

Programme

# Inflammatory and Cardiovascular Disorders



# Inflammatory and Cardiovascular Disorders

**15**

Research groups

**181**

Professionals

**50**

Research projects

**293**

Publications



## Programme Director

Miguel López-Botet



## RESEARCH GROUPS

### B Cell Biology

Andrea Cerutti

### Biomedical Research in Heart Diseases

Begoña Benito

### Cell Research on Inflammation and Cartilage

Jordi Monfort

### Critical Illness

Joan Ramon Masclans

### Hepatologic Research

Ricard Solà

### Immunity and Infection

Miguel López-Botet

### Infectious Pathology and Antimicrobials

Juan Pablo Horcajada

### Inflammatory and Neoplastic Dermatological Diseases

Ramon Maria Pujol

### Kidney Disease

Julio Pascual

### Muscle Wasting and Cachexia in Chronic Respiratory Diseases and Lung Cancer

Esther Barreiro

### Musculoskeletal Research

Francesc Xavier Nogués

### Myogenesis, Inflammation & Muscle Function

Joaquim Gea

### Neuroimmunology

Jose Enrique Martínez

### Neurovascular

Jaume Roquer

### Rehabilitation

Esther Duarte

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

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

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



# B Cell Biology

Inflammatory and Cardiovascular Disorders

RESEARCH GROUP



## Group Leader

Andrea Cerutti  
(ICREA Professor)

[acerutti@imim.es](mailto:acerutti@imim.es)



## Members

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

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

## Main Publications

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

## Ongoing Research Projects

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

## Group's Recognitions

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



# Biomedical Research in Heart Diseases

Inflammatory and Cardiovascular Disorders

RESEARCH GROUP



## Group Leader

Begoña Benito Villabriga



## Members

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

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

## Main Publications

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

## Ongoing Research Projects

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

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

## Group's Recognitions

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

## Clinical Trials Signed in 2018

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

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

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

## Theses

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

## Other

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



# Cell Research on Inflammation and Cartilage

Inflammatory and Cardiovascular Disorders

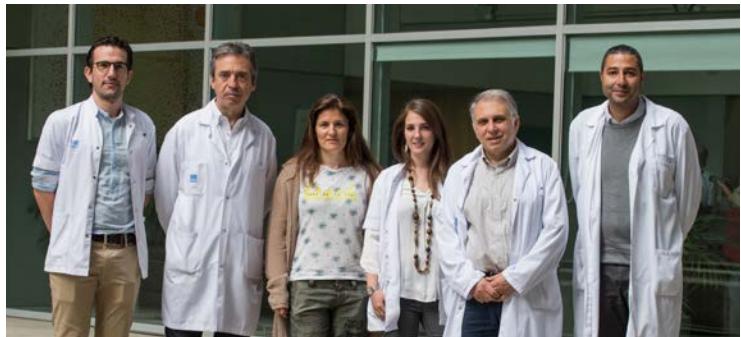
RESEARCH GROUP



## Group Leader

Jordi Monfort Faure

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## Members

Pedro Benito Ruiz (Researcher)  
Emma Beltrán Catalán (Researcher)  
Josep Blanc Rubio (Researcher)  
Manel Ciria Recasens (Researcher)  
Santos Martínez Díaz (Researcher)  
Juan Carlos Monllau García (Researcher)  
Carolina Pérez García (Researcher)  
Tarek Carlos Salman Monte (Researcher)  
Laura Tío Barrera (Researcher)  
Raúl Torres Claramunt (Researcher)  
Raquel Arredondo García (Technician)  
Francisco Castro Domínguez (Technician)  
Jone Llorente Onaindia (Technician)  
Luciano Polino (Technician)

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

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

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

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

## Main Publications

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

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

## Ongoing Research Projects

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

## Group's Recognitions

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

## Clinical Trials Signed in 2018

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

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

## Theses

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



# Critical Illness

Inflammatory and Cardiovascular Disorders

RESEARCH GROUP



## Group Leader

Joan Ramon Masclans Enviz

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## Members

Francisco Álvarez Lerma (Researcher)  
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Joan Nolla Salas (Researcher)  
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Clara Vilà Vilardell (Researcher)  
Ana Zapatero Ferrández (Researcher)  
Ana Alabart Llinàs (Technician)  
Irene Dot Jordana (Technician)  
Thais Guri López (Technician)  
Rosana Muñoz Bermúdez (Technician)  
Marta Gas Amat (Research Assistant)

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

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

## Main Publications

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

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

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

## Ongoing Research Projects

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

## Participation in Research Networks

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

## Group's Recognitions

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

## Clinical Trials Signed in 2018

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

## Theses

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

## Other

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

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



# Hepatologic Research

Inflammatory and Cardiovascular Disorders

RESEARCH GROUP



## Group Leader

Ricard Solà Lamoglia



## Members

María Teresa Broquetas González (Researcher)  
Núria Cañete Hidalgo (Researcher)  
José Antonio Carrión Rodríguez (Researcher)  
Susana Coll Estrada (Researcher)  
Montserrat García Retortillo (Researcher)  
Marc Puigvehí Badosa (Researcher)  
Rosa Fernández Rodríguez (Technician)  
María Dolores Giménez Romaní (Technician)  
Ana Viu Soto (Technician)  
Diego Lázaro Agudo (Research Assistant)

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

## Main Publications

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

## Ongoing Research Projects

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

## Clinical Trials Signed in 2018

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



# Immunity and Infection

Inflammatory and Cardiovascular Disorders

RESEARCH GROUP



## Group Leader

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## Members

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Michelle Ataya Fernández (PhD Student)  
Mariona Cabo Ester (PhD Student)  
Gemma Heredia Díaz (Technician)  
Sara Raquel Santana Hernández (Technician)  
Carme Sánchez Galiano (Research Assistant)

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

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

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

## Main Publications

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

## Ongoing Research Projects

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

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

## Participation in Research Networks

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

## Group's Recognitions

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

## Theses

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



# Infectious Pathology and Antimicrobials

Inflammatory and Cardiovascular Disorders

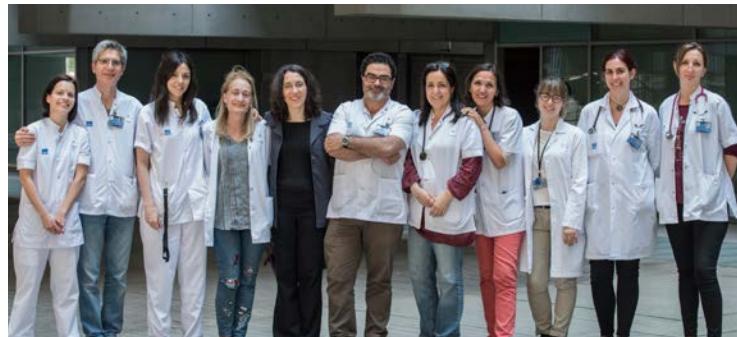
RESEARCH GROUP



## Group Leader

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## Members

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Roberto Carlos Güerri Fernández (Researcher)  
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Maria Milagro Montero (Researcher)  
Luís Puig Verdié (Researcher)  
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Inmaculada López Montesinos (Technician)  
Pablo Sebastián Velli (Technician)

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

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

## Main Publications

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

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

## Ongoing Research Projects

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

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

## Participation in Research Networks

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

## Group's Recognitions

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

## Clinical Trials Signed in 2018

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

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



# Inflammatory and Neoplastic Dermatological Diseases

Inflammatory and Cardiovascular Disorders

RESEARCH GROUP



## Group Leader

Ramon Maria Pujol Vallverdú  
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## Members

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

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

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

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

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

## Main Publications

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

- Ruiz-Romeu E, Ferran M, de Jesús-Gil C, García P, Sagristà M, Casanova JM, Fernández JM, Chiriac A, Hóllo P, Celada A, Pujol RM, Santamaría-Babí LF. Microbe-dependent induction of IL-9 by CLA+ T cells in psoriasis and relationship with IL-17A. *J Invest Dermatol* 2018; 138(3): 580-587. IF 6.448. D1.
- Curto-Barredo L, Spertino J, Figueras-Nart I, Expósito-Serrano V, Guilbert A, Melé-Ninot G, Cubiró X, Bonfill-Ortí M, Garcías-Ladaria J, Villar M, García-Navarro X, Bielsa-Marsol I, Vilavella M, Aparicio G, Baliu-Piqué C, Álvarez A, Lamas-Domenech N, Duran-Jordà X, Serra-Baldrich E, Giménez-Arnau AM. Omalizumab updosing allows disease activity control in refractory patients with chronic spontaneous urticaria. *Br J Dermatol* 2018; 179(1): 210-212. IF 6.129. D1.
- Sussman G, Abuzakouk M, Bérard F, Canonica W, Oude-Elberink H, Giménez-Arnau AM, Grattan C, Hollis K, Hunter S, Knulst A, Lacour JP, Lynde C, Marsland A, McBride D, Maurer M, Nakonechna A, Ortiz-de Frutos J, Reynolds M, Sweeney C, Tian H, Weller K, Wolin D, Balp MM. Angioedema in Chronic Spontaneous Urticaria Is Underdiagnosed and Has a Substantial Impact: Analyses From ASSURE-CSU. *Allergy* 2018; 73(8): 1724-1734. IF 6.048. Q1.
- Zuberbier T, Aberer W, Asero R, Abdul Latiff AH, Baker D, Ballmer-Weber B, Bernstein JA, Bindlev-Jensen C, Brzoza Z, Buense Bedrikow R, et al. The EAACI/GA<sup>2</sup>LEN/EDF/WAO Guideline for the Definition, Classification, Diagnosis and Management of Urticaria. The 2017 Revision and Update. *Allergy* 2018; 73(7): 1393-1414. IF 6.048. Q1.

## Ongoing Research Projects

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

## Group's Recognitions

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

## Clinical Trials Signed in 2018

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

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

## Other

### Awards

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



# Kidney Disease

Inflammatory and Cardiovascular Disorders

RESEARCH GROUP



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Dàlia Raïch Regué (Researcher)  
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Vanessa Palau González (PhD Student)  
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David Benito Guasch (Technician)  
Anna Buxeda Porras (Technician)  
Anna Faura Vendrell (Technician)  
Montserrat Folgueiras López (Technician)  
Eva Rodríguez García (Technician)  
Maria Vera Casanova (Technician)

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

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

## Main Publications

- Pascual J, Berger SP, Witzke O, Tedesco H, Mulgaonkar S, Qazi Y, Chadban S, Oppenheimer F, Sommerer C, Oberbauer R, Watarai Y, Legendre C, Citterio F, Henry M, Srinivas TR, Luo WL, Martí A, Bernhardt P, Vincenti F, on behalf of the TRANSFORM Investigators. Everolimus with Reduced Calcineurin Inhibitor Exposure in Renal Transplantation. *J Am Soc Nephrol* 2018; 29(7): 1979-1991. IF 8.655. D1.
- Montero N, Favà A, Rodríguez-García E, Barrios C, Cruzado JM, Pascual J, Soler MJ. Treatment for hepatitis C virus-associated mixed cryoglobulinaemia. *Cochrane Database Syst Rev* 2018; 5: CD011403. IF 6.754. D1.
- Moreso F, Crespo M, Ruiz JC, Torres A, Gutiérrez-Dalmau A, Osuna A, Perelló M, Pascual J, Torres IB, Redondo-Pachón D, Rodrigo E, López-Hoyos M, Seron D. Treatment of chronic antibody mediated rejection with intravenous immunoglobulins and rituximab: a multicenter, prospective, randomized, double blind clinical trial. *Am J Transplant* 2018; 18(4): 927-935. IF 6.493. D1.
- López-Medrano F, Fernández-Ruiz M, Silva JT, Carver PL, van Delden C, Merino E, Pérez-Sáez MJ, Montero M, Coussemant J, de Abreu Mazzolin M, et al. Multinational retrospective case-control study of risk factors for the development of late invasive pulmonary aspergillosis following kidney transplantation. *Clin Microbiol Infec* 2018; 24(2): 192-198. IF 5.394. D1.

- Pérez-Sáez MJ, Herrera-Fernández S, Prieto-Alhambra D, Vilaplana L, Nogués X, Vera M, Redondo D, Mir M, Güerri-Fernández R, Crespo M, Díez-Pérez A, Pascual J. Maintenance low dose systemic glucocorticoids have limited impact on bone strength and mineral density among incident renal allograft recipients: A pilot prospective cohort study. *Bone* 2018; 116: 290-294. IF 4.455. Q1.
- Clotet S, Soler MJ, Palau V, Anguiano L, Gimeno J, Konvalinka A, Pascual J, Riera M. Sex dimorphism in ANGII-mediated crosstalk between ACE2 and ACE in diabetic nephropathy. *Lab Invest* 2018; 98(9): 1237-1249. IF 4.254. Q1.
- Barrios C, Zierer J, Würtz P, Haller T, Metspalu A, Gieger C, Thorand B, Meisinger C, Waldenberger M, Raitakari O, Lehtimäki T, Otero S, Rodríguez-García E, Pedro-Botet J, Kähönen M, Ala-Korpela M, Kastenmüller G, Spector TD, Pascual J, Menni C. Circulating metabolic biomarkers of renal function in diabetic and non-diabetic populations. *Sci Rep* 2018; 8(1): 15249. IF 4.122. Q1.
- Pierrotti LC, Carvalho NB, Amorin JP, Pascual J, Kotton CN, López-Vélez R. Chagas Disease Recommendations for Solid-Organ Transplant Recipients and Donors. *Transplantation* 2018; 102(2S Suppl 2): S1-S7. IF 3.96. D1.
- Montero N, Redondo D, Pérez-Sáez MJ, Crespo M, Cruzado JM, Pascual J. Dual kidney transplantation as a strategy to use expanded criteria donors: A systematic review. *Transpl Int* 2018; 31(8): 838-860. IF 3.196. Q1.
- Werzowa JM, Säemann MD, Mohl A, Bergmann M, Kaltenecker CC, Brozek W, Thomas A, Haidinger M, Antlanger M, Kovarik JJ, Kopecky C, Song PXK, Budde K, Pascual J, Hecking M. A randomized controlled trial-based algorithm for insulin-pump therapy in hyperglycemic patients early after kidney transplantation. *PLoS ONE* 2018; 13(3): e0193569. IF 2.766. Q1.

## Ongoing Research Projects

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

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

## Participation in Research Networks

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

## Group's Recognitions

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

## Clinical Trials Signed in 2018

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

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

## Theses

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



# Muscle Wasting and Cachexia in Chronic Respiratory Diseases and Lung Cancer

Inflammatory and Cardiovascular Disorders

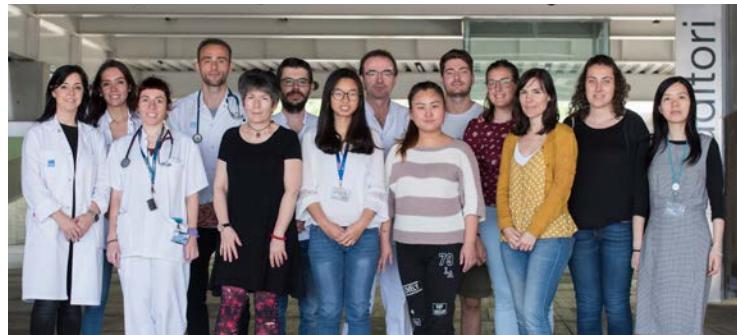
RESEARCH GROUP



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Albert Sánchez Font (Researcher)  
Anna Salazar Degracia (PhD Student)

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

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

## Main Publications

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

## Ongoing Research Projects

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

## Participation in Research Networks

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

## Group's Recognitions

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

## Clinical Trials Signed in 2018

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

## Theses

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



# Musculoskeletal Research

Inflammatory and Cardiovascular Disorders

RESEARCH GROUP



## Group Leader

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## Members

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Leonardo Mellibovsky Saidler (Researcher)

Guillem Saló Bru (Researcher)

Isabel Aymar Fabrega (Technician)

Abora Rial Villavecchia (Technician)

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

## Main Publications

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

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

## Ongoing Research Projects

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

## Participation in Research Networks

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

## Group's Recognitions

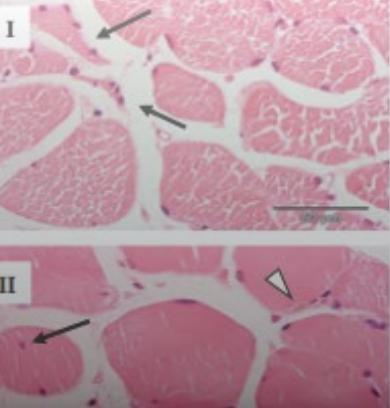
- Officially recognised as a consolidated research group by the Generalitat de Catalunya: Unitat de Recerca en Fisiopatologia Òssia i Articular (URFOA) (2017-2020)
  - Agència de Gestió d'Ajuts Universitaris i de Recerca (SGR 502)
  - Principal investigator: Nogués Solan, Francesc Xavier

## Theses

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

## Other

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



# Myogenesis, Inflammation & Muscle Function

Inflammatory and Cardiovascular Disorders

RESEARCH GROUP



## Group Leader

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

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

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

## Main Publications

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

## Ongoing Research Projects

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

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

## Participation in Research Networks

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

## Clinical Trials Signed in 2018

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

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

## Theses

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



# Neuroimmunology

Inflammatory and Cardiovascular Disorders

RESEARCH GROUP



## Group Leader

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## Members

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

The Neuroimmunology group was created in 2018 after initially being developed within the IMIM's Immunity and Infection group. The group is coordinated by Jose E. Martínez Rodríguez and studies alterations of the immune system in neurological diseases using a translational approach centered on the patient's clinical features. The neuroimmunology group is particularly interested in multiple sclerosis (MS) as a paradigmatic illness within the autoimmune pathologies of the central nervous system.

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

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

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

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

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

## Main Publications

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

## Ongoing Research Projects

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

## Participation in Research Networks

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

## Clinical Trials Signed in 2018

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



# Neurovascular

Inflammatory and Cardiovascular Disorders

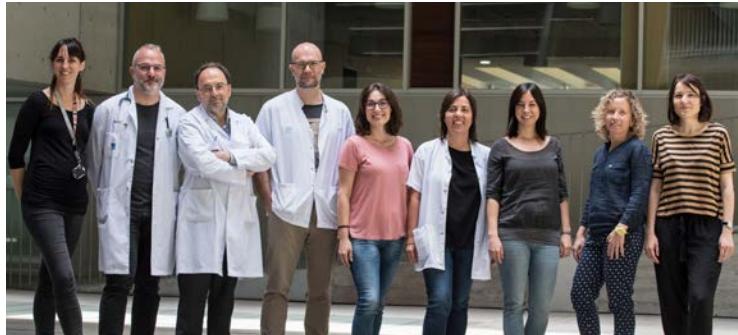
RESEARCH GROUP



## Group Leader

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## Members

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

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

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

## Main Publications

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

## Ongoing Research Projects

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

## Participation in Research Networks

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

## Group's Recognitions

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

## Clinical Trials Signed in 2018

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



# Rehabilitation

Inflammatory and Cardiovascular Disorders

RESEARCH GROUP



## Group Leader

Esther Duarte Oller

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## Members

Roser Belmonte Martínez (Researcher)

Maria Coll Molinos (Researcher)

Ferran Escalada Recto (Researcher)

Anna Guillén Solà (Researcher)

Ester Marco Navarro (Researcher)

Josep Maria Muniesa Portoles (Researcher)

Mercè Piquerás Céspedes (Researcher)

María Dolores Carmen Sánchez Rodríguez (Researcher)

Marta Tejero Sánchez (Researcher)

The main research areas of the group are:

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

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

## Main Publications

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

## Ongoing Research Projects

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

## Group's Recognitions

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

## Theses

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

## Other

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