metabolism will be successful in cancer patients remains an open question.

APPROACH

Our team employs a combination of cellular biology, molecular biology, and biochemistry techniques to study the role of altered metabolism in *in vitro* and *in vivo* cancer models. The team also uses computational approaches to integrate multi-dimensional approaches, with the aim of modeling cancer and aging-related diseases and to generate mechanistic hypothesis including *in silico* clinical trials that can be cross-validated experimentally. Finally, a major endeavor of the group is to design and complete proof-of-efficacy clinical trials in cancer patients.

IMPACT

To advance new metabolism-based anti-cancer and anti-aging therapeutics.

RESEARCH TOPICS

Metabolism and cancer therapeutic resistance

- Metabolic mechanisms of cancer drug resistance.
- Metabolic targets for cancer therapy.
- Metabolic markers for early detection and clinical monitoring of cancer drug resistance.
- Metabo-epigenetics as a new tool for precision oncology.
- Metabolism and cancer cell dormancy.
- Metabolism and brain metastases.

Autophagy and mitochondrial dynamics in cancer

- Role of autophagy and mitochondrial fusion/fission in controlling cancer cell fate.
- Mitochondrial dynamics as a cancer therapeutic target.

Computational systems biology in cancer & aging

- Discovery and molecular characterization of natural biocompounds with anti-cancer properties.

- Pre-clinical development and clinical evaluation of natural biocompounds-based anti-cancer drugs.

Metabolism and cancer immunotherapy

- Identification of metabolic nodes and metabolites regulating cancer immune evasion.
- Metabolic and dietary interventions to boost the efficacy of cancer immunotherapy.

Computational and systems biology in cancer and aging

- Conceptual frameworks, stochastic tools, and experimental validation of metabolic and metabolo-epigenetic models of cancer and aging.
- *In silico* clinical trials: Computational development and preclinical validation of metabolism-centered therapeutic strategies in cancer and aging.

PUBLICATIONS

ORIGINALS / I.F.: 159.72

1. Romero A,Jantus Lewintre E,García Peláez B,Royuela A,Insa A,Cruz P,Collazo A,Pérez Altozano J,Vidal OJ,Díz P,Cobo M,Hernández B,Vázquez Estevez S,Benítez G,Guirado M,Majem M,Bernabé R,Ortega AL,Blasco A,Bosch Barrera J,Jurado JM,García González J,Viteri S,García Giron C,Massutí B,López Martín A,Rodríguez Festa A,Calabuig Farriñas S,Molina Vila MÁ,Provencio M. **Comprehensive cross-platform comparison of methods for non-invasive EGFR mutation testing: results of the RING observational trial.***Mol. Oncol.* 2021. 15. (1):p. 43-56. IF:6,603. (Q1).
2. Menendez JA,Papadimitropoulou A,Vander Steen T,Cuyàs E,Oza Gajera BP,Verdura S,Espinoza I,Vellon L,Mehmi I,Lupu R. **Fatty Acid Synthase Confers Tamoxifen Resistance to ER+/HER2+ Breast Cancer.***Cancers.* 2021. 13. (5):1132. IF:6,639. (Q1).
3. Provencio M,Terrasa J,Garrido P,Campelo RG,Aparisi F,Díz P,Aguilar D,García Giron C,Hidalgo J,Aguado C,González JG,Esteban E,Gómez Aldavári L,Moran T,Juan O,Chara LE,Marti JL,Castro RL,Ortega AL,Moreno EM,Coves J,Sánchez Peña AM,Bosch Barrera J,Gastaldo AS,Núñez NF,Del Barco E,Cobo M,Isla D,Majem M,Navarro F,Calvo V. **Osimertinib in advanced EGFR-T790M mutation-positive non-small cell lung cancer patients treated within the Special Use Medication Program in Spain: OSIREX-Spanish Lung Cancer Group.***Bmc Cancer.* 2021. 21. (1):p. 230-230. IF:4,430. (Q2).
4. Golden E,Rashwan R,Woodward EA,Sgro A,Wang E,Sorolla A,Waryah C,Tie WJ,Cuyàs E,Ratajska M,Kardas I,Kozlowski P,Johnstone E,See HB,Duffy C,Parry J,Lagerborg KA,Czapiewski

- P_Menendez JA, Gorczynski A, Wasag B, Pfleger KDG, Curtis C, Lee BK, Kim J, Cursons J, Pavlos NJ, Biernat W, Jain M, Woo AJ, Redfern A, Blancafort P. **The oncogene AAMDC links PI3K-AKT-mTOR signaling with metabolic reprogramming in estrogen receptor-positive breast cancer.** Nat Commun. 2021; 12(1):p. 1920-1920. IF:14,919. (Q1).
- 5.** Camerini A, Morabito A, Montanino A, Bernabé R, Grossi F, Ramlau R, Ciuleanu TE, Ceresoli GL, Pasello G, de Marinis F, Bosch Barrera J, Laundreau P, Gautier S, Ta Thanh Minh C, Kowalski D. **Metronomic oral vinorelbine in previously untreated advanced non-small-cell lung cancer patients unfit for platinum-based chemotherapy: results of the randomized phase II Tempo Lung trial.** ESMO Open. 2021; 6(2):p. 100051-100051. IF:6,540. (Q1).
- 6.** Provencio M, Serna Blasco R, Franco F, Calvo V, Royuela A, Auglyte M, Sánchez Hernández A, de Julián Campayo M, García Girón C, Dómíne M, Blasco A, Sánchez JM, Oramas J, Bosch Barrera J, Sala MÁ, Sereno M, Ortega AL, Chara L, Hernández B, Padilla A, Coves J, Blanco R, Balsalobre J, Mielgo X, Bueno C, Jantus Lewintre E, Molina Vila MÁ, Romero A. **Analysis of circulating tumour DNA to identify patients with epidermal growth factor receptor-positive non-small cell lung cancer who might benefit from sequential tyrosine kinase inhibitor treatment.** Eur. J. Cancer. 2021; 149: p. 61-72. IF:9,162. (Q1).
- 7.** Muñoz Guardiola P, Casas J, Megías Roda E, Solé S, Perez Montoyo H, Yeste Velasco M, Erazo T, Diéguez Martínez N, Espinosa Gil S, Muñoz Pinedo C, Yoldi G, Abad JL, Segura MF, Moran T, Romeo M, Bosch Barrera J, Oaknin A, Alfón J, Domènech C, Fabriàs G, Velasco G, Lizcano JM. **The anti-cancer drug ABTL0812 induces ER stress-mediated cytotoxic autophagy by increasing dihydroceramide levels in cancer cells.** Autophagy. 2021; 17(6):p. 1-18. IF:16,016. (Q1).
- 8.** Alarcón T, Sardanyés J, Guillamon A, Menendez JA. **Bivalent chromatin as a therapeutic target in cancer: An in silico predictive approach for combining epigenetic drugs.** PLoS Comput. Biol. 2021; 17(6):e1008408. IF:4,475. (Q1).
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- 11.** Jiménez Labaig P, Pacheco Barcia V, Cebrià A, Gálvez F, Obispo B, Pérez D, Quílez A, Quintanar T, Ramchandani A, Remón J, Rogado J, Sánchez DA, Sánchez Cánovas M, Sanz García E, Sesma A, Tarazona N, Cotés A, González E, Bosch Barrera J, Fernández A, Felip E, Vera R, Rodríguez Lescure Á, Élez E. **Identifying and preventing burnout in young oncologists, an overwhelming challenge in the COVID-19 era: a study of the Spanish Society of Medical Oncology (SEOM).** ESMO Open. 2021; 6(4):p. 100215-100215. IF:6,540. (Q1).
- 12.** Tramonti A, Cuyàs E, Encinar JA, Pietzke M, Paone A, Verdura S, Arbusà A, Martin Castillo B, Giardina G, Joven J, Vazquez A, Contestabile R, Cutruzzolà F, Menendez JA. **Metformin Is a Pyridoxal-5'-phosphate (PLP)-Competitive Inhibitor of SHMT2.** Cancers. 2021; 13(16):4009. IF:6,639. (Q1).
- 13.** Bosch Barrera J, Verdura S, Ruffinelli JC, Carcereny E, Sais E, Cuyàs E, Palmero R, Lopez Bonet E, Hernández Martínez A, Oliveras G, Buxó M, Izquierdo A, Morán T, Nadal E, Menendez JA. **Silibinin Suppresses Tumor Cell-Intrinsic Resistance to Nintedanib and Enhances Its Clinical Activity in Lung Cancer.** Cancers. 2021; 13(16):4168. IF:6,639. (Q1).
- 14.** Gutiérrez L, Royuela A, Carcereny E, López Castro R, Rodríguez Abreu D, Massutí B, González Larriba JL, García Campelo R, Bosch Barrera J, Guirado M, Camps C, Dómíne M, Bernabé R, Casal J, Oramas J, Ortega AL, Sala MA, Padilla A, Aguiar D, Juan Vidal O, Blanco R, Del Barco E, Martínez Banaclocha N, Benítez G, de Vega B, Hernández A, Saigi M, Franco F, Provencio M. **Prognostic model of long-term advanced stage (IIIB-IV) EGFR mutated non-small cell lung cancer (NSCLC) survivors using real-life data.** Bmc Cancer. 2021; 21(1):p. 977-977. IF:4,430. (Q2).
- 15.** Garrido P, Paz Ares L, Majem M, Morán T, Trigo JM, Bosch Barrera J, Garcìa Campelo R, González Larriba JL, Sánchez Torres JM, Isla D, Viñolas N, Camps C, Insa A, Juan Ó, Massutí B, Paredes A, Artal Á, López Brea M, Palacios J, Felip E. **LungBEAM: A prospective multicenter study to monitor stage IV NSCLC patients with EGFR mutations using BEAMing technology.** Cancer Med. 2021; 10(17):p. 5878-5888. IF:4,452. (Q2).
- 16.** Herranz C, Mateo F, Baiges A, Ruiz de Garibay G, Junza A, Johnson SR, Miller S, García N, Capellades J, Gómez A, Vidal A, Palomero L, Espín R, Extremera AI, Blommaert E, Revilla López E, Saez B, Gómez Ollés S, Ancochea J, Valenzuela C, Alonso T, Ussetti P, Laporta R, Xaubet A, Rodríguez Portal JA, Montes Worboys A, Machahua C, Bordas J, Menendez JA, Cruzado JM, Guiteras R, Bontoux C, La Motta C, Noguera Castells A, Mancino M, Lastra E, Rigo Bonnin R, Perales JC, Viñals F, Lahiguera A, Zhang X, Cuadras D, van Moorsel CHM, van der

- Vis JJ,Quanjel MJR,Filippakis H,Hakem R,Gorrini C,Ferrer M,Ugun Klusek A,Billett E,Radzikowska E,Casanova Á,Molina M,Roman A,Yanes O,Pujana MA. **Histamine signaling and metabolism identify potential biomarkers and therapies for lymphangioleiomyomatosis.**EMBO Mol. Med. 2021. 13. (9):e13929. IF:12,137. (Q1).
- 17.** Niksic M,Redondo Sanchez D,Chang YL,Rodriguez Barranco M,Exposito Hernandez J,Marcos Gragera R,Oliva Poch E,Bosch Barrera J,Sánchez MJ,Luque Fernandez MA. **The role of multimorbidity in short-term mortality of lung cancer patients in Spain: a population-based cohort study.**Bmc Cancer. 2021. 21. (1):p. 1048-1048. IF:4,430. (Q2).
- 18.** Ruano Ravina A,Provencio M,Calvo de Juan V,Carcereny E,Estival A,Rodríguez Abreu D,Benítez G,López Castro R,Belver M,Guirado Risueño M,Guirao Rubio C,Blasco A,Massutí B,Ortega AL,Cobo M,Mosquera Martínez J,Aguado de la Rosa C,Bosch Barrera J,Sánchez Gastaldo A,Del Barco Morillo E,Juan Ó,Dómine M,Trigo JM,Pereiro Corbacho D,Oramas J. **Are there differences by sex in lung cancer characteristics at diagnosis? -a nationwide study.**Transl. Lung Cancer Res. 2021. 10. (10):p. 3902-3911. IF:6,498. (Q1).
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- 20.** Polonio Alcalá E,Rabionet M,Ruiz Martínez S,Palomeras S,Porta R,Vásquez Dongo C,Bosch Barrera J,Puig T,Ciurana J. **Polycaprolactone Electrospun Scaffolds Produce an Enrichment of Lung Cancer Stem Cells in Sensitive and Resistant EGFRm Lung Adenocarcinoma.**Cancers. 2021. 13. (21):5320. IF:6,639. (Q1).
- 21.** Riudavets M,Bosch Barrera J,Cabezón Gutiérrez L,Diz Taín P,Hernández A,Alonso M,Blanco R,Gálvez E,Insa A,Mielgo X,Morán T,Ponce S,Roa D,Sánchez JM,Majem M. **Efficacy of nintedanib plus docetaxel in patients with refractory advanced epidermal growth factor receptor mutant lung adenocarcinoma.**Clin Transl Oncol. 2021. 23. (12):p. 2560-2567. IF:3,405. (Q3).
- 22.** Sanvisens A,Puigdemont M,Rubió Casadevall J,Vidal Vila A,López Bonet E,Martín Romero F,Marcos Gragera R. **Differences in the Impact of COVID-19 on Pathology Laboratories and Cancer Diagnosis in Girona.**Int J Environ Res Public Health. 2021. 18. (24):13269. IF:3,390. (Q1).
- 23.** Bosch Barrera J,Roqué A,Teixidor E,Carmona Garcia MC,Arbusà A,Brunet J,Martin Castillo B,Cuyàs E,Verdura S, Menendez JA. **Clinical Management of COVID-19 in Cancer Patients with the STAT3 Inhibitor Silibinin.**Pharmaceutics. 2021. 15. (1):19. IF:5,863. (Q1).
- REVIEWS / I.F.: 23.62**
- 1.** Cuyàs E,Verdura S,Martin Castillo B,Menendez JA. **Metformin: Targeting the Metabolo-Epigenetic Link in Cancer Biology.**Front. Oncol. 2021. 10. p. 620641-620641. IF:6,244. (Q2).
 - 2.** Castañé H,Baiges Gaya G,Hernández Aguilera A,Rodríguez Tomàs E,Fernández Arroyo S,Herrero P,Delpino Rius A,Canela N,Menendez JA,Camps J,Joven J. **Coupling Machine Learning and Lipidomics as a Tool to Investigate Metabolic Dysfunction-Associated Fatty Liver Disease. A General Overview.**Biomolecules. 2021. 11. (3):473. IF:4,879. (Q2).
 - 3.** Jablonska PA,Bosch Barrera J,Serrano D,Valiente M,Calvo A,Aristu J. **Challenges and Novel Opportunities of Radiation Therapy for Brain Metastases in Non-Small Cell Lung Cancer.**Cancers. 2021. 13. (9):2141. IF:6,639. (Q1).
 - 4.** Verdura S,Cuyàs E,Ruiz Torres V,Micol V,Joven J,Bosch Barrera J, Menendez JA. **Lung Cancer Management with Silibinin: A Historical and Translational Perspective.**Pharmaceutics. 2021. 14. (6):559. IF:5,863. (Q1).
- CLINICAL GUIDELINES / I.F.: 3.40**
- 1.** Nadal E,Bosch Barrera J,Cedrés S,Coves J,García Campelo R,Guirado M,López Castro R,Ortega AL,Vicente D,de Castro Carpeño J. **SEOM clinical guidelines for the treatment of malignant pleural mesothelioma (2020).**Clin Transl Oncol. 2021. 23. (5):p. 980-987. IF:3,405. (Q3).
-
- GRANTS**
- Principal Investigator: Joaquim Bosch
Project Title: Organ-specific biomarkers and therapies to improve the management of brain metastasis
Project Code: La Marató 201906-30
Funding Agency: Fundació La Marató TV3
Duration: 30/09/2020 to 29/09/2023
- Principal Investigator: Elisabet Cuyàs
Project Title: Programa Miguel Servet
Project Code: CP20/00003
Funding Agency: INSTITUTO DE SALUD CARLOS III
Duration: 01/01/2021 to 31/12/2025
- Principal Investigator: Javier Abel Menéndez
Project Title: Dependencias metabólicas y regulación dietética de los

puntos de control inmunitario: Nuevas dianas contra la resistencia a la inmunoterapia del cáncer

Project Code: PID2019-104055GB-I00

Funding Agency: MINISTERIO DE ECONOMIA Y COMPETITIVIDAD
(MINECO)

Duration: 01/06/2020 to 31/05/2023



ASSOCIATED GROUPS

UNIVERSITY OF GIRONA

BIOCHEMISTRY OF CANCER

COMPUTER VISION AND ROBOTICS

CONTROL ENGINEERING AND INTELLIGENT SYSTEMS - MEDICINE AND
HEALTH

HEALTH AND HEALTHCARE

HEALTH PSYCHOLOGY

MICELAB - MODELLING, IDENTIFICATION AND CONTROL ENGINEERING

PROTEIN ENGINEERING

STATISTICS AND DATA ANALYSIS

STATISTICS, ECONOMETRICS AND HEALTH (GRECS)

Biochemistry of cancer

University of Girona

Recognized as a consolidated research group by AGAUR (Generalitat de Catalunya) - 2017 SGR 673.

KEYWORDS

Pancreatic cancer
Prostate cancer
Tumor markers
Aberrant glycosylation
PSA
New cancer therapeutic approaches
targeted drug delivery
EGFR

RELATED DISEASES

Cancer (pancreatic, prostate)

GROUP LEADER - R4

Rafael De Llorens Duran (UdG)
Rosa Peracaula Miró (UdG)

Adelaida Garcia Velasco (ICO)

Rosa Ortíz Duran (ICS/Trueta)

ESTABLISHED RESEARCHERS - R3

Esther Llop Escorihuela (UdG)
Anna Massaguer Vall-Llovera (UdG)

POST-DOCTORAL RESEARCHERS - R2

Sílvia Barrabés Vera (UdG)
Maria Ángeles Martínez (UdG)

PRE-DOCTORAL RESEARCHERS- R1

Adrià Duran Sidera (UdG)
Anna Gratacós Mulleras (UdG)
Laura Miró Domènec (UdG)

TECHNICIANS

Marina Fontán Colom (ICS/Trueta)
Dúnia Pérez Del Campo (ICS/Trueta)

COLLABORATORS

Ernest Castro Gutierrez (ICS/Trueta)
Josep Maria Comet Batlle (ICS/Trueta)
Esther Fort Martorell (ICS/Trueta)

OVERVIEW

PROBLEM

The research of the group is focused on the field of cancer therapy and diagnosis.

- Need to know aspects of the biology of cancer that are linked to its progression and malignancy, which can result in new-targeted therapies and novel biomarkers.
- Need of non-invasive biomarkers to detect cancer in early stages when is easily curable. Need of biomarkers to appropriately diagnose cancer and differentiate for instance indolent from aggressive cancer in order to apply the most effective therapies.

APPROACH

- Biomarker discovery focused on identification of glycoproteins with altered glycans, in pancreatic cancer and prostate cancer by using several glycoproteomic approaches.
- Study of molecular mechanisms that lead to altered glycosylation in tumors and its influence in the cancer phenotype.
- Targeting specific glycosyltransferases: drug screenings in 3D models and in vivo validation using specific drug-response

biomarkers.

- Development and delivery of molecules with anti-tumour activity. Analogs of epidermal growth factor (EGF) as antitumour agents. Photochemotherapy.

IMPACT

- New biomarkers that could be translated in clinics and improve the diagnosis pathway and clinical decisión making in pancreatic and prostate cancer patients.
- New targeted anti-tumor therapies.

MAIN RESEARCH LINES

- Biomarker discovery focused on identification of glycoproteins with altered glycans, in pancreatic cancer and prostate cancer.
- Study of molecular mechanisms that lead to altered glycosylation in tumors and its influence in the cancer phenotype.
- Targeting specific glycosyltransferases: drug screenings in 3D models and in vivo validation using specific drug-response biomarkers.

-
- Targeted anti-tumour therapies (TAD): Development and delivery of molecules with anti-tumour activity. Analogs of epidermal growth factor (EGF) as antitumour agents. Photo-chemotherapy.

PUBLICATIONS

ORIGINALS / I.F.: 19.14

1. Guerrero PE,Duran A,Ortiz MR,Castro E,Garcia Velasco A,Llop E,Peracaula R. **Microfibril associated protein 4 (MFAP4) is a carrier of the tumor associated carbohydrate sialyl-Lewis x (sLe(x)) in pancreatic adenocarcinoma.** J. Proteomics. 2021. 231. p. 104004-104004. IF:4,044. (Q2).
2. Greville G,Llop E,Howard J,Madden SF,Perry AS,Peracaula R,Rudd PM,McCann A,Saldova R. **5-AZA-dC induces epigenetic changes associated with modified glycosylation of secreted glycoproteins and increased EMT and migration in chemosensitive cancer cells.** Clin. Epigenetics. 2021. 13. (1):p. 34-34. IF:6,551. (Q1).
3. Leal J,Santos L,Fernández Aroca DM,Cuevas JV,Martínez MA,Massaguer A,Jalón FA,Ruiz Hidalgo MJ,Sánchez Prieto R,Rodríguez AM,Castañeda G,Durá G,Carrión MC,Barrabés S,Manzano BR. **Effect of the aniline fragment in Pt(II) and Pt(IV) complexes as anti-proliferative agents. Standard reduction potential as a more reliable parameter for Pt(IV) compounds than peak reduction potential.** J. Inorg. Biochem. 2021. 218. p. 111403-111403. IF:4,155. (Q1).
4. Zafon E,Echevarría I,Barrabés S,Manzano BR,Jalón FA,Rodríguez AM,Massaguer A,Espino G. **Photodynamic therapy with mitochondria-targeted biscyclometallated Ir(III) complexes. Multi-action mechanism and strong influence of the cyclometallating ligand.** Dalton Trans. 2021. 51. (1):p. 111-128. IF:4,390. (Q1).

GRANTS

Principal Investigator: Rosa Peracaula, Esther Llop
Project Title: Altered glycosylation in pancreatic cancer: Basis to develop novel biomarkers and therapeutic targets (GLYCOPAC)
Project Code: PID2020-115686RB-I00
Funding Agency: Ministerio de Ciencia e Innovación (MICINN)
Duration: 01/09/2021 to 01/09/2024

Principal Investigator: Esther Llop, Josep Comet
Project Title: Non-invasive biomarkers for Prostate Cancer clinical risk stratification: PSA glycoforms and multiparametric magnetic resonance imaging. Predictive model for potential metastatic Prostate Cancer
Project Code: 201922
Funding Agency: Fundació La Marató de TV3
Duration: 19/07/2020 to 19/07/2023

Principal Investigator: Rosa Peracaula, Esther Llop
Project Title: Glycomic approaches for the discovery of novel biomarkers and therapeutic targets in pancreatic cancer
Project Code: Ajuts PONT 2020 (2020/04)
Funding Agency: University of Girona
Duration: 01/11/2020 to 30/06/2021

Principal Investigator: Anna Massaguer
Project Title: Nuevos metalofármacos diseñados para incrementar la selectividad. Uso de fototerapia y vehiculación con ligandos dirigidos a tumores
Project Code: RTI2018-100709-B-C22
Funding Agency: Ministeri de Ciència, Innovació i Universitats
Duration: 01/01/2019 to 31/12/2021 (extended to 31/12/2022)

Computer vision and robotics (VICOROB)

University of Girona

redEspañola de
esclerosis múltiple

Recognized as a consolidated research group by AGAUR (Generalitat de Catalunya) - 2017 SGR 1164.

MEMBER OF
REEM ISCIII

KEYWORDS
Medical Image Analysis
Artificial Intelligence
Deep Learning
3D perception
Computer Vision

RELATED DISEASES
Breast cancer
Multiple sclerosis
Skin image analysis

GROUP LEADER - R4

Robert Martí Marly (UdG)

ESTABLISHED RESEARCHERS - R3

Jordi Freixenet Bosch (UdG)
Rafael García Campos (UdG)
Xavier Lladó Bardera (UdG)
Joan Martí Bonmatí (UdG)
Arnaud Oliver Malagelada (UdG)

POST-DOCTORAL RESEARCHERS - R2

Joel Vidal (UdG)

PRE-DOCTORAL RESEARCHERS - R1

Basel Alyafi (UdG)
Albert Clerigues (UdG)
Albert Malet (UdG)
Liliana Valencia (UdG)

TECHNICIANS

Pablo Gómez Del Campo (UdG)
Isaac Llorente (UdG)

NON-SCIENTIFIC RESEARCH SUPPORT STAFF

Anna Ferrarons (UdG)
Mireia Frigola (UdG)

OVERVIEW

PROBLEM

The main active research areas of the group are: 1) breast cancer diagnosis, developing computer application tools to combine imaging biomarkers from digital mammography, breast tomosynthesis, MRI and US and fuse them with clinical information to improve breast cancer diagnosis and patient stratification; 2) neurological diseases diagnosis and patient evolution, developing computerised tools to quantify brain lesion activity and atrophy in patients with multiple sclerosis, Alzheimer or stroke, fusing imaging biomarkers with clinical and laboratory information to improve monitoring, stratification of patients, and development of predictive models; and 3) skin cancer diagnosis, developing a full body digital scanner together with the tools to perform early detection of melanoma. All these research lines include the development of computer aided diagnostic systems that integrate various data sources such as medical records, genomics and imaging data.

APPROACH

Development of methods to help in the analysis of different types of data, with emphasis on the study of medical images. To this end, the group develops novel computer algorithms that include tasks such as image segmentation, pattern recognition, object detection and characterization, image registration and image classification, with a special focus on artificial intelligence strategies based on deep learning.

Furthermore, the capabilities of the group include image analysis for a variety of imaging modalities such as X-rays, magnetic resonance imaging (MRI), ultrasound (US), and computed tomography (CT) and optical imaging.

IMPACT

To improve current imaging diagnostics using artificial intelligence, image analysis and machine learning by providing quantitative biomarkers and computer aided diagnosis tools, specially in the fields of neurological diseases and breast and skin cancers.

MAIN RESEARCH LINES

- Medical Image analysis.
- Imaging Biomarkers.
- Machine learning.

PUBLICATIONS**ORIGINALS / I.F.: 22.11**

- 1.** Carvajal Camelo EE,Bernal J,Oliver A,Llado X,Trujillo M,Alzheimer's Dis Neuroimaging I. **Evaluating the Effect of Intensity Standardisation on Longitudinal Whole Brain Atrophy Quantification in Brain Magnetic Resonance Imaging.** Appl. Sci.-Basel. 2021. 11. (4):1773. IF:2,679. (Q2).
- 2.** Kushibar K,Salem M,Valverde S,Rovira À,Salvi J,Oliver A,Lladó X. **Transductive Transfer Learning for Domain Adaptation in Brain Magnetic Resonance Image Segmentation.** Front. Neurosci. 2021. 15. p. 608808-608808. IF:4,677. (Q2).
- 3.** Abramova V,Clèrigues A,Quiles A,Figueredo DG,Silva Y,Pedraza S,Oliver A,Lladó X. **Hemorrhagic stroke lesion segmentation using a 3D U-Net with squeeze-and-excitation blocks.** Comput. Med. Imaging Graph. 2021. 90. p. 101908-101908. IF:4,790. (Q1).
- 4.** Bernal J,Valverde S,Kushibar K,Cabezas M,Oliver A,Lladó X,Alzheimer's Disease Neuroimaging I. **Generating Longitudinal Atrophy Evaluation Datasets on Brain Magnetic Resonance Images Using Convolutional Neural Networks and Segmentation Priors.** Neuroinformatics. 2021. 19. (3):p. 477-492. IF:4,085. (Q2).
- 5.** Alonso J,Pareto D,Alberich M,Kober T,Maréchal B,Lladó X,Rovira A. **Quantitative comparison of subcortical and ventricular volumetry derived from MPRAGE and MP2RAGE images using different brain morphometry software.** Magn. Reson. Mat. Phys. Biol. Med. 2021. 34. (6):p. 903-914. IF:2,310. (Q3).
- 6.** Vidal J,Lin CY,Martí R. **Visual Attention and Color Cues for 6D Pose Estimation on Occluded Scenarios Using RGB-D Data.** Sensors. 2021. 21. (23):8090. IF:3,576. (Q1).
- 7.** Park J,Shoshan Y,Marti R,del Campo PG,Ratner V,Khapun D,Zlotnick A,Barkan E,Gilboa Solomon F,Chledowski J,Witkowski J,Millet A,Kim E,Lewin A,Pysarenko K,Chen S,Goldberg J,Patel S,Plaunova A,Wegener M,Wolfson S,Lee J,Hava S,Murthy S,Du LD,Gaddam S,Parikh U,Heacock L,Moy L,Reig B,Rosen Zvi M,Geras KJ. **Lessons from the first DBTex Challenge.** Nat. Mach. Intell. 2021. 3. (8):p. 735-736. IF:15,508. (Q1).

GRANTS

Principal Investigator: Rafael García
 Project Title: Intelligent Total Body Scanner for Early Detection of Melanoma
 Project Code: 965221
 Funding Agency: H2020- SocialChallenge1
 Duration: 2021 to 2025

Principal Investigator: Rafael García
 Project Title: Escáner inteligente de cuerpo completo para la detección precoz de melanoma
 Project Code: EIN2020-112457-NextGeneration-NG
 Funding Agency: Europa Investigación' 2020
 Duration: 2020 to 2022

Principal Investigator: Xavier Lladó
 Project Title: PrEdictiVe mOdeLs for mULTiple sclerOsis using braIN magnetic resonance imaging biomarkers - EVOLUTION
 Project Code: DPI2017-86696-R
 Funding Agency: Ministerio de Economía y Competitividad
 Duration: 2018 to 2021

Principal Investigator: Arnaud Oliver
 Project Title: Generación de imágenes de resonancia magnética universales para la monitorización de la atrofia mediante aprendizaje profundo
 Project Code: PONT2020/09
 Funding Agency: Ajuts PONT2020 13/07/2020
 Duration: 2020 to 2021

Principal Investigator: Arnaud Oliver
 Project Title: Erasmus + Joint Master Degree in Medical Imaging and Applications – MAIA
 Project Code:
 Funding Agency: Comissió Europea
 Duration: 2016 to 2024

Principal Investigator: Jordi Freixenet
 Project Title: SocialLAB-UdG: coneixement per la transformació social (Cohesio) (FEDER)
 Project Code: PR15-019186
 Funding Agency: Projectes d'especialització i competitivitat territorial 04/09/2019
 Duration: 2020 to 2022

Principal Investigator: Jordi Freixenet
 Project Title: Inventcat: co-creant invencions per a la inclusió social al territori (cohesió) (FEDER)
 Project Code: PR15-019188
 Funding Agency: Projectes d'especialització i competitivitat territorial 04/09/2019
 Duration: 2020 to 2022

Principal Investigator: Robert Martí
Project Title: Computación de la Imagen para la mejora de la Radiómica del cáncer de mama
Project Code: RTI2018-096333-B-I00
Funding Agency: Ministerio de Economía y Competitividad
Duration: 2019 to 2021

Principal Investigator: Robert Martí
Project Title: STORM III- SISTEMA DE PREDICCIÓN DE MUY ALTA RESOLUCIÓN DE LA PRODUCCIÓN DE ENERGÍA DE PLANTAS FOTOVOLTAICAS CON ALMACENAMIENTO BASADO EN INTELIGENCIA ARTIFICIAL DE BAJO COSTE COMPUTACIONAL, PRUEBA DE CONCEPTO, STORM FASE II
Project Code: AEI-010500-2020-47
Funding Agency: MINISTERIO DE INDUSTRIA, COMERCIO Y TURISMO (MINCOTUR)
Duration: 25/06/2020 to 31/03/2021

MEMBERSHIP OF COLLABORATIVE RESEARCH NETWORKS

SPANISH

- RETICS – Red Española de Esclerosis Múltiple (REEM)- RD16/0015/0006
-

AWARDS

Title: 3rd Place at the Lesion detection Challenge in Breast tomosynthesis (DBTex)
Institution: SPIE Medical Imaging/ Duke University
Awardee/s: Robert Martí, Pablo Gómez
Country: USA

Control engineering and intelligent systems - Medicine and health (eXiT)

University of Girona

Part of a consolidated research group recognized by AGAUR (Generalitat de Catalunya) - 2017 SGR 1551.

KEYWORDS

Healthcare

Artificial intelligence

Case based reasoning

Machine learning

Optimization

RELATED DISEASES

Neurology: Epilepsy, Alzheimer

Mental: ADHD

Internal: Dyslipidaemia and familial hypercholesterolemia

Psychology: Emotions

Endocrinology: Diabetes

GROUP LEADER - R4

Beatriz López (UdG)

ESTABLISHED RESEARCHERS - R3

Bianca Innocenti (UdG)

Carles Pous (UdG)

POST-DOCTORAL RESEARCHERS - R2

Joaquim Massana (UdG)

Elies Ramon Gurrea (UdG)

PRE-DOCTORAL RESEARCHERS - R1

Alihuén Garcia (UdG)

Natalia Mordvanyuk (UdG)

Oscar Raya (UdG)

TECHNICIANS

Daniel Macaya (UdG)

Miquel Rustullet (UdG)

NON-SCIENTIFIC RESEARCH SUPPORT STAFF

Jaume Gauchola (UdG)

Sara Murlà Bartrina (UdG)

Roberto Petite Herrero (UdG)

OVERVIEW

PROBLEM

The eXiT group from UdG is specialized in the application of artificial intelligence principles for the digital transformation in health care sector and developing new machine learning methods to cope with the challenges posed by Medicine.

APPROACH

The main research activity of the group is focused on machine learning approaches, and decision support tools. Machine learning include both non-supervised approaches (as pattern mining with sequence learning, and time interval related patterns), and supervised methods (as random forest, support vector machines) for health conditions predictive modelling and explainable approaches to understand triggers of diseases. Decision support tools include qualitative reasoning, case based reasoning, and genetic algorithms.

IMPACT

The eXiT research group aims to contribute to ODS 3 (Ensure

healthy lives and promote well-being for all at all ages), without disregarding the remainder, with particular emphasis on ODS 1 (No Poverty), 5 (Gender Equality) and 10 (Reduced Inequality). To that end, eXiT pursues the publication on high impact journals, through open access whenever possible, and FAIR research practice. eXiT collaborate with clinicians and medicine and health related entities by defining collaborative projects both at the national and international level.

MAIN RESEARCH LINES

- Artificial Intelligence decision support methods
- Machine learning for predictive modelling and health understanding
- Machine learning for pattern mining

PUBLICATIONS

ORIGINALS / I.F.: 17.15

1. Avari P, Leal Y, Herrero P, Wos M, Jugnee N, Arnoriaga Rodríguez

<p><u>M.Thomas M,Liu C,Massana Q,Lopez B,Nita L,Martin C,Fernandez Real JM,Oliver N,Fernandez M,Reddy M.</u> Safety and feasibility of the PEPPER adaptive bolus advisor and safety system; a randomized control study. Diabetes Technol Ther. 2021. 23. (3):p. 175-186. IF:6,118. (Q1).</p>	<p>Project Title: Enginyeria de Control i Sistemes Intel·ligents- EXIT-GRCT0041 Project Code: PROMOTORS2019/17 Funding Agency: Universitat de Girona Duration: 26/05/2020 to 25/05/2022</p>
<p>2. Mordvanyuk N,Lopez B,Bifet A. vertTIRP: Robust and efficient vertical frequent time interval-related pattern mining. Expert Syst. Appl. 2021. 168. 114276. IF:6,954. (Q1).</p> <p>3. Massana J,Raya Ò,Gauchola J,López B. Signaleeg : A practical tool for EEG signal data mining. Neuroinformatics. 2021. 19. (4):p. 567-583. IF:4,085. (Q2).</p>	<p>Principal Investigator: Beatriz López Project Title: Advice from the Control and Intelligent Systems Engineering research group on the application of AI-based techniques for predicting patient flows and resource use in care centers Project Code: 075/20 Funding Agency: ENALTIS Duration: April 2021 to September 2021</p>
<p>GRANTS</p> <p>Principal Investigator: Alberto Zamora Project Title: Validación clínica de un Lipidólogo virtual asistente en el manejo de la Hipercolesterolemia Familiar (Plataforma HTE-DLP 4.0) Project Code: BECA FEA 2021 Funding Agency: Fundación Española de Arteriosclerosis Duration: 01/01/2021 to 31/12/2022</p> <p>Principal Investigator: Mar Marcos (Universidad Jaime I) Project Title: Thematic Network on Artificial Intelligence in Biomedicine (Red Temática sobre Inteligencia Artificial en Biomedicina, IABIOMED) Project Code: RED2018-102312-T Funding Agency: Ministerio de Ciencia, Innovación y Universidades Duration: 01/01/2020 to 31/12/2021 (extended to 31/12/2022)</p> <p>Principal Investigator: Xavier Castells Project Title: Development and evaluation of a mHealth tool that uses artificial intelligence to formulate pharmacological recommendations for the treatment of ADHD (Desarrollo y evaluación de una herramienta de mHealth que utiliza la inteligencia artificial para formular recomendaciones terapéuticas farmacológicas para el tratamiento de TDAH) Project Code: PI19/00375 Funding Agency: Ministerio de Ciencia, Innovación y Universidades, Instituto de Investigación Carlos III Duration: 2020 to 2022</p> <p>Principal Investigator: Beatriz López Project Title: SERAS- Seizure Risk Assessment Project Code: RTC-2017-6701-1 Funding Agency: Ministerio de Ciencia, Innovación y Universidades, RETOS Colaboración Duration: 01/01/2018 to 31/03/2021</p> <p>Principal Investigator: Joaquim Meléndez (UdG)</p>	<p>Principal Investigator: Beatriz López Project Title: DREAMER: Detección pREcoz AlzheiMER Project Code: 075/20 Funding Agency: MJN Neuroserveis, S.L. (through CDTI, MISIONES programme) Duration: 12/2020 to 03/2023</p> <p>Principal Investigator: Albert Sabater (UdG) Project Title: AI FORA – Artificial Intelligence for Assessment Project Code: Funding Agency: Volkswagen Duration: 2021 to 2023</p>
<p>MEMBERSHIP OF COLLABORATIVE RESEARCH NETWORKS</p> <p>INTERNATIONAL</p> <ul style="list-style-type: none"> • CLAIRE • European AI Alliance (EAA) <p>DOCTORAL THESES</p> <p>Thesis author: Natalia Mordvanyuck Title: Efficient sequential and temporal pattern mining. Thesis directors: Beatriz López / Albert Bifet International mention: Yes</p> <p>AWARDS</p> <p>Title: Understanding affective behaviour from physiological signals: Feature learning versus pattern mining Institution: IEEE Computer-Based Medical Systems (CBMS), Special Track on Computational based Biomarkers for Mental and Emotional Health (IEEE CBMS-CBMEH) Awardee/s: Best student paper.</p>	

Health and healthcare

University of Girona

Recognized as a consolidated research group by AGAUR (Generalitat de Catalunya) - 2017 SGR 1767.

KEYWORDS

Health promotion
Elders and careers
Woman
Gender and health
Gender violence
Mental Health

RELATED DISEASES
Fibromyalgia
Stroke
Non communicable disease
Mental Health
Covid-19

GROUP LEADER - R4

Dolors Juvinyà Canal (UdG)

ESTABLISHED RESEARCHERS - R3

David Ballester Ferrando (UdG)
Carme Bertran Noguer (UdG)
Anna Bonmatí Tomas (UdG)
Cristina Bosch Farre (UdG)
Bernat Carles Serdà Ferrer (UdG)
Concepció Fuentes Pumarola (UdG)
Sandra Gelabert Vilella (UdG)
Maria Del Carme Malagon Aguilera (UdG)
Josep Olivet Pujol (UdG)
Rosa Suñer Soler (UdG)

POST-DOCTORAL RESEARCHERS - R2

Gloria Reig Garcia (UdG)
Susana Mantas Jimenez (UdG)
Afra Masià Plana (UdG)
Marta Vilanova Vila (UdG)

OVERVIEW

PROBLEM

The Research Group in Health and Healthcare is a multidisciplinary group composed of experts in nursery, psychology, anthropology and physiotherapy. Its aim is to conduct high quality research in different areas of health specially in health promotion, health literacy, ageing, gender, mental health and quality of life.

APPROACH

The group's research focuses on promoting health promotion research in institutions and the community, investigating health literacy in different settings, healthy ageing, analyze the incorporation of the gender perspective, empower people with chronic illnesses and promote quality of life.

IMPACT

The results obtained from our research can have an impact on different health areas. Specifically:

- Health Promotion.
- Improve the quality of life of the elderly, the dependent and

fragile population and its carers.

- Provide scientific knowledge needed to undertake actions to revert the discriminatory elements of the healthcare system that affect the health professions, the health professionals and the users of health services.
- Assess skills to conduct basic and advanced life support protocols and creation of new tools to assess professional competences.

MAIN RESEARCH LINES

- Health Promotion
- Elders and caregivers
- Women, gender and health
- Quality of life

PUBLICATIONS

ORIGINALS / I.F.: 38.32

1. Gonzalez Hoelling S,Bertran Noguer C,Reig Garcia G,Suñer Soler R. **Effects of a Music-Based Rhythmic Auditory Stimulation on Gait and Balance in Subacute Stroke.***Int J Environ Res Public Health.* 2021. 18. (4):2032. IF:3,390. (Q1).
2. Raurell Torredà M,Rascón Hernán C,Malagón Aguilera C,Bonmatí Tomás A,Bosch Farré C,Gelabert Vilella S,Romero Collado A. **Effectiveness of a training intervention to improve communication/between-awareness of team roles: A randomized clinical trial.***J. Prof. Nurs.* 2021. 37. (2):p. 479-487. IF:2,104. (Q2).
3. Raurell Torredà M,Bonmatí Tomás A,Lamoglia Puig M,Zaragoza García I,Farrés Tarafa M,Roldán Merino J,Gómez Ibáñez R. **Psychometric design and validation of a tool to assess the medication administration process through simulation in undergraduate nursing students.***Nurse Educ. Today.* 2021. 98. p. 104726-104726. IF:3,442. (Q1).
4. Reverté Villarroya S,Ortega L,Rraigal Aran L,Sauras Colón E,Ricomà Muntané R,Ballester Ferrando D,Rascón Hernán C,Botigué T,Lavedán A,González Osorio L,Osorio Spuler X,Burjalés Martí MD. **Psychological Well-Being in Nursing Students: A Multicentric, Cross-Sectional Study.***Int J Environ Res Public Health.* 2021. 18. (6):3020. IF:3,390. (Q1).
5. Mana A,Super S,Sardu C,Juvinya Canal D,Moran N,Sagy S. **Individual, social and national coping resources and their relationships with mental health and anxiety: A comparative study in Israel, Italy, Spain, and the Netherlands during the Coronavirus pandemic.***Glob. Health Promot.* 2021. 28. (2):p. 17-26. IF:1,976. (Q3).
6. Reverté Villarroya S,Ortega L,Lavedán A,Masot O,Burjalés Martí MD,Ballester Ferrando D,Fuentes Pumarola C,Botigué T. **The influence of COVID-19 on the mental health of final-year nursing students: comparing the situation before and during the pandemic.***Int. J. Ment. Health Nurs.* 2021. 30. (3):p. 694-702. IF:3,503. (Q1).
7. Fuentes Pumarola C,Reyes Amargant Z,Berenguer Simon A,Ballester Ferrando D,Burjalés Martí MD,Rigol Cuadra A,Maestre González E,Rascón Hernán C,Galbany Estragués P,Rodríguez Martín D. **Alcohol Use and Sexual Violence among Nursing Students in Catalonia, Spain: A Multicentre Cross-Sectional Study.***Int J Environ Res Public Health.* 2021. 18. (11):6036. IF:3,390. (Q1).
8. Reverté Villarroya S,Suñer Soler R,Font Mayolas S,Dávalos Errando A,Sauras Colón E,Gras Navarro A,Adell Lleixà M,Casanova Garrigós G,Gil Mateu E,Berenguer Poblet M. **Influence of Pain and Discomfort in Stroke Patients on Coping Strategies and Changes in Behavior and Lifestyle.***Brain Sci.* 2021. 11. (6):804. IF:3,394. (Q3).
9. Reig Garcia G,Suñer Soler R,Mantas Jiménez S,Bonmatí Tomás A,Malagón Aguilera MC,Bosch Farré C,Gelabert Viella S,Juvinya Canal D. **Assessing Nurses' Satisfaction with Continuity of Care and the Case Management Model as an Indicator of Quality of Care in Spain.***Int J Environ Res Public Health.* 2021. 18. (12):6609. IF:3,390. (Q1).
10. Reverté Villarroya S,Font Mayolas S,Dávalos Errando A,Sauras Colón E,Tortosa Alted R,Suñer Soler R. **Trastornos neuropsiquiátricos y estrategias de afrontamiento emocionales en pacientes postictus. Estudio longitudinal.***Rev. Neurologia.* 2021. 73. (4):p. 130-134. IF:0,870. (Q4).
11. Gonzalez Rio M,Bertran Noguer C,Ramió Torrentà L,Zabaleta Olmo E. **Disease-related knowledge measurement instruments of people affected by multiple sclerosis: protocol for a systematic psychometric review.***BMJ Open.* 2021. 11. (10):e049580. IF:2,692. (Q2).
12. Serdà BC,Aymerich M,Patiño Masó J,Cunill M. **Mental Health Screening of Healthcare Professionals Who Are Candidates for Psychological Assistance during the COVID-19 Pandemic.***Int J Environ Res Public Health.* 2021. 18. (21):11167. IF:3,390. (Q1).
13. Reig Garcia G,Bosch Farré C,Suñer Soler R,Juvinya Canal D,Pla Vila N,Noell Boix R,Boix Roqueta E,Mantas Jiménez S. **The Impact of a Peer Social Support Network from the Perspective of Women with Fibromyalgia: A Qualitative Study.***Int J Environ Res Public Health.* 2021. 18. (23):12801. IF:3,390. (Q1).

REVIEWS / I.F.: 3.37

1. Melgar Alcantud P,Campdepadrós Cullell R,Fuentes Pumarola C,Mut Montalvà E. **'I think I will need help': A systematic review of who facilitates the recovery from gender-based violence and how they do so.***Health Expect.* 2021. 24. (1):p. 1-7. IF:3,377. (Q1).

GRANTS

Principal Investigator: Rosa Suñer
 Project Title: La alfabetización en salud en personas con ictus agudo durante la pandemia por COVID-19: Eficacia de una intervención digital de educación sanitaria
 Project Code: FIS 2021: PI21/00951

ASSOCIATED GROUPS

Funding Agency: Ministerio de Ciencia e Innovación. Gobierno de España. Instituto de Salud Carlos III
Duration: 01/2022 to 31/12/2024

Principal Investigator: Patricia Melgar
Project Title: Redes de solidaridad con impacto en los procesos de recuperación de mujeres víctimas de violencia de género
Project Code: RTI2018-096947-A-I00
Funding Agency: Ministeri de Ciència, Innovació i Universitats- MCIU
Duration: 01/01/2019 to 31/12/2024

Principal Investigator: Concepció Fuentes, David Ballester
Project Title: Anàlisi de l'assistència sanitària a l'embaràs, part i postpart a la demarcació de Girona. Programa d'intervenció cap a un model d'atenció maternal respectuosa lliure de violència obstètrica
Project Code: CD-2021-76
Funding Agency: Institut Català de les Dones
Duration: 15/03/2021 to 15/06/2022

Principal Investigator: Joaquín T. Limonero
Project Title: Diseño, implementación y evaluación de un programa transdiagnóstico para la prevención del consumo y abuso de sustancias (alcohol y cannabis), de la adicción a internet y del riesgo suicida en jóvenes
Project Code: 2020I006
Funding Agency: Ministerio de Sanidad, Consumo y Bienestar Social
Duration: 01/01/2021 to 31/12/2023

COLLABORATIVE GRANTS

Principal Investigator: Ruth Martí
Project Title: Cohorte DESVELA. Análisis del papel de las aptitudes personales como determinantes de las conductas en la incidencia de morbilidad, los estilos de vida, la calidad de Vida, el uso de servicios y la mortalidad
Project Code: PI19/00147
Funding Agency: Instituto de Salud Carlos III
Duration: 01/01/2020 to 31/12/2022

DOCTORAL THESES

Thesis author: Xavier Pericot Mozo
Title: Qualitat de vida de les personnes amb dolor lumbar crònic i factors associats
Thesis directors: Dra. Rosa Suñer Soler
International mention: No

AWARDS

Title: Online breastfeeding support groups, as a community asset in Lebanon after Beirut explosion (Poster award)
Institution: International Union Health Promotion and Educations. 11th IUHPE European conference on health promotion.
Awardee/s: Nabiha Ramadan, Anna Bonmatí-Tomàs, Ali Ghaddar, Dolors Juvinyà Canal

Health psychology

University of Girona

Recognized as a consolidated research group by AGAUR (Generalitat de Catalunya) - 2017 SGR 98.

KEYWORDS

Risk behavior

Addictions

Stress and Health

Quality of Life

RELATED DISEASES

Addictions

Sexual Transmitted Diseases

Stress

GROUP LEADERS - R4

Maria Eugènia Gras Pérez (UdG)

Montserrat Planes Pedra (UdG)

ESTABLISHED RESEARCHERS - R3

Sílvia Font Mayolas (UdG)

POST-DOCTORAL RESEARCHERS - R2

Maria Aymerich Andreu (UdG)

Francisco Calvo García (UdG)

Natalia Cebrian Fernández (UdG)

Monica Cunill Olivas (UdG)

Armand Grau Martin (Fundació Salut Empordà)

Josefina Patiño Masó (UdG)

Anna Salamó Avellaneda (UdG)

PRE-DOCTORAL RESEARCHERS - R1

Francesc Prat (UdG)

Laura Ballester (UdG)

OVERVIEW

PROBLEM

The Health Psychology research group began its journey in the University of Girona in 1994. In a first stage, its studies were directed to the analysis of the influent factors in risk and prevention behaviors in the areas of sexuality and road safety. Subsequently, the group expands its lines of research to the field of addictions to substances and activities, pain, stress, burnout and to the processes of aging and loss and mourning.

APPROACH

Many health problems are related to lifestyle and can be prevented by modifying behavior. Promoting healthy lifestyles reduces mortality and improves the health status of the population and its quality of life. Knowing the factors that facilitate and hinder risk behaviors and healthy behaviors in order to improve the effectiveness and efficiency of preventive programs is one of the main objectives of the research group. The group also focuses on the effects of stress on health and quality of life.

IMPACT

The results of these studies can help improve the quality of life of people and the development of preventive programs for risk behaviors.

MAIN RESEARCH LINES

- Sexual behavior of risk and prevention of AIDS, other STD and unwanted pregnancies.
- Behavior of risk and prevention for users of motor vehicles and pedestrians.
- Substance dependence.
- Stress, pain and quality of life.
- Quality of life during aging.
- Processes of loss and mourning.

- Research in education in health Psychology.

PUBLICATIONS

ORIGINALS / I.F.: 30.02

- 1.** Calvo F,Carbonell X,Rived M,Giralt C. **When people who inject drugs speak: qualitative thematic analysis of the perception of a mobile app for needle exchange programs.** Adicciones. 2021. 0. (0):p. 1334-1334. IF:2,979. (Q3).
- 2.** Calvo F,Turró Garriga O,Fàbregas C,Alfranca R,Calvet A,Salvans M,Giralt C,Castillejos S,Rived Ocaña M,Calvo P,Castillo P,Garre Olmo J,Carbonell X. **Mortality Risk Factors for Individuals Experiencing Homelessness in Catalonia (Spain): A 10-Year Retrospective Cohort Study.** Int J Environ Res Public Health. 2021. 18. (4):1762. IF:3,390. (Q1).
- 3.** Geyer K,Carbonell X,Beranuy M,Calvo F. **Absence of Objective Differences between Self-Identified Addicted and Healthy Smartphone Users?** Int J Environ Res Public Health. 2021. 18. (7):3702. IF:3,390. (Q1).
- 4.** Reverté Villarroya S,Suñer Soler R,Font Mayolas S,Dávalos Errando A,Sauras Colón E,Gras Navarro A,Adell Lleixà M,Casanova Garrigós G,Gil Mateu E,Berenguer Poblet M. **Influence of Pain and Discomfort in Stroke Patients on Coping Strategies and Changes in Behavior and Lifestyle.** Brain Sci. 2021. 11. (6):804. IF:3,394. (Q3).
- 5.** Przepiorka A,Blachnio A,Sullman M,Gorbaniuk O,Siu NYF,Hill T,Gras ME,Kagialis A,Lisun Y,Díaz Penalosa M,Manrique Millones D,Nikiforou M,Evtina GS,Taylor JE,Tekes B,Seibokaitė L,Wundersitz L,Calvo F,Font Mayolas S. **Facebook Intrusion as a Mediator Between Positive Capital and General Distress: A Cross-Cultural Study.** Front. Psychiatry. 2021. 12. 667536. IF:4,157. (Q2).
- 6.** Calvo F,Turró Garriga O,Carbonell X. **Evaluation of the efficacy of WhatsApp through a harm reduction intervention group for injecting drug users.** Adicciones. 2021. 0. (0):p. 1329-1329. IF:2,979. (Q3).
- 7.** Alfranca R,Salvans M,López C,Giralt C,Ramírez M,Calvo F. **Hepatitis C in homeless people: reaching a hard-to-reach population.** Rev. Esp. Enferm. Dig. 2021. 113. (7):p. 529-532. IF:2,086. (Q4).
- 8.** Reverté Villarroya S,Font Mayolas S,Dávalos Errando A,Sauras Colón E,Tortosa Altad R,Suñer Soler R. **Trastornos**

neuropsiquiátricos y estrategias de afrontamiento emocionales en pacientes postictus. Estudio longitudinal. Rev. Neurologia. 2021. 73. (4):p. 130-134. IF:0,870. (Q4).

- 9.** Hernandez Serrano O,Gras ME,Gacto M,Brugarola A,Font Mayolas S. **Family Climate and Intention to Use Cannabis as Predictors of Cannabis Use and Cannabis-Related Problems among Young University Students.** Int J Environ Res Public Health. 2021. 18. (17):9308. IF:3,390. (Q1).
- 10.** Serdà BC,Aymerich M,Patiño Masó J,Cunill M. **Mental Health Screening of Healthcare Professionals Who Are Candidates for Psychological Assistance during the COVID-19 Pandemic.** Int J Environ Res Public Health. 2021. 18. (21):11167. IF:3,390. (Q1).

GRANTS

Principal Investigator: Sílvia Font
 Project Title: Anàlisi de necessitats per a l'elaboració del Pla Municipal d'Addiccions de la ciutat de Girona
 Project Code:
 Funding Agency: Ajuntament de Girona
 Duration: 01/2021 to 08/2021

DOCTORAL THESES

Thesis author: Francesc Xavier Prat Genís
 Title: Prevalença i factors psicosocials associats a les conductes distractors més freqüents dels conductors
 Thesis directors: Dra. Montserrat Planes Pedra / Dra. M. Eugenia Gras Pérez
 International mention: Yes

Thesis author: Laura Ballester Comas
 Title: Mental disorders among Spanish university students: a longitudinal study
 Thesis directors: Dr. Jordi Alonso Caballero / Dra. M. Eugenia Gras Pérez
 International mention: No

Thesis author: Paula Astudillo Díaz
 Title: Protectores ambientales de estrés laboral hospitalario
 Thesis directors: Dra. M. Eugenia Gras Pérez / Dra. Montserrat Planes Pedra / Dra. Rosa Suñer Soler
 International mention: No

MICELab - Modelling, identification and control engineering

University of Girona



Recognized as a consolidated research group by AGAUR (Generalitat de Catalunya) - 2017 SGR 1551.

MEMBER OF
CIBER-DEM

KEYWORDS
Artificial Pancreas
Diabetes Technology
Control Engineering
Artificial Intelligence
Machine Learning

RELATED DISEASES
Type 1 diabetes
Systemic lupus erythematosus
Cardiovascular disease

GROUP LEADER - R4

Josep Vehí Casellas (UdG)

ESTABLISHED RESEARCHERS - R3

Remei Calm (UdG)
Ivan Contreras (UdG)
Ningsu Luo (UdG)

POST-DOCTORAL RESEARCHERS - R2

Aleix Beneyto (UdG)
Charrise Ramkinsoon (UdG)

PRE-DOCTORAL RESEARCHERS - R1

Sayyar Ahmad (UdG)
Alvis Cabrera (UdG)
Ernesto Estremera (UdG)
Muhammad Ibrahim (UdG)
Omer Mujahid (UdG)
Najib Ur Rehman (UdG)

NON-SCIENTIFIC RESEARCH SUPPORT STAFF

Sara Casadesús (UdG)

OVERVIEW

PROBLEM

The MICELab group, led by Prof. Josep Vehí, is characterized by having a solid theoretical basis in Control Engineering, Artificial Intelligence, Machine Learning, Biomedical Engineering, Computer Engineering and Applied Mathematics, with expertise in systems and control theory, modelling and control of biomedical systems, uncertain dynamical systems, robust and predictive control, decision support systems, and machine learning. The main objective is the incorporation of intelligent systems and biomedical engineering knowledge into health management and development of innovative medical technologies.

APPROACH

To empower patients to take control of their disease and improve their quality of life and well-being by means of the incorporation of biomedical knowledge and clinical evidence in m-health systems and the intensive use of wearable devices. To this end, advanced control engineering tools are combined with artificial intelligence.

IMPACT

The ultimate impact of our research is to contribute to a new health care model for people with diabetes and associated comorbidities that: (i) will allow a better control of the evolution of the ill population; (ii) will provide the patient with automatic tools for self-management, (iii) will incorporate remote digital assistance and management improvement tools for health professionals and (iv) will efficiently manage data in order to be able to advance in the treatment of unforeseen situations.

MAIN RESEARCH LINES

- Artificial Pancreas and diabetes technology
- Smart healthcare
- M-health

PUBLICATIONS

ORIGINALS / I.F.: 22.88

1. Viñals C,Beneyto A,Martín SanJosé JF,Furió Novejarque C,Bertachi A,Bondia J,Vehí J,Conget I,Giménez M. **Artificial pancreas with carbohydrate suggestion performance for unannounced and announced exercise in Type 1 Diabetes.***J. Clin. Endocrinol. Metab.* 2021. 106. (1):p. 55-63. IF:5,958. (Q1).
2. Contreras I,Calm R,Sainz MA,Herrero P,Vehí J. **Combining Grammatical Evolution with Modal Interval Analysis: An Application to Solve Problems with Uncertainty.***Mathematics*. 2021. 9. (6):631. IF:2,258. (Q1).
3. Biagi L,Bertachi A,Giménez M,Conget I,Bondia J,Martín Fernández JA,Vehí J. **Probabilistic Model of Transition between Categories of Glucose Profiles in Patients with Type 1 Diabetes Using a Compositional Data Analysis Approach.***Sensors*. 2021. 21. (11):3593. IF:3,576. (Q1).
4. Ahmad S,Ramkisson CM,Beneyto A,Conget I,Giménez M,Vehí J. **Generation of Virtual Patient Populations That Represent Real Type 1 Diabetes Cohorts.***Mathematics*. 2021. 9. (11):1200. IF:2,258. (Q1).
5. Sainz MA,Calm R,Jorba L,Contreras I,Vehí J. **Marks: A New Interval Tool for Uncertainty, Vagueness and Indiscernibility.***Mathematics*. 2021. 9. (17):2116. IF:2,258. (Q1).
6. Flor M,Herraiz S,Contreras I. **Definition of Residential Power Load Profiles Clusters Using Machine Learning and Spatial Analysis.***Energies*. 2021. 14. (20):6565. IF:3,004. (Q3).
7. Beneyto A,Puig V,Bequette BW,Vehí J. **A Hybrid Automata Approach for Monitoring the Patient in the Loop in Artificial Pancreas Systems.***Sensors*. 2021. 21. (21):7117. IF:3,576. (Q1).

REVIEWS / I.F.: 3.57

1. Mujahid O,Contreras I,Vehí J. **Machine Learning Techniques for Hypoglycemia Prediction: Trends and Challenges.***Sensors*. 2021. 21. (2):546. IF:3,576. (Q1).

GRANTS

Principal Investigator: Josep Vehí
Project Title: Patient-TAILOREd solutions for blood glucose control in type 1 diabetes
Project Code: PID2019-107722RB-C22

Funding Agency: MICIN
Duration: 2020 to 2023

Principal Investigator: Ivan Contreras
Project Title: MODELADO Y CONTROL DE LA ESTIMULACION NO INVASIVA DEL NERVIO VAGO PARA ENFERMEDADES AUTOINMUNES
Project Code: PID2020-117171RA-I00
Funding Agency: MICIN
Duration: 2020 to 2023

Principal Investigator: Josep Vehí
Project Title: Machine learning tool minimizing the risk of hypoglycemia to support insulin therapies in type 1 diabetes: from the lab to a product prototype
Project Code: PDC2021-121470-C22
Funding Agency: MICIN
Duration: 2020 to 2023

MEMBERSHIP OF COLLABORATIVE RESEARCH NETWORKS

SPANISH

- CIBER-DEM (Diabetes y Enfermedades Metabólicas asociadas) – CB17/08/00004

DOCTORAL THESES

Thesis author: Adrià Parcerises Albés
Title: Study, development and validation of advanced tools for the management of diabetes.
Thesis directors: Dr. Josep Vehí, Dr. Iván Contreras
International mention: No

Protein engineering

University of Girona

Recognized as a consolidated research group by AGAUR (Generalitat de Catalunya) - 2017 SGR 238.

KEYWORDS

Cancer
Proteinopathies

RELATED DISEASES
Ovarian cancer
Breast cancer
Amyotrophic lateral sclerosis

GROUP LEADERS - R4

Antonio Benito Mundet (UdG)
Marc Ribó Panosa (UdG)

ESTABLISHED RESEARCHERS - R3

Maria Vilanova Brugués (UdG)

POST-DOCTORAL RESEARCHERS - R2

Jessica Castro Gallegos (UdG)

PRE-DOCTORAL RESEARCHERS - R1

Marlon Bravo Bonilla (UdG)
Alejandro Romero Casañas (UdG)

TECHNICIANS

Imma Guardiola (UdG)

OVERVIEW

PROBLEM

Our research is focused on the study of two highly prevalent groups of diseases. We are interested in developing new anticancer drugs, taking into account that cancer cells trigger multiple signaling pathways that allow them to progress and disseminate in the body. We believe that protein drugs that may cope with the multifactorial complexity of cancer phenotype may be an efficient way to fight this illness. Moreover, we are interested in different proteinopathies produced by the aggregation of TDP-43 protein.

APPROACH

We are developing new antitumor drugs based on nuclear-directed ribonucleases and apoptin. The protein cytotoxic drugs developed here are non-mutagenic compounds with different targets that attack the malignant phenotype at multiple levels including cancer stem cells. Regarding TDP43, we use inteins to selectively isotopically label different internal domains of the proteinopathic TDP43 protein to study the molecular determinants involved in its aggregation as well as the interactions to other proteins involved in its function.

IMPACT

We have shown that nuclear-directed ribonucleases target the expression of multiple genes involved in the pathways required for cancer maintenance, they are highly cytotoxic for cancer stem cells and reduce the invasive and metastatic properties of tumor cells. We have set up the method to isotopically label the different domains of TDP-43.

MAIN RESEARCH LINES

- Development of new antitumor drugs based on proteins that target RNA in the cell nucleus and apoptin
- Development of drug delivery systems for antitumor proteins based on the vault structure
- Characterization of the molecular determinants of aggregation of TDP43 by isotopic labeling of internal sequences using intein methodology

ASSOCIATED GROUPS

-
- Development of new antitumor drugs based on organometallic compounds
-

PUBLICATIONS

ORIGINALS / I.F.: 11.05

1. Castro J,Tornillo G,Ceada G,Ramos Neble B,Bravo M,Ribó M,Vilanova M,Smalley MJ,Benito A. **A Nuclear-Directed Ribonuclease Variant Targets Cancer Stem Cells and Inhibits Migration and Invasion of Breast Cancer Cells.** Cancers. 2021. 13. (17):4350. IF:6,639. (Q1).
2. García Galindo G,Castro J,Matés J,Bravo M,Ribó M,Vilanova M,Benito A. **The Selectivity for Tumor Cells of Nuclear-Directed Cytotoxic RNases Is Mediated by the Nuclear/Cytoplasmic Distribution of p27 KIP1 .** Molecules. 2021. 26. (5):1319. IF:4,411. (Q2).

REVIEWS / I.F.: 6.32

1. Castro J,Ribó M,Vilanova M,Benito A. **Strengths and Challenges of Secretory Ribonucleases as AntiTumor Agents.** Pharmaceutics. 2021. 13. (1):82. IF:6,321. (Q1).

DOCTORAL THESES

Thesis author: Verónica Gordo Hernández

Title: Estudi de la reacció de trans-splicing i caracterització fisicoquímica de la inteína partida Neq DNA polimerasa B del hipertermòfil *N. equitans*

Thesis directors: Dr. Marc Ribó Panosa

International mention: No

Statistics and data analysis (CODA)

University of Girona

Recognized as a consolidated research group by AGAUR (Generalitat de Catalunya) - 2017 SGR 656.

KEYWORDS

Statistical modeling
Multivariate analysis
Data analysis
Compositional data
Spatial statistics

RELATED DISEASES

Diabetes
Chronic kidney disease
Ischemic Stroke
Chlamydiosis
Migraine

GROUP LEADER - R4

Josep Antoni Martín Fernández (UdG)

ESTABLISHED RESEARCHERS - R3

M. Glòria Mateu Figueras (UdG)
Javier Palarea Albaladejo (UdG)

POST-DOCTORAL RESEARCHERS - R2

Marc Comas Cufí (UdG)
Pepus Daunis Estadella (UdG)
Vera Pawlowsky Glahn (UdG)
Santiago Thio Fernandez De Henestrosa (UdG)
Marina Vives Mestres (UdG)

PRE-DOCTORAL RESEARCHERS - R1

Jordi Saperas Riera (UdG)

OVERVIEW

PROBLEM

CoDa refers to the analysis of compositional data, random vectors with strictly positive components usually expressed as vectors whose sum is constant (e.g., 100, one, a million). Typical examples in different fields are: economy (income/expenditure distribution), medicine (body composition: fat, bone, lean), food industry (food composition: fat, sugar, etc.), chemistry (chemical composition), health (physical activities), and genetics (genotype frequency). This type of data appears in most applications, and the interest and importance of consistent statistical methods cannot be underestimated.

APPROACH

Standard statistical techniques lose their applicability and classical interpretation when applied to compositional data. Our developments have shown that the mathematical foundation of a proper statistical analysis for this type of data is based on the definition of a specific geometry on the sample space of compositional data. Based on it, is possible to develop any statistical analysis (cluster analysis, discriminant analysis, factor

analysis, regression models, to mention just a few).

IMPACT

The current aim of the group activities is to spread and transfer the CoDa methods in other scientific fields and, in particular, in the fields identified as societal challenges: climate change, health, wellness, and food quality. The final objective is to obtain results by using compositional methods and to transfer them to involved entities. This spread of results will be carried out by means of the following activities proposed: organisation of seminars, workshops (CoDaWork), and courses (CoDaCourse); development of statistical packages (CoDaPack and R), and a specific website for CoDa (CoDaWeb); as well as the edition of specialized publications.

MAIN RESEARCH LINES

- Compositional data analysis
- Modelling and analysis of data in health and medicine

PUBLICATIONS

ORIGINALS / I.F.: 28.87

1. Pérez Pelegrí M,Biarnés C,Thió Henestrosa S,Remollo S,Gimeno A,Cuba V,Teceño M,Martí Navas M,Serena J,Pedraza S,Ruiz Constantino JS,Puig J. **Higher agreement in endovascular treatment decision-making than in parametric quantifications among automated CT perfusion software packages in acute ischemic stroke.***J Xray Sci Technol.* 2021. 29. (5):p. 823-834. IF:1,535. (Q3).
2. Dumuid D,Martín Fernández JA,Ellul S,Kenett RS,Wake M,Simm P,Baur L,Olds T. **Analysing body composition as compositional data: An exploration of the relationship between body composition, body mass and bone strength.***Stat. Methods Med. Res.* 2021. 30. (1):p. 331-346. IF:3,021. (Q1).
3. Biagi L,Bertachi A,Giménez M,Conget I,Bondia J,Martín Fernández JA,Vehí J. **Probabilistic Model of Transition between Categories of Glucose Profiles in Patients with Type 1 Diabetes Using a Compositional Data Analysis Approach.***Sensors.* 2021. 21. (11):3593. IF:3,576. (Q1).
4. McKinley JM,Mueller U,Atkinson PM,Ofterdinger U,Cox SF,Doherty R,Fogarty D,Egozcue JJ,Pawlowsky Glahn V. **Chronic kidney disease of unknown origin is associated with environmental urbanisation in Belfast, UK.***Environ. Geochem. Health.* 2021. 43. (7):p. 2597-2614. IF:4,609. (Q1).
5. Martinez Boggio G,Meynadier A,Daunis Estadella P,Marie Etancelin C. **Compositional analysis of ruminal bacteria from ewes selected for somatic cell score and milk persistency.***PLoS One.* 2021. 16. (7):e0254874. IF:3,240. (Q2).
6. Blasco J,Puig J,Daunis Estadella P,González E,Fondevila Monso JJ,Manso X,Oteros R,Jimenez Gomez E,Bravo Rey I,Vega P,Murias E,Jimenez JM,López Rueda A,Renú A,Aixut S,Chirife Chaparro O,Rosati S,Moreu M,Remollo S,Aguilar Tejedor Y,Terceño M,Mosqueira A,Nogueira RG,San Roman L. **Balloon guide catheter improvements in thrombectomy outcomes persist despite advances in intracranial aspiration technology.***J. NeuroInterventional Surg.* 2021. 13. (9):p. 773-778. IF:5,836. (Q1).
7. Mayneris Perxachs J,Russo MF,Ramos R,de Hollanda A,Arxé AA,Rottoli M,Arrioriaga Rodríguez M,Comas Cufí M,Bartoletti M,Verrastro O,Gudiol C,Fages E,Giménez M,Gil AG,Bernante P,Tinahones F,Carratalà J,Pagotto U,Hernández Aguado I,Fernández Aranda F,Meira F,Castro Guardiola A,Mingrone G,Fernández Real JM,Obesity-T2DM Covid19 Study Group. **Blood Hemoglobin Substantially Modulates the Impact of Gender, Morbid Obesity, and Hyperglycemia on COVID-19**

Death Risk: A Multicenter Study in Italy and Spain.*Front. Endocrinol.* 2021. 12. p. 741248-741248. IF:5,555. (Q1).

8. Fages Masmiquel E,Ponjoan A,Blanch J,Alves Cabratosa L,Martí Lluch R,Comas Cufí M,García Gil MM,Ramos R. **Efecto de la edad y el sexo en los factores asociados a la demencia.***Rev. Neurologia.* 2021. 73. (12):p. 409-415. IF:0,870. (Q4).
9. Maldonado WL,Egozcue JJ,Pawlowsky Glahn V. **No-arbitrage matrices of exchange rates: Some characterizations.***Int. J. Econ. Theory.* 2021. 17. (4):p. 375-389. IF:0,630. (Q4).

LETTERS / I.F.: 4.48

1. Alves Cabratosa L,Comas Cufí M,Martí Lluch R,Ponjoan A,Ramos R. **Ankle-brachial index and the risk of hemorrhagic stroke.***Eur. J. Intern. Med.* 2021. 94. p. 112-114. IF:4,487. (Q1).

GRANTS

Principal Investigator: José Antonio Martín, Glòria Mateu

Project Title: METhods for COmpositional analysis of DAta (CODAMET)

Project Code: RTI2018-095518-B-C21

Funding Agency: Ministerio de Ciencia, Innovación y Universidades

Duration: 2019 to 2021

MEMBERSHIP OF COLLABORATIVE RESEARCH NETWORKS

INTERNATIONAL

- CoDa Association

SPANISH

- Sociedad Española de Biometría (SEB)
- Sociedad Estadística e Investigación Operativa (EIO)

CATALAN

- Societat Catalana de Biologia (SCB)
- Societat Catalana d'Estadística (SoCE)

DOCTORAL THESES

Thesis author: Duncan McGregor

Title: Advancing compositional data analysis to study the interplay of lifestyle behaviours for public health

Thesis directors: Sébastien Chastin, Javier Palarea-Albaladejo, Philippa Dall

International mention: No

Thesis author: Nikola Štefelová

Title: Compositional approach to the analysis of data in biostatistics

Thesis directors: Karel Hron, Javier Palarea-Albaladejo

International mention: No

Statistics, econometrics and health (GRECS)

University of Girona

Part of a consolidated research group recognized by AGAUR (Generalitat de Catalunya) - 2017 SGR 656.

MEMBER OF
CIBER-ESP

KEYWORDS
Spatial statistics
survival analysis
compositional data analysis
environmental epidemiology
clinical epidemiology
Real World Data
Real World Evidence

RELATED DISEASES
Motoneuron disease
COVID-19
Cardiovascular risk factors

GROUP LEADER - R4

Marc Saez Zafra (UdG)

ESTABLISHED RESEARCHERS - R3

Maria Antonia Barceló Rado (UdG)
Germa Coenders (UdG)
Lluís Coromina Soler (UdG)
Gemma Renart Vicens (UdG)
Laura Vall-Llosera Casanovas (UdG)
Diego Varga (UdG)

POST-DOCTORAL RESEARCHERS - R2

Laura Serra Saurina (UdG)
Marta Solans Margalef (UdG)

PRE-DOCTORAL RESEARCHERS - R1

Somnath Chaudhuri (UdG)
Anna Mota Bertran (UdG)



OVERVIEW

PROBLEM

Our objective is to investigate both socioeconomic and environmental inequalities in health and clinical epidemiology, with special emphasis currently on motor neurone disease and COVID-19.

APPROACH

These two lines of research are approached through epidemiological as well as statistical and econometric methods (hierarchical models, survival analysis, Bayesian methods), framing it in Real World Data and Real World Evidence. We also develop web applications and computer tools for the transfer of our research.

IMPACT

We intend that our projects have a significant impact on society, through the dissemination of the results of our research and through the transfer of knowledge.

MAIN RESEARCH LINES

- Environmental and clinical epidemiology, with special emphasis currently on motor neurone disease and COVID-19.
- Statistical and econometric methods, in particular spatial statistics, survival analysis and compositional data.
- Real World Data and Real World Evidence.

PUBLICATIONS

ORIGINALS / I.F.: 72.08

- [Villavicencio A, Solans M, Zacarías Pons L, Vidal A, Puigdemont M, Roncero JM, Saez M, Marcos Gragera R. Comorbidities at Diagnosis, Survival, and Cause of Death in Patients with Chronic Lymphocytic Leukemia: A Population-Based Study. Int J Environ Res Public Health. 2021; 18\(2\):701. IF:3,390. \(Q1\).](#)
- [Podnar H, Juric P, Karuc J, Saez M, Barceló MA, Radman I, Starc G, Jurak G, Đuric S, Potocnik ŽL, Soric M. Comparative effectiveness of school-based interventions targeting physical](#)

- activity, physical fitness or sedentary behaviour on obesity prevention in 6- to 12-year-old children: A systematic review and meta-analysis.** *Obes. Rev.* 2021. 22. (2):e13160. IF:9,213. (Q1).
3. Voicu B,Peral EB,Rusu H,Rosta G,Comsa M,Vasile OM,Coromina L,Tufis C. **COVID-19 and orientations towards solidarity: the cases of Spain, Hungary, and Romania.** *Eur. Soc.* 2021. 23. p. 887-904. IF:2,923. (Q1).
4. Barceló MA,Povedano M,Vázquez Costa JF,Franquet Á,Solans M,Saez M. **Estimation of the prevalence and incidence of motor neuron diseases in two Spanish regions: Catalonia and Valencia.** *Sci Rep.* 2021. 11. (1):p. 6207-6207. IF:4,379. (Q1).
5. Romaguera D,Fernández Barrés S,Gracia Lavedán E,Vendrell E,Azpiri M,Ruiz Moreno E,Martín V,Gómez Acebo I,Obón M,Molinuevo A,Fresán U,Molina Barceló A,Olmedo Requena R,Tardón A,Alguacil J,Solans M,Huerta JM,Ruiz Dominguez JM,Aragonés N,Fernández Villa T,Dierssen Sotos T,Moreno V,Guevara M,Vanaclocha Espí M,Lozano Lorca M,Fernández Tardón G,Castaño Vinyals G,Pérez Gómez B,Molina AJ,Llorca J,Gil L,Castilla J,Pollán M,Kogevinas M,Amiano P. **Consumption of ultra-processed foods and drinks and colorectal, breast, and prostate cancer.** *Clin. Nutr.* 2021. 40. (4):p. 1537-1545. IF:7,324. (Q1).
6. Zaldo Aubanell Q,Campillo I López F,Bach A,Serra I,Olivet Vila J,Saez M,Pino D,Maneja R. **Community Risk Factors in the COVID-19 Incidence and Mortality in Catalonia (Spain). A Population-Based Study.** *Int J Environ Res Public Health.* 2021. 18. (7):3768. IF:3,390. (Q1).
7. Saberi Hosnijeh F,Casabonne D,Nieters A,Solans M,Naudin S,Ferrari P,Mckay JD,Benavente Y,Weiderpass E,Freisling H,Severi G,Boutron Ruault MC,Besson C,Agnoli C,Masala G,Sacerdote C,Tumino R,Huerta JM,Amiano P,Rodriguez Barranco M,Bonet C,Barricarte A,Christakoudi S,Knuppel A,Bueno Mesquita B,Schulze MB,Kaaks R,Canzian F,Späth F,Jerkeman M,Rylander C,Tjønneland A,Olsen A,Borch KB,Vermeulen R. **Association between anthropometry and lifestyle factors and risk of B-cell lymphoma: An exposome-wide analysis.** *Int J Cancer.* 2021. 148. (9):p. 2115-2128. IF:7,396. (Q1).
8. Pifarré I Arolas H,Vidal Alaball J,Gil J,López F,Nicodemo C,Saez M. **Missing Diagnoses during the COVID-19 Pandemic: A Year in Review.** *Int J Environ Res Public Health.* 2021. 18. (10):5335. IF:3,390. (Q1).
9. Solans M,Fernández Barrés S,Romaguera D,Benavente Y,Marcos Gragera R,Gracia Lavedan E,Costas L,Robles C,Gonzalez Barca E,de la Banda E,Alonso E,Aymerich M,Campo E,Llorca J,Fernández Tardón G,Olmedo Requena R,Gimeno E,Castaño Vinyals G,Aragonés N,Kogevinas M,Pollán M,de Sanjose S,Amiano P,Casabonne D. **Consumption of Ultra-Processed Food and Drinks and Chronic Lymphocytic Leukemia in the MCC-Spain Study.** *Int J Environ Res Public Health.* 2021. 18. (10):5457. IF:3,390. (Q1).
10. Tobías A,Molina T,Rodrigo M,Saez M. **Meteorological factors and incidence of COVID-19 during the first wave of the pandemic in Catalonia (Spain): A multi-county study.** *One Health.* 2021. 12. p. 100239-100239. IF:3,800. (Q2).
11. Brugulat M,Coromina L. **Constraints of solo female backpackers in Southeast Asia.** *Asia Pac. J. Tour. Res.* 2021. 26. (6):p. 640-653. IF:3,677. (Q3).
12. Zacarías Pons L,Vilalta Franch J,Turró Garriga O,Saez M,Garre Olmo J. **Multimorbidity patterns and their related characteristics in European older adults: A longitudinal perspective.** *Arch. Gerontol. Geriatr.* 2021. 95. p. 104428-104428. IF:3,250. (Q3).
13. Ortuzar I,Renart G,Xabadia A. **Effects of Public Healthcare Budget Cuts on Life Satisfaction in Spain.** *Soc. Indic. Res.* 2021. 156. (1):p. 311-337. IF:2,614. (Q2).
14. Sánchez Cantalejo C,Rueda MDM,Saez M,Enrique I,Ferri R,Fuente M,Villegas R,Castro L,Barceló MA,Daponte Codina A,Lorusso N,Cabrera León A. **Impact of COVID-19 on the Health of the General and More Vulnerable Population and Its Determinants: Health Care and Social Survey-ESSOC, Study Protocol.** *Int J Environ Res Public Health.* 2021. 18. (15):8120. IF:3,390. (Q1).
15. Izaola Azkona I,Vicenzino B,Olabarrieta Eguia I,Saez M,Lascurain Aguirrebeña I. **Effectiveness of Mobilization of the Talus and Distal Fibula in the Management of Acute Lateral Ankle Sprain.** *Phys. Ther. Rehabil. J.* 2021. 101. (8):pzab111. IF:3,021. (Q1).
16. Sanz Barbero B,Saurina C,Serra L,Renart Vicens G,Vall Llosera Casanovas L,Otero García L,López MJ,Perez G,Vives Cases C. **Prevalence and associated factors with sexual violence victimisation youth before, during and after the COVID-19 lockdown: a cross-sectional study in Spain.** *BMJ Open.* 2021. 11. (11):e055227. IF:2,692. (Q2).
17. Carbo E,Juan PB,Ano C,Chaudhuri S,Diaz Avalos C,Lopez Baeza E. **Modeling Influence of Soil Properties in Different Gradients of Soil Moisture: The Case of the Valencia Anchor Station Validation Site, Spain.** *Remote Sens.* 2021. 13. (24):5155. IF:4,848. (Q1).

REVIEWS / I.F.: 9.33

1. Romero Gangonells E, Virgili Casas MN, Dominguez Rubio R, Povedano M, Pérez Saborit N, Calvo Malvar N, **Barceló MA**. **Evaluation of Dysphagia in Motor Neuron Disease. Review of Available Diagnostic Tools and New Perspectives.** *Dysphagia*. 2021. 36. (4):p. 558-573. IF:3,438. (Q1).
 2. **Barceló MA, Saez M.** **Methodological limitations in studies assessing the effects of environmental and socioeconomic variables on the spread of COVID-19: a systematic review.** *Environ. Sci Eur.* 2021. 33. (1):p. 108-108. IF:5,893. (Q1).
-

GRANTS

Principal Investigator: Marc Saez, Maria Antònia Barceló
Project Title: Pfizer Global Medical Grants. COVID-19 Competitive Grant Program ‘Seroprevalence and the socioeconomic and health impact of COVID-19 on general and vulnerable populations’
Project Code:
Funding Agency: Pfizer
Duration: 2020 to 2022

Principal Investigator: Marc Saez
Project Title: ‘Science and technology in childhood obesity policy (STOP)’. Projecte H2020 European Union Funding for Research & Innovation (topic SFS-39-2017: Sustainable Food Security – Resilient and resource efficient value)
Project Code:
Funding Agency: H2020 European Union Funding for Research & Innovation
Duration: 2018 to 2021

Principal Investigator: Marc Saez, Maria Antònia Barceló
Project Title: ‘IMP SEROCOVID19. Impacto y Seroprevalencia de la enfermedad COVID-19’. Fondo SUPERA COVID-10
Project Code:
Funding Agency: SAUN: Santander Universidades-CRUE
Duration: 16/07/2020 to 31/12/2021

MEMBERSHIP OF COLLABORATIVE RESEARCH NETWORKS

SPANISH

- CIBER-ESP (Epidemiología y Salud Pública) - CB06/02/1002

DOCTORAL THESES

Thesis author: Pere Boqué Busquet
Title: Models matemàtics per a la predicció dels robatoris amb força a domicili a Catalunya
Thesis directors: Dr. Marc Saez / Dra. Laura Serra
International mention: No

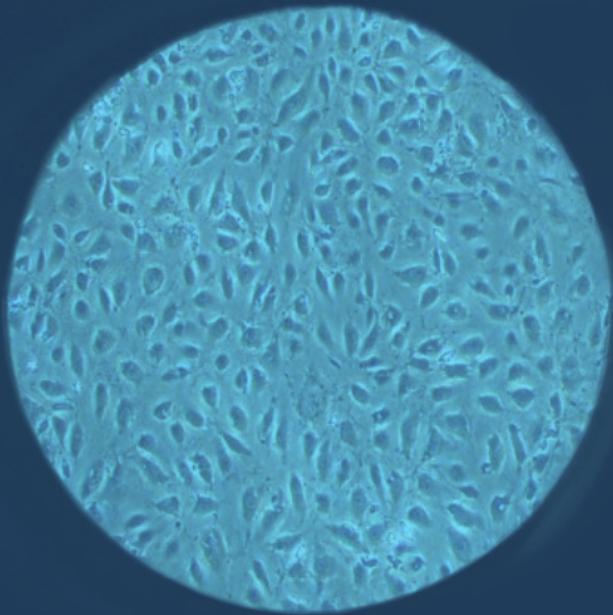
Thesis author: Álvaro Franquet Bonet
Title: Statistical methods to manage and analyse Real World Data. Development of a health observatory
Thesis directors: Dra. Maria Antònia Barceló / Dr. Pere Plaja
International mention: Yes

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