

IMIM

Hospital del Mar Medical Research Institute
Barcelona 2013



Institut Hospital del Mar
d'Investigacions Mèdiques



© Hospital del Mar Medical Research Institute (IMIM)

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October 2014

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Introduction

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Miguel López-Botet

IMIM Director



During 2013, various events were especially significant for IMIM. The Scientific Advisory Board (SAB) site visit, coordinated with the Department of Economy and Knowledge (Government of Catalonia) assessment, yielded positive reports. More importantly, IMIM passed the Carlos III Health Institute (ISCIII) audit, obtaining accreditation as a Healthcare Research Institute (Instituto de Investigación Sanitaria - December 2013), a distinguished status that gives access to special support by ISCIII.

During the same period, IMIM achieved excellent fundraising results, through grant competitions (FIS, La Marató de TV3) and clinical trial contracts, partially compensating the negative impact of adverse circumstances resulting from the general economical situation.

IMIM achieved significant scientific output, illustrated by a notable number of indexed publications, with satisfactory average visibility. According to different bibliometric indicators (SCIMAGO report. www.scimagoir.com/), IMIM maintained an outstanding position among Spanish institutions in biomedical research. Finally, communication to the media and scientific dissemination to the general public, as well as external projection through the web and social networks, were quite satisfactory.

An overview of 2013



Researchers



Technicians



Pre-doctorals



Support

727

Personnel

46,6%

25,2%

17,9%

10,3%



13,5
M€

4,050
IF Accumulated

First quartile

803
Articles with IF

914
Publications

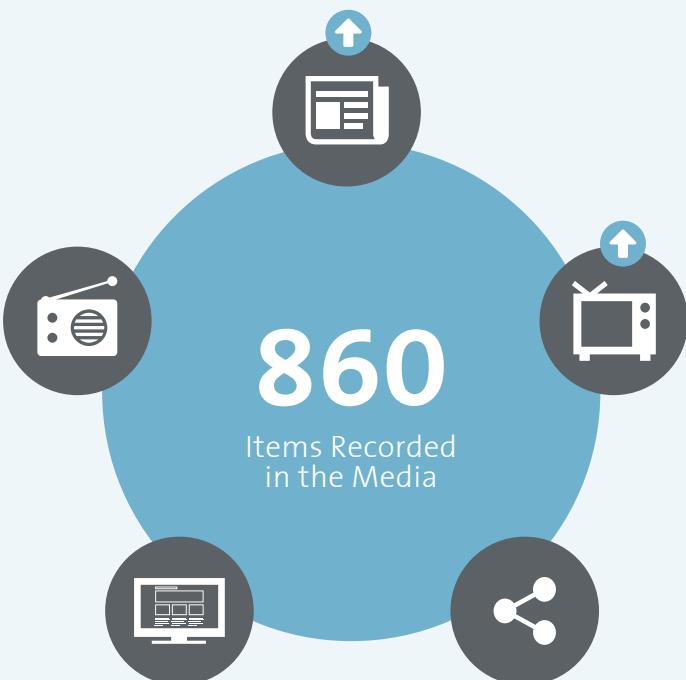


51

Doctoral
Theses Read



860
Items Recorded
in the Media



Scientific Advisory Board

IMIM has a Scientific Advisory Board (SAB) made up of a group of prestigious international expert scientists from the different areas of the IMIM research programmes.

President

Alberto Mantovani M.D.

State University of Milan. Istituto Clinico Humanitas (Rozzano, Milan, Italy).

Members

Antonio Bernad Ph.D.

National Center for Cardiovascular Research (CNIC), (Madrid, Spain).

Søren Brunak Ph.D.

Center for Biological Sequence Analysis, Technical University of Denmark (Lyngby, Denmark).

Ángel Carracedo M.D., Ph.D.

University of Santiago de Compostela (Spain).

Jean Ferrières M.D. MSc.

Toulouse University School of Medicine. Toulouse University Hospital (Toulouse, France).

Anna Lluch M.D., Ph.D.

Hospital Clínico Universitario, University of Valencia (Spain).

John Kane M.D.

The Zucker Hillside Hospital. The Albert Einstein College of Medicine (New York, USA).

Francine Kaufmann M.D. Ph.D.

INSERM (Paris, France).

Tudor Oprea M.D. PhD.

University of New Mexico School of Medicine (Albuquerque, USA).

Carlos López Otín Ph.D.

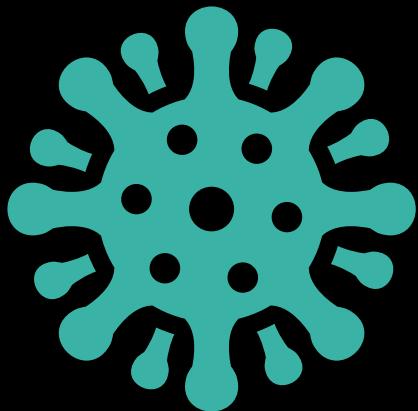
Institute of Oncology, University of Oviedo (Spain).

Francisco Sánchez Madrid Ph.D.

Hospital Universitario de la Princesa, Autonomous University of Madrid (Spain).

Rodolfo Saracci M.D.

Institute of Clinical Physiology, National Research Council (Pisa, Italy). University of Aarhus (Denmark).



PROGRAMME

Cancer

The programme is made up of those research groups:

Apoptotic Signaling

Gabriel Gil

Applied Clinical Research in Hematological Malignancies

Carles Besses

Colorectal Cancer

Miguel Pera

Epithelial-Mesenchymal Transition and Tumor Progression

Antonio García de Herreros

Gastroesophageal Carcinogenesis

Carme de Bolos

Genitourinary Cancer

Josep Lloreta

Molecular Cancer Therapeutics

Joan Albanell

Molecular Mechanisms of Lung Cancer Predisposition

Esther Barreiro

Molecular Mechanisms of Tumorigenesis

Pilar Navarro

Poly (ADP-Ribose) Polymerases

José Yélamos

Stem Cells and Cancer

Anna Bigas

Translational Research in Colorectal Neoplasia

Montserrat Andreu

Translational Research in Hematologic Neoplasms Group

Lourdes Florensa

The programme is organized into three complementary levels (basic, preclinical and clinical research) and composed by 13 groups from the Hospital del Mar Medical Research Institute (IMIM). Group leaders include basic scientists, gastroenterologists, haematologists, immunologists, medical oncologists, pathologists, pneumologists, and surgeons, resulting in a multidisciplinary programme that allows the undertaking of collaborative projects focused on clinically important questions. The ultimate goal for most investigators on this programme is to work at the interface between laboratory and clinic, with priority given to translational research.

All the groups are recognized by the Government of Catalonia's Research Grant Agency (AGAUR) and four (led by Albanell, Bigas, Espinet and García de Herreros) are recognized and funded by the Spanish Network for Cancer Research (ISCIII).



Joan Albanell
Programme Director

► Overall Scientific Objectives and Strategy

We aim to offer novel discoveries that may be a step forward for personalized medicine across a number of (but not limited to) highly prevalent cancer types, including breast, colon, lung, prostate and bladder cancers, as well as chronic myeloproliferative diseases and lymphoma. These different cancers are a good representation of the main types in which our institute has both clinical and research expertise.

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

epidemiology (Epidemiology and Public Health Programme).

► Overall Technological Objectives

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

► Overall Educational Objectives

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

Main Results Achieved in 2013

► Science

Total scientific production by Cancer Research Programme investigators was 207 articles, of which 130 were published

in first quartile journals. Of the total papers, 28 (13.5%) were signed by two or more groups from the programme and 44 (22.2%) by one Cancer Programme group and at least one other group from the IMIM.

► Phase I Trials, Added Value

A strong added value in the Cancer Research Programme is the development of phase I clinical trials. A Platform for Phase I Clinical Trials exists at IMIM (led by M. Farré, Neurosciences Programme), and this has allowed highly competitive phase I trials to be attracted to the organisation. Today, both medical oncology and haematology are reference departments for early clinical drug development, including ‘first-in-human’, ‘first-in-class’, pharmacokinetic and pharmacodynamic trials. Due to the site’s growing recognition for phase I trials, additional facilities were set up in the main Hospital building in 2013. Phase 0 proof-of-concept trials were also initiated in 2013.

► Technology

EGFR mutations reported and patented in 2012 as a result of a tumour resistance research project in colorectal cancer

(Montagut et al., *Nature Medicine* 2012), were licensed (non-exclusively) in 2013 to a Belgium company, Biocartis, as predictive markers of resistance to cetuximab. This license is now at national phase in Australia, Brazil, China, Russia, Austria, Japan, Korea, New Zealand, Canada and Europe.

During 2013, we also established five contracts with industry for activities ranging from R&D (i.e. developing novel agents in the laboratory/translational setting), to being a national reference site for testing clinically actionable biomarkers within the context of our leading Pathology Department at Hospital del Mar. In addition, there were seven Material Transfer Agreements.

► Education

- A total of 17 doctoral theses were defended in 2013.
- Weekly meetings were held in the programme, where PhD students present their projects and ongoing work.
- Monthly meetings presented by PIs have been also held, where both a clinical and a basic scientist PI from the programme presented their overall projects in the same meeting, to foster

potential additional collaborations within the programme particularly focused on promoting further interactions between clinical and basic research.

- In 2013 the programme coordinator, a UPF professor, submitted a proposal for a Master of Translational and Applied Oncology to ANECA, under the direct support of the UPF Medical Sciences Dean and as part of the multi-university Master programme coordinated by the UB - UAB and UPF.

general portal 224; health portal 52; general blog 7; health blog 7; radio 22; television 16; journals 3; agencies 21; social networks 29.

► Expert Opinions

- Members of the programme participate in various scientific and medical societies, and are authors of position papers or members of committees establishing recommendations. The programme coordinator is a Board member of the Cancer Master Plan for Catalonia.

► Media Impact

- An important goal of current research is to share with the public the results of society investment in research. In 2013, investigators of the Cancer Research Programme achieved 474 media impacts, distributed as follows: general written press 78; specialized written press 15;

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Apoptotic Signaling

RESEARCH GROUP



**Coordinator**

Gabriel Gil Gómez

Members

Alex Balsiger
Marta Garrido Saldaña
Kathy Künnemann
Marc Núñez Ollé
Sergi Pich Fàbrega

Dysregulation of DNA damage repair and signalling to cell cycle checkpoints, known as the DNA damage response, is associated with a predisposition to cancer and affects responses to DNA-damaging anticancer therapy. In our laboratory, we are characterizing the role of a new member of the cyclin family (Cyclin O) in the integration of different stress responses that affect the integrity of the genetic information of the cell. Thus, Cyclin O has a role in the regulation of DNA repair and in the activation of the apoptotic regulatory mechanisms of the DNA damage checkpoints. In line with its molecular function, we have found that Cyclin O is dysregulated in most human tumours and may play a role in the initial steps of tumourigenesis as well as in responses to therapy. This suggests that it may be an attractive target for early detection of malignant lesions and new cancer therapies.

Main Publications 2013

- Hinarejos P, Piñol I, Torres A, Prats E, Gil-Gómez G, Puig-Verdie L. Highly crosslinked polyethylene in total knee arthroplasty: In vivo study of particles in synovial fluid. *J Arthroplasty* 2013;28:1333-1337.

Ongoing Research Projects 2013

- Control de las lesiones preneoplásicas por la ciclina o a través de la ruta al daño del DNA y la respuesta integrada al estrés
 - > Fondo de Investigación Sanitaria. ISCIII
 - > Principal researcher: Gil Gómez, Gabriel
- Paper de la Ciclina O en l'Atàxia-Telangiectàsia (ORPHA100)
 - > Fundació La Marató de TV3
 - > Principal researcher: Gil Gómez, Gabriel

Group's Recognition

- SGR recognizing groups: Apoptotic Signaling Group. 2009 SGR 1073
 - > Principal researcher: Gil Gómez, Gabriel

Other

- Winner of the ImmunoTools Special Award 2014

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Applied Clinical Research in Hematological Malignancies

RESEARCH GROUP



Coordinator

Carles Besses Raebel

Members

Eugènia Abella Montreal
Alberto Álvarez Larrán
Àgueda Ancochea Serra
Beatriz Bellosillo Paricio
Laura Camacho Díaz

M. Concepción Fernández Rodríguez
Francesc Garcia-Pallarols
Eva Gimeno Vázquez
Carmen Jiménez Martínez
Raquel Longarón Rozalén

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Luz María Martínez Avilés

Anna María Massó Carreras

Silvia Pairet García

Antonio Salar Silvestre

Blanca Sánchez González

María Elena Torres Grande



Cancer

Applied Clinical Research in Hematological Malignancies

The group is studying molecular markers in chronic myeloproliferative neoplasms, mainly JAK2 mutations, but also mutations in epigenetic modifiers and genes involved in the splicing machinery, and their role in monitoring response to cytoreductive therapy, and in patient prognosis. In addition, the group is searching for new mutations through exome sequencing techniques in those patients nonmutated for JAK2, CALR and MPL genes. Another area of research is the effect of new drugs in ex vivo cultures of neoplastic lymphoid cells obtained from lymphoma patients; to determine the mechanisms underlying response/resistance, and identification of potential synergistic combinations.

Main Publications 2013

- Angona A, Bellosillo B, Álvarez-Larrán A, Martínez-Avilés L, Camacho L, Pairet S, Fernández-Rodríguez MC, Ancochea A, Besses C. Genetic predisposition to molecular response in patients with myeloproliferative neoplasms treated with hydroxycarbamide. *Leuk Res* 2013;37:917-921.
- Abrisqueta P, Villamor N, Terol MJ, González-Barca E, González M, Ferra C, Abella E, Delgado J, García-Marco JA, González Y, Carbonell F, Ferrer S, Monzó E, Jarque I, Muntañola A, Constants M, Escoda L, Calvo X, Bobillo S, Montoro JB, Montserrat E, Bosch F. Rituximab maintenance after first-line therapy with rituximab, fludarabine, cyclophosphamide, and mitoxantrone (R-FCM) for chronic lymphocytic leukemia. *Blood* 2013;122(24):3951-3959.
- Arranz R, García-Noblejas A, Grande C, Cannata-Ortíz J, Sánchez JJ, García-Marco JA, Aláez C, Pérez-Calvo J, Martínez-Sánchez P, Sánchez-González B, Canales MA, Conde E, Martín A, Arranz E, Terol MJ, Salar A, Caballero D. First line treatment with rituximab- Hyper-CVAD alternating with rituximab- Methotrexate- Cytarabine

and followed by consolidation with 90Y-Ibritumomab-Tiuxetan in patients with mantle cell lymphoma. Results of a phase 2 pilot multicenter trial from the GELTAMO group. *Haematologica* 2013;98(10):1563-1570.

- Puiggros A, Delgado J, Rodríguez A, Collado R, Aventín A, Luño E, Grau J, Hernández JA, Marugan I, Ardanaz M, González T, Valiente A, Osma M, Calasanz MJ, Sanzo C, Carrión A, Ortega M, Santacruz R, Abrisqueta P, Abella E, Bosch F, Carbonell F, Solé F, Hernández JM, Espinet B, Grupo Cooperativo Español de Citogenética Hematológica (GCECGH) and Grupo Español de Leucemia Linfática Crónica (GELLC). Biallelic losses of 13q do not confer a poorer outcome in chronic lymphocytic leukaemia: analysis of 627 patients with isolated 13q deletion. *Br J Haematol* 2013; 163(1):47-54.

- Pérez C, Pascual M, Martín-Subero JI, Bellosillo B, Segura V, Delabesse E, Álvarez S, Larrayoz MJ, Rifón J, Cigudosa JC, Besses C, Calasanz MJ, Cross NC, Prosper F, Aguirre X. Aberrant DNA methylation profile of chronic and transformed classic Philadelphia-negative myeloproliferative neoplasms. *Haematologica* 2013;98(9):1414-1420.

- Ferrer-Marin F, Bellosillo B, Martínez-Avilés L, Soler G, Carbonell P, Luengo-Gil G, Caparrós E, Torregrosa JM, Besses C, Vicente V. Leukemic transformation driven by an ASXxL1 mutation after a JAK2V617F-positive primary myelofibrosis: clonal evolution and hierarchy revealed by next-generation sequencing. *J Hematol Oncol* 2013; 8(1):68.
- Álvarez-Larran A, Pereira A, Arellano-Rodrigo E, Hernández-Boluda JC, Cervantes F, Besses C. Cytoreduction plus low-dose aspirin versus cytoreduction alone as primary prophylaxis of thrombosis in patients with high-risk essential thrombocythaemia: an observational study. *Br J Haematol* 2013;161(6): 865-871.
- Barosi G, Mesa R, Finazzi G, Harrison C, Kiladian JJ, Lengfelder E, McMullin MF, Passamonti F, Vannucchi AM, Besses C, Gisslinger H, Samuelsson J, Verstovsek S, Hoffmann R, Pardanani A, Cervantes F, Tefferi A, Barbui T. Revised response criteria for polycythemia vera and essential thrombocythemia: a ELN and IWG-MRT consensus project. *Blood* 2013;121(23):4778-4781.
- Sánchez-González B, García M, Montserrat F, Sánchez M, Angona A, Solano A, Salar A. Diffuse Large B-Cell Lymphoma Associated With Chronic Inflammation in Metallic Implant. *J Clin Oncol* 2013;31(10):e148-151.
- Lloveras B, Gómez S, Alameda F, Bellosillo B, Mojal S, Muset M, Parra M, Palomares JC, Serrano S. HPV Testing by cobas HPV Test in a Population from Catalonia. *PLoS ONE* 2013;8(3):e58153.

Ongoing Research Project 2013

- Factores que influyen en la evolución de la carga alélica de JAK2V617F en neoplasias mieloproliferativas
 - > Fondo de Investigación Sanitaria. ISCIII
 - > Principal researcher: Besses Raebel, Carles

Group's Recognition

- SGR recognizing groups: Grup de Recerca Clínica Aplicada en Hematología. 2009 SGR 929
 - > Principal researcher: Besses Raebel, Carles

Clinical Trials Signed in 2013

- Phase II studies: 1 (2013/5146)
- Phase III studies: 6 (2012/4888, 2013/4994, 2012/4931, 2012/4961, 2013/5075, 2013/5230)
- Phase III b studies: 1 (2013/5394)
- Post-authorization studies: 4 (2013/5072, 2013/5130, 2013/5320, 2013/5223)

Colorectal Cancer

RESEARCH GROUP



**Coordinator**

Miguel Pera Román

Members

Sandra Alonso Gonçálvez

Luis Grande Posa

Xavier Mayol Girbau

Marta Pascual Damieta

José Antonio Pereira Rodríguez

Xavier Rogés Robledo

Sílvia Salvans Ruiz

Our group has experience of several years in a stable line of translational research into an important clinical problem such as tumour recurrence after surgery for colorectal cancer or liver metastases with curative intent. We have designed several in vitro assays and experimental tumor models as well as clinical studies to investigate the influence of surgery on oncological outcome after the surgical excision of colon cancer. Surgery induces an inflammatory response that in some patients may be associated with a worse prognosis. Our research has focused on identifying those factors that may enhance the inflammatory response such as the surgical approach, ischemia-reperfusion injury, or postoperative intra-abdominal infection. We have shown that amplification of the inflammatory response may favour tumour recurrence by increasing angiogenesis and/or inducing an invasive phenotype of residual tumour cells.

Main Publications 2013

- Pascual M, Bohle B, Alonso S, Mayol X, Salvans S, Grande L, Pera M. Preoperative administration of erythropoietin stimulates tumor recurrence after surgical excision of colon cancer in mice by a vascular endothelial growth factor-independent mechanism. *J Surg Res* 2013;183(1):270-7.
- Ortiz H, Wibe A, Ciga MA, Luján J, Codina A, Biondo S. Spanish Rectal Cancer Project. Impact of a multidisciplinary team training programme on rectal cancer outcomes in Spain. *Colorectal Dis* 2013;15(5):544-51.
- Pascual M, Sánchez-González B, García M, Pera M, Grande L. Primary lymphoma of the colon. *Rev Esp Enferm Dig* 2013;105(2):74-8.
- Salvans S, Gil-Egea MJ, Pera M, Lorente L, Cots F, Pascual M, Alonso S, Courtier R, Grande L. Multimodal rehabilitation program in elective colorectal surgery: Impact on hospital costs. *Cir Esp* 2013;91(10):638-44.
- Lorente L, Cots F, Alonso S, Pascual M, Salvans S, Courtier R, Gil MJ, Grande L, Pera M. Outpatient treatment of uncomplicated acute diverticulitis: Impact on healthcare costs. *Cir Esp* 2013;91(8):504-9.

Ongoing Research Projects 2013

- Infección peritoneal y recurrencia del cáncer colorrectal: estudio de la inflamación, angiogénesis y otros mecanismos implicados en el crecimiento tumoral tras cirugía con intención curativa
 - > Fondo de Investigación Sanitaria. ISCIII
 - > Principal researcher: Pera Román, Miguel
- Efecto de la isquemia reperfusión sobre el crecimiento de las metástasis hepáticas de origen colorrectal en un modelo murino. Estudio de sus vías de producción y formas de modulación
 - > Fundación Mutua Madrileña
 - > Principal researcher: Grande Posa, Luis
- Efecto de la isquemia reperfusión sobre el crecimiento de las metástasis hepáticas de origen colorrectal en un modelo murino. Estudio de sus vías de producción y formas de modulación
 - > Fondo de Investigación Sanitaria. ISCIII
 - > Principal researcher: Grande Posa, Luis

Group's Recognition

- SGR recognizing groups: Grupo de Investigación en Cáncer Colorrectal. 2009 SGR 1354
 - > Principal researcher: Pera Román, Miguel

Clinical Trials Signed in 2013

- Phase IV studies: 2 (2012/4772, 2013/5152)

Other

- Xavier Rogès. Beca d'iniciació a la recerca en el marc del treball de fi de grau per a estudiants del Grau conjunt de Medicina UPF-UAB (2013-2014).
- Sílvia Salvans. Beca de la Asociación Española de Coloproctología para estancia de 1 año en la División de Cirugía Colorrectal del John Radcliffe Hospital de Oxford.

Epithelial-Mesenchymal Transition and Tumor Development

RESEARCH GROUP



Coordinator

Antonio García de Herreros
Madueño

Members

Lorena Alba Castellón
Josep Baulida Estadella
Sílvia Canudas Puig
Joan Pau Cebrià Costa
Víctor M. Díaz Cortés
Clara Francí Carrete
Núria Gonzàlez Busqué

Álex Frías Hernández
Ane Iturbide
Jordina Loubat Casanovas
Rocco Mazzolini
Sandra Peiró Sales
Raúl Peña Arranz
Jessica Querol Paños
Jelena Stanisavljevic

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The group is geared towards the study of the mechanisms controlling the acquisition of invasiveness by epithelial tumors as the first step in tumour metastasis. More specifically, we have studied the role of E-cadherin and E-cadherin-associated proteins in this process. During recent years we have focused on the relevance of epithelial-to-mesenchymal conversion in tumor invasion as well as the co-adjuvant role of cancer-associated fibroblasts. The group is especially interested in the role of the Snail1 transcription factor in this process, both in physiological and pathological conditions.

Main Publications 2013

- Batlle R, Alba-Castellón L, Loubat-Casanovas J, Armenteros E, Francí C, Stanisavljevic J, Banderas R, Martín-Caballero J, Bonilla F, Baulida J, Casal JI, Gridley T, García de Herreros A. Snail1 controls TGF- β responsiveness and differentiation of Mesenchymal Stem Cells. *Oncogene* 2013;32(28):3381-3389.
- Rodríguez MI, Peralta-Leal A, O'Valle F, Rodríguez-Vargas JM, González-Flores A, Majuelos-Melguizo J, López L, Serrano S, García de Herreros A, Rodríguez-Manzanaque JC, Fernández R, del Moral RG, de Almodóvar JM, Oliver FJ. PARP-1 Regulates Metastatic Melanoma through Modulation of Vimentin-induced Malignant Transformation. *PLoS Genet* 2013;9(6):e1003531.
- Peláez-García A, Barderas R, Torres S, Hernández-Varas P, Teixidó J, Bonilla F, García de Herreros A, Casal JI. FGFR4 Role in Epithelial-Mesenchymal Transition and Its Therapeutic Value in Colorectal Cancer. *PLoS ONE* 2013;8(5):e63695.
- Toll A, Masferrer E, Hernández-Ruiz M, Ferrandiz-Pulido C, Yébenes M, Jaka A, Tuneu A, Jucglà A, Gimeno J, Baró T, Casado B, Gandarillas A, Costa I, Mojáil S, Peña R, García de Herreros A, García-

Patos V, Pujol RM, Hernández-Muñoz I. Epithelial to mesenchymal transition markers are associated with an increased metastatic risk in primary cutaneous squamous cell carcinomas but are attenuated in lymph node metastases. *J Dermatol Sci* 2013;72(2):93-102.

- Torres S, Bartolomé R, Mendes M, Barderas R, Fernández-Aceñero MJ, Peláez-García A, Peña C, López-Lucendo M, Villar-Vázquez R, García de Herreros A, Bonilla F, Casal JI. Proteome profiling of cancer-associated fibroblasts identifies novel pro-inflammatory signatures and prognostic markers for colorectal cancer. *Clin Cancer Res* 2013;19(21):6006-6019.
- Herrera M, Islam A, Herrera A, Martín P, García V, Silva J, García JM, Salas C, Casal I, García de Herreros A, Bonilla F, Peña C. Functional heterogeneity of cancer-associated fibroblasts from human colon tumors shows specific prognostic gene expression signature. *Clin Cancer Res* 2013;19(21):5914-5926. Issue cover.
- Millanes-Romero A, Herranz N, Perrera V, Iturbide A, Loubat J, Gil J, Jenuwein T, García de Herreros A, Peiró S. Regulation of Heterochromatin Transcription By Snail1/ LOXL2 During Epithelial to Mesenchymal Transition. *Mol Cell* 2013;52(5):746-757.

Ongoing Research Projects 2013

- Papel de Snail1 en la recidiva del cáncer de mama
 - > Fundación Sandra Ibarra de Solidaridad Frente al Cáncer
 - > Principal researcher: García de Herreros Madueño, Antonio
- Heterochromatin reorganization during the EMT process is controlled by Snail1 transcription factor
 - > Association for International Cancer Research
 - > Principal researcher: Peiró Sales, Sandra
- Regulación de la expresión génica en el contexto de la cromatina. Inhibidores de modificadores de histonas como potenciales dianas terapéuticas
 - > Fondo de Investigación Sanitaria. ISCIII
 - > Principal researcher: Peiró Sales, Sandra
- Mecanismos moleculares que regulan las propiedades de la matriz extracelular y su repercusión sobre la stemness y la malignidad tumoral
 - > Fondo de Investigación Sanitaria. ISCIII
 - > Principal researcher: Baulida Estadella, Josep
- Analysis of the Wnt-dependent control of mesenchymal stem cells differentiation
 - > Fundació La Marató de TV3
 - > Principal researcher: García de Herreros Madueño, Antonio
- Estudios *in vivo* e *in vitro* sobre el papel de Snail1 en EMT, la activación de fibroblastos y el desarrollo tumoral.

- > Ministerio de Ciencia e Innovación
- > Principal researcher: García de Herreros
Madueño, Antonio
- Análisis del papel del estroma en el crecimiento e invasión de carcinomas de colon: identificación, caracterización y potencial clínico de marcadores de la activación estromal
 - > Asociacion Española Contra el Cáncer
 - > Principal researcher: García de Herreros
Madueño, Antonio
- Antisense RNAs and regulation of epithelial-mesenchymal transition
 - > Association for International Cancer Research (AICR)
 - > Principal researcher: García de Herreros
Madueño, Antonio
- Identificación de inhibidores de LOXL2 mediante re-determinación de fármacos ya existentes (“drug -repurposing”). Possible utilización terapéutica en tumores
 - > Asociación Española Contra el Cáncer (AECC) Catalunya
 - > Principal researcher: Peiró Sales, Sandra
- Identifying LOXL2 inhibitors by re-analyzing existing drugs (“drug repurposing”): possible uses for tumor therapy
 - > BAYER
 - > Principal researcher: Peiró Sales, Sandra

Participation in Research Networks

- Red Temática de Investigación Cooperativa en Cáncer
 - > Fondo de Investigación Sanitaria. ISCIII. Subprograma RETICS. RD06/0020/0040
 - > Principal researcher: García de Herreros
Madueño, Antonio
- Red Temática de Investigación Cooperativa en Cáncer
 - > Fondo de Investigación Sanitaria. ISCIII. Subprograma RETICS. RD12/0036/0005
 - > Principal researcher: García de Herreros
Madueño, Antonio

Group's Recognition

- SGR recognizing groups: Regulació dels contactes intercel·lulars a l'epiteli intestinal. 2009 SGR 867
 - > Principal researcher: García de Herreros
Madueño, Antonio

Other

- Sandra Peiró. “Betty Hay Award”, Epithelial Mesenchymal Transition International Association (TEMTIA)

Gastroesophageal Carcinogenesis

RESEARCH GROUP





Cancer

Gastroesophageal Carcinogenesis



Coordinator

Carme de Bolós Pi

Members

Marta Garrido Saldaña

Mar Iglesias Coma

Manuel Pera Román

The sequential process prior to the appearance of a gastric or esophageal adenocarcinoma is a sequential histologically well-defined process characterized by the appearance of an intestinal phenotype. In the first stages of gastro-oesophageal carcinogenesis the expression of intestinal markers, as intestinal transcription factors (CDX2), mucin genes (MUC2 and MUC4), intestinal enzymes and others, can be detected. We study the molecular mechanisms that may be initiating these processes, especially the regulation of transcription factors associated with the acquisition of the intestinal phenotype. We analyse the implication of signaling pathways activated by pro-inflammatory cytokines (TNF- α , IL1- β and IL-6) present in the inflamed epithelia that can initiate the neoplastic transformation of the gastric and esophageal epithelia.

Main Publications 2013

- Cobler L, Mejías-Luque R, Garrido M, Pera M, Badia-Garrido E, de Bolós C. Activation of the NF- κ B pathway downregulates TFF-1 in gastric carcinogenesis. *Virchows Arch.* 2013;463(4):497-507.
- Pera M, Grande L, Maurel J. Management of gastroesophageal cancer: A perspective from Catalonia. *Oncologie*, 2013;15:181-188.
- Dorcaratto D, Grande L, Pera M. Enhanced recovery in GI surgery: Upper GI surgery. *Digestive Surg* 2013;30:70-78.
- Pérez-Garay M, Arteta B, Llop E, Cobler L, Pagès L, Ortiz R, Ferri MJ, de Bolós C, Figueras J, de Llorens R, Vidal-Vanaclocha F, Peracaula R. α 2,3-Sialyltransferase ST3Gal IV promotes migration and metastasis in pancreatic adenocarcinoma cells and tends to be highly expressed in pancreatic adenocarcinoma tissues. *Int J Biochem Cell Biol* 2013;45(8):1748-57.

Ongoing Research Project 2013

- Regulación de la expresión de factores de transcripción gástricos (SOX2) e intestinales (CDX1 y CDX2) en la carcinogénesis gástrica.
 - > Fondo de Investigación Sanitaria. ISCIII
 - > Principal researcher: De Bolós Pi, Carme

Group's Recognition

- SGR recognizing groups: Carcinogènesi gastroesofàgica. 2009 SGR 121
 - > Principal researcher: de Bolós Pi, Carme

Genitourinary Cancer

RESEARCH GROUP





Coordinator

Josep Lloreta Trull

Members

Manuel Ignacio Algara López
Octavio Arango Toro
Albert Francés Comalat
Lluís Fumadó Ciutat
Marta Guix Arnau
Sílvia Hernández Lodrà
Núria Juanpere Rodero
Marta Lorenzo Pérez
Gloria Nohales Taurines

Prostate cancer is the most common male malignancy but its progression rate is only 30%. More refined detection methods are increasing the number of patients undergoing radical surgical treatment for tumors that perhaps would not progress. Our objectives are to identify genetic signatures that could be involved in the transition from a hypothetical latent to a clinically significant phase, to better understand the natural history of prostatic carcinoma and design adequate treatment strategies for each patient.

Main Publications 2013

- Balbás-Martínez C, Sagrera A, Carrillo-de Santa Pau E, Earl J, Márquez M, Vázquez M, Lapi E, Castro-Giner F, Beltrán S, Bayés M, Carrato A, Cigudosa JC, Domínguez O, Gut M, Herranz J, Juanpere N, Kogevinas M, Langa X, López-Knowles E, Lorente JA, Lloreta J, Pisano DG, Richart L, Rico D, Salgado RN, Tardón A, Chanock S, Heath S, Valencia A, Losada A, Gut IG, Malats N, Real FX. Recurrent inactivation of STAG2 in bladder cancer is not associated with aneuploidy. *Nat Genet* 2013;45(12):1464-1469.
- Balbás-Martínez C, Rodríguez-Pinilla M, Casanova A, Domínguez O, Pisano DG, Gómez G, Lloreta J, Lorente JA, Malats N, Real FX. ARID1A Alterations Are Associated with FGFR3-Wild Type, Poor-Prognosis, Urothelial Bladder Tumors. *PLoS ONE* 2013;8(5):e62483.
- Tajuddin SM, Amaral AF, Fernández AF, Rodríguez-Rodero S, Rodríguez RM, Moore LE, Tardón A, Carrato A, García-Closas M, Silverman DT, Jackson BP, García-Closas R, Cook AL, Cantor KP, Chanock S, Kogevinas M, Rothman N, Real FX, Fraga MF, Malats N, for the Spanish Bladder Cancer (SBC)/EPICURO Study investigators. Genetic and Non-genetic Predictors of LINE-1 Methylation in Leukocyte DNA. *Environ Health Perspect* 2013;121(6):650-656.
- García-Closas M, Rothman N, Figueroa JD, Prokunina-Olson L, Han SS, Baris D, Jacobs EJ, Malats N, de Vivo I, Albanes D, Purdue MP, Sharma S, Fu YP, Kogevinas M, Wang Z, Tang W, Tardón A, Serra C, Carrato A, García-Closas R, Lloreta J, Johnson A, Schwenn M, Karagas MR, Schned A, Andriole Jr G, Grubb III R, Black A, Gapstur SM, Thun M, Diver WR, Weinstein SJ, Virtamo J, Hunter DJ, Caporaso N, Landi MT, Hutchinson A, Burdett L, Jacobs KB, Yeager M, Fraumeni Jr JF, Chanock SJ, Silverman DT, Chatterjee N. Common Genetic Polymorphisms Modify the Effect of Smoking on Absolute Risk of Bladder Cancer. *Cancer Res* 2013;73(7):2211-2220.
- Robles C, Viscidi R, Malats N, Silverman D, Tardón A, García-Closas R, Serra C, Carrato A, Herranz J, Lloreta J, Rothman N, Real FX, de Sanjosé S, Kogevinas M. Bladder cancer and seroreactivity to BK, JC and merkel cell polyomaviruses: The spanish bladder cancer study. *Int J Cancer* 2013;133(3):597-603.

Ongoing Research Projects 2013

- Validación de nuevas dianas con potencial interés diagnóstico, pronóstico y terapéutico en cáncer de próstata y estudio de sus mecanismos de acción
 - > Fondo de Investigación Sanitaria. ISCIII
 - > Principal researcher: Lloreta Trull, Josep
- Ensayo fase I/II de escalada de dosis de radioterapia sobre regiones hipóxicas determinadas con f18-Fluoromisonidazol (FMISO)-PET-TC en cáncer de pulmón.
 - > Fondo de Investigación Sanitaria. ISCIII
 - > Algara López, Manuel Ignacio
- Mecanismos moleculares diferenciales del cáncer de próstata indolente y agresivo: identificación de marcadores pronóstico y dianas terapéuticas. Papel de las células madre tumorales
 - > Fondo de Investigación Sanitaria. ISCIII
 - > Principal researcher: Lloreta Trull, Josep

Molecular Cancer Therapeutics

RESEARCH GROUP



Coordinator

Joan Albanel Mestres

Members

Oriol Arpí Llucià
Edurne Arriola Aperribay
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Joaquim Bellmunt Molins
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Andrea Edo Guimera
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Elena Gavilán Dorronzoro
Iria González Maeso
Anna Hernández Prat
Marta Macià Valldeperas

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María Martínez García
Gemma Martínez Peña
Sílvia Menéndez Romero
Clara Montagut Viladot
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Mohammad Ali Sabbaghi
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Lorena Tomás Marín
Ignacio Tusquets Trias de Bes
Xavier Villanueva Castelltort



Molecular Cancer Therapeutics

The objective of the group is to contribute towards improving breast cancer treatment through preclinical research on *in vitro* and *ex vivo* models, biomarker studies for predicting responses and pharmacodynamics and clinical trials. The group is comprised of oncologists, pathologists, and biologists and it is structured along three interconnected research areas: Preclinical laboratory, biomarker laboratory, and clinical research.

Main Publications 2013

- García-Giralt N, Rodríguez-Sanz M, Prieto-Alhambra D, Servitja S, Torres del Pliego E, Balcells S, Albanell J, Grinberg D, Díez-Pérez A, Tusquets I, Nogués X. Genetic determinants of aromatase inhibitor-related arthralgia: the B-ABLE cohort study. *Breast Cancer Res Tr* 2013;140(2):385-395.
- Cases M, Furlong LI, Albanell J, Altman RB, Bellazzi R, Boyer S, Brand A, Brookes AJ, Brunak S, Clark TW, Gea J, Ghazal P, Graf N, Guigó R, Klein TE, López-Bigas N, Maojo V, Mons B, Musen M, Oliveira JL, Rowe A, Ruch P, Shabo A, Shortliffe EH, Valencia A, van der Lei J, Mayer MA, Sanz F. Improving data and knowledge management to better integrate healthcare and research (Editorial). *J Intern Med* 2013;274(4):321-328.
- Harshman LC, Fougeray R, Choueiri TK, Schutz FA, Salhi Y, Rosenberg JE, Bellmunt J. The impact of prior platinum therapy on survival in patients with metastatic urothelial cancer receiving vinflunine. *Br J Cancer* 2013;109(10):2548-2553.
- Bellmunt J, Teh BT, Tortora G, Rosenberg JE. Molecular targets on the horizon for kidney and urothelial cancer. *Nat Rev Clin Oncol* 2013;10(10):557-570.
- Melichar B, Bracarda S, Matveev V, Alekseev B, Ivanov S, Zyryanov A, Janciauskiene R, Fernebro E, Mulders P, Osborne S, Jethwa S, Mickisch G, Gore M, van Moorselaar RJ, Staehler M, Magne N, Bellmunt J, on behalf of BEVLiN Investigators. A multinational phase II trial of bevacizumab with low-dose interferon- α 2a as first-line treatment of metastatic renal cell carcinoma: BEVLiN. *Ann Oncol* 2013;24(9):2396-2402.
- Gómez-Martín C, Salazar R, Montagut C, Gil-Martín M, Núñez JA, Puig M, Lin X, Khosravan R, Tursi JM, Lechuga MJ, Bellmunt J. A phase I, dose-finding study of sunitinib combined with cisplatin and 5-fluorouracil in patients with advanced gastric cancer. *Invest New Drug* 2013;31(2):390-398.
- Gómez-Martín C, Plaza JC, Pazo-Cid R, Salud A, Pons F, Fonseca P, León A, Alsina M, Visa L, Rivera F, Galan MC, del Valle E, Vilardell F, Iglesias M, Fernández S, Landolfi S, Cuatrecasas M, Mayorga M, Paulés MJ, Sanz-Moncasi P, Montagut C, Garralda E, Rojo F, Hidalgo M, López-Ríos F. Level of HER2 Gene Amplification Predicts Response and Overall Survival in HER2-Positive Advanced Gastric Cancer Treated With Trastuzumab. *J Clin Oncol* 2013;31(35):4445-4452.

Ongoing Research Projects 2013

- Mecanismos de resistencia adquirida a trastuzumab en cáncer gástrico
 - > Asociación Española contra el Cáncer de Cataluña
 - > Principal researcher: Montagut Viladot, Clara
- Mecanismos de resistencia adquirida al tratamiento con anticuerpos monoclonales anti-EGFR panitumumab y cetuximab en cáncer colorectal
 - > Fondo de Investigación Sanitaria. ISCIII
 - > Principal researcher: Montagut Viladot, Clara
- Identificación de mecanismos de resistencia a nuevos anticuerpos anti-HER en cáncer de mama
 - > Fondo de Investigación Sanitaria. ISCIII
 - > Principal researcher: Albanell Mestres, Joan
- Factores moleculares predictivos de respuesta a la quimioterapia en cáncer urotelial: análisis del papel de los microARNs como factores de resistencia a quimioterapia basada en platino
 - > Fondo de Investigación Sanitaria. ISCIII
 - > Principal researcher: Bellmunt Molins, Joaquim
- Caracterización de MKP-1 y MKP-3 en cáncer de mama: valor predictivo y potencial diana terapéutica
 - > Fondo de Investigación Sanitaria. ISCIII
 - > Principal researcher: Albanell Mestres, Joan

Participation in Research Networks

- Red Temática de Investigación Cooperativa en Cáncer
 - > Fondo de Investigación Sanitaria. ISCIII. Subprograma RETICS. RD06/0020/0109
 - > Principal researcher: Albanell Mestres, Joan
- Red Temática de Investigación Cooperativa en Cáncer
 - > Fondo de Investigación Sanitaria. ISCIII. Subprograma RETICS. RD12/0036/0051
 - > Principal researcher: Albanell Mestres, Joan

Group's Recognition

- SGR recognizing groups: Grup de Recerca en Terapèutica Experimental del Càncer. 2009 SGR 321
 - > Principal researcher: Albanell Mestres, Joan

Clinical Trials Signed in 2013

- Phase I studies: 1 (2013/5366)
- Phase I b studies: 1 (2013/5076)
- IC-Health product: 1 (2012/4871)
- Phase II studies: 3 (2012/4937, 2013/5126, 2013/5322)
- Phase III studies: 9 (2012/4891, 2012/4969, 2013/5151, 2013/5124, 2013/5081, 2013/5082, 2013/5127, 2013/5183, 2013/5234)

- Phase I-II studies: 1 (2013/5038)
- Phase III b studies: 1 (2013/5042)
- Phase IV studies: 2 (2012/4938, 2013/5186)
- Observational studies: 2 (2012/4962, 2013/5041)
- Post-authorization: 3 (2013/5031, 2012/4551, 2013/5084)

drug in the same family. This test is in the final validation phase and will be commercialized worldwide.

Other

- Licensing Agreement With Biocartis (Patent)

Hospital del Mar entered into a licensing agreement with Biocartis SA, a molecular diagnostics company, for an EGFR biomarker for colon cancer. Under the agreement, Biocartis will develop a new colon cancer test, whereby a specific EGFR mutation (S492R) can be rapidly and accurately detected in patients, which will enable doctors to recommend personalized therapy. This is based on the research project led by oncologists in our group (Montagut et al., Nat Med 2012). We discovered a novel mutation (S492R) in the EGFR ectodomain that confers acquired resistance to cetuximab, a drug that is often used to treat advanced colon cancer, and also indicates whether or not it may respond to another

Molecular Mechanisms of Lung Cancer Predisposition

RESEARCH GROUP



Coordinator

Esther Barreiro Portela

Members

Víctor Curull Serrano
Marisol Domínguez Álvarez
Lara Pijuan Andújar
Alberto Rodríguez Fuster
Albert Sánchez Font
Alba Chacón Cabrera
Mercè Mateu Jiménez
Mònica Vilà Ubach



Our current goals are to determine the specific mechanisms and signaling pathways whereby oxidative stress and inflammation lead to cachexia (cancer-induced cachexia models) and dysplasia in the airways of patients with chronic obstructive pulmonary disease (COPD, COPD-lung cancer models). In a second stage, specific therapeutic strategies for each condition will also be explored.

Main Publications 2013

- Pascual S, Árbol F, Sánchez E, Casadevall C, Merlo V, Gea J, Barreiro E. Inflamación y estrés oxidativo en los músculos respiratorios y periféricos de pacientes con sepsis grave. *Med Clin* 2013;141(5):194-200.
- Van den Borst B, Slot IG, Hellwig VA, Vosse BA, Kelders MC, Barreiro E, Schols AMWJ, Gosker HR. Loss of quadriceps muscle oxidative phenotype and decreased endurance in patients with mild-to-moderate COPD. *J Appl Physiol* 2013;114(9):1319-1328.
- Vizcaya D, Mirabelli M, Orriols R, Antó JM, Barreiro E, Burgos F, Arjona L, Gómez F, Zock JP. Functional and biological characteristics of asthma in cleaning workers. *Respir Med* 2013;107(5):673-683.
- Pascual S, Wodja E, Gorostiza A, López-de Santamaría E, Gea J, Galdiz B, Sliwinski P, Barreiro E. Mejoría de la calidad de vida y capacidad de ejercicio sin cambios en la biología muscular tras entrenamiento general en pacientes con EPOC grave. *Med Clin* 2013;140(5):200-206.
- Fermoselle C, García-Arumí E, Puig-Vilanova E, Andreu AL, Urtreger AJ, Bal de Kier Joffé ED, Tejedor A, Puente-Maestu L, Barreiro E. Mitochondrial dysfunction and therapeutic approaches in respiratory and limb muscles of cancer cachectic mice. *Exp Physiol* 2013;98(9):1349-1365.
- Barreiro E, Fermoselle C, Mateu-Jiménez M, Sánchez-Font A, Pijuan L, Gea J, Curull V. Oxidative stress and inflammation in the normal airways and blood of patients with lung cancer and COPD. *Free Radical Biol Med* 2013;65:859-871.
- Guerra S, Halonen M, Sherrill DL, Venker C, Spangenberg A, Carsin AE, Tares L, Lavi I, Barreiro E, Martínez-Moratalla J, Urrutia I, Sunyer J, Antó JM, Martínez FD. The relation of circulating YKL-40 to levels and decline of lung function in adult life. *Respir Med* 2013;107(12):1923-1930.
- Barreiro E, Sznajder JI. Epigenetic regulation of muscle phenotype and adaptation: a potential role in COPD muscle dysfunction. *J Appl Physiol* 2013;114(9):1263-1272.
- Balch WE, Sznajder JI, Budinger S, Finley D, Laposky AD, Cuervo AM, Benjamin IJ, Barreiro E, Morimoto RI, Postow L, Weissman AM, Gail D, Banks-Schlegel S, Croxton T, Gan W. NHLBI Workshop: Malfolded Protein Structure and Proteostasis in Lung Diseases. *Am J Respir Crit Care Med* 2014;189(1):96-103.
- Hart N, Barreiro E. Feast or famine in the intensive care unit: does it really matter? *Am J Respir Crit Care Med* 2013;188:523-5.

Ongoing Research Projects 2013

- Alteraciones epigenéticas y autofagia en la predisposición al cáncer de pulmón de los pacientes con EPOC: asociaciones con el estrés oxidativo y la inflamación; 2012-2014
 - > Fondo de Investigación Sanitaria ISCIII. (PI11/02029)
 - > Principal researcher: Barreiro Portela, Esther
- Evaluación e impacto clínico de la detección de micrometástasis ganglionares en pacientes intervenidos de carcinoma broncogénico mediante técnicas de inmunohistoquímica; 2010-2013
 - > Fundación Mutua Madrileña
 - > Principal researcher: Rodríguez Fuster, Alberto

Other

- Esther Barreiro is journal reviewer (peer-review) of: New England Journal of Medicine, American Journal of Respiratory and Critical Care Medicine, Thorax, European Respiratory Journal, Chest, American Journal of Physiology, Journal of Applied Physiology, Antioxidants and Redox Signaling, American Journal of Respiratory Cell and Molecular Biology, BMC Cancer, Journal of Physiology (London), Current Aging

Science, Analytical Chemistry Insights, Cell Biology International, Respiratory Research, Critical Care Medicine, Clinical Science, BMC Respiratory Research, Respiratory Medicine, Critical Care, Respiration, Respirology and Clinical & Experimental Immunology.

Esther Barreiro is editorship of:

- Archivos de Bronconeumología (Journal of the Spanish Respiratory Society, SEPAR), Editor-in-Chief. Period: July 2012 up until the present.
- Journal of Applied Physiology (Journal of the American Physiological Society, IF: 4.235, Q1, Physiology), Associate Editor. Period: from July 2011 up until the present.
- Evise User Board member, since September 2011 up until the present.
- American Journal of Respiratory and Critical Care Medicine, Member of the Editorial Board. Period: Since January 2012 up until the present.
- Coordinating Associate Editor: Highlighted Topic on Muscle Dysfunction in COPD, Journal of Applied Physiology, March 2013.

Molecular Mechanisms of Tumorigenesis

RESEARCH GROUP





Coordinator

Pilar Navarro Medrano

Members

Francisco Alameda Quitllet
Héctor Anta Rodríguez
Silvia Geeraerd Bas
Joan Gibert Fernández
Neus Martínez Bosch
Mireia Moreno Merino
Carlos Orozco Castaño
Anouchka Skoudy Haym

The objective of our group is the identification of different molecular mechanisms associated with tumor progression. In particular we focus on:

1. the role of Galectin-1 as a therapeutic target for pancreatic cancer (principal researcher: Pilar Navarro);
2. the control of gene expression in cancer by CPEB-mediated mRNA translational regulation (principal researcher: Pilar Navarro); and
3. the use of ES cells as a model for the characterization of exocrine differentiation during pancreatic development and pancreas cancer (principal researcher: Anouchka Skoudy).

Main Publications 2013

- José A, Sobrevals L, Camacho-Sánchez JM, Huch M, Andreu N, Ayuso E, Navarro P, Alemany R, Fillat C. Intraductal Delivery of Adenoviruses Targets Pancreatic Tumors in Transgenic Ela-myc Mice and Orthotopic Xenografts. *Oncotarget* 2013;4(1):94-105.
- Delaspre F, Massumi M, Salido M, Soria B, Ravassard P, Savatier P, Skoudy A. Directed Pancreatic Acinar Differentiation of Mouse Embryonic Stem Cells via Embryonic Signalling Molecules and Exocrine Transcription Factors. *PLoS ONE* 2013;8(1):e54243.

Ongoing Research Projects 2013

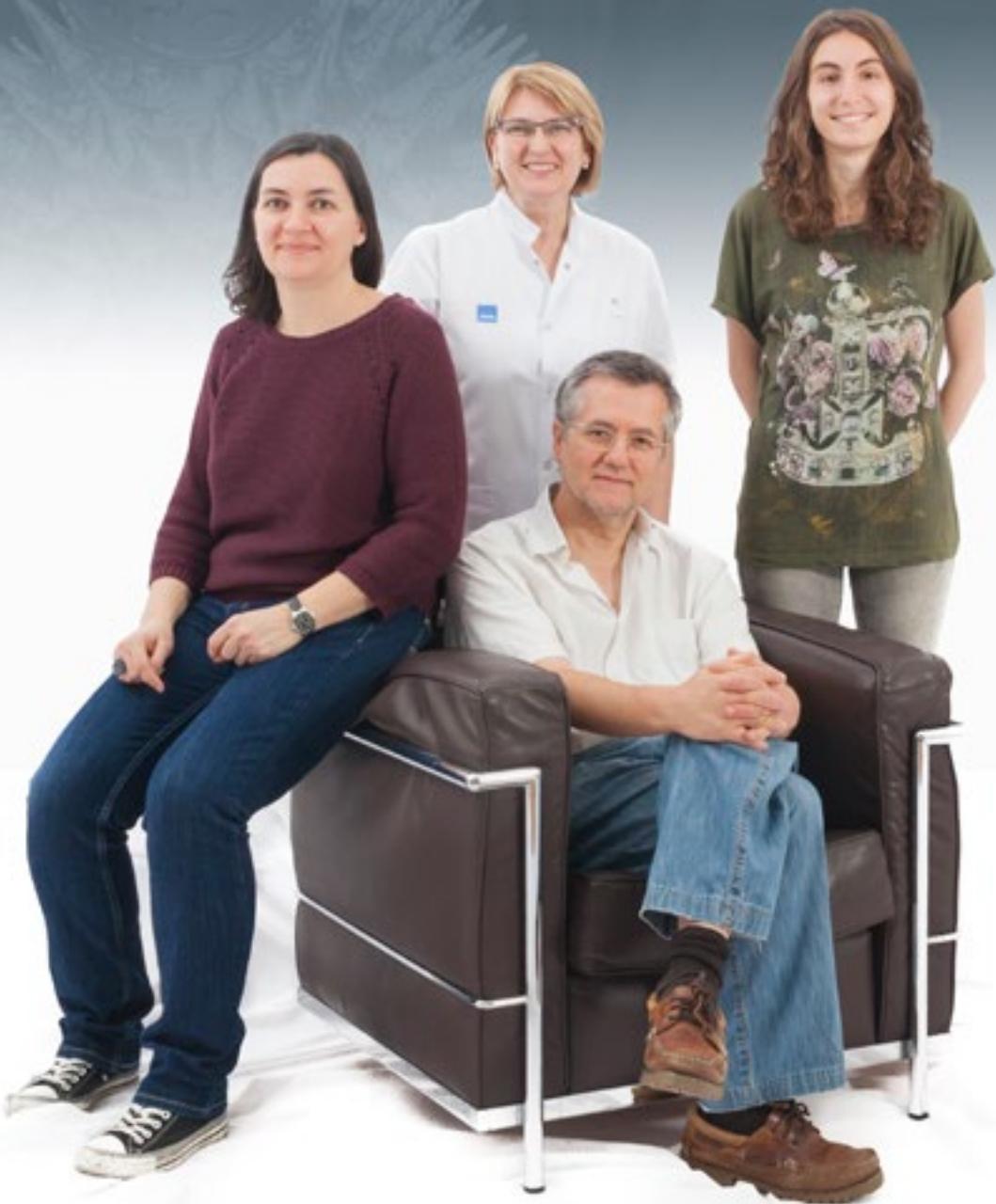
- Identificación de nuevas dianas en cáncer a partir del activador tisular del plasminógeno (tPA): Galectina-1 y CPEB4. Diseño de estrategias terapéuticas
 - > Fondo de Investigación Sanitaria. ISCIII
 - > Principal researcher: Navarro Medrano, Pilar
- Caracterización de los mecanismos moleculares de las proteínas Eya en cáncer de páncreas: Implicaciones como herramienta diagnóstica y terapéutica
 - > Fondo de Investigación Sanitaria. ISCIII
 - > Principal researcher: Skoudy Haym, Anouchka Lee

Group's Recognition

- SGR recognizing groups: Cellular and molecular mechanisms of disease. 2009 SGR 1409
 - > Principal researcher: Navarro Medrano, Pilar

Poly (ADP-Ribose) Polymerases

RESEARCH GROUP





Cancer

Poly (ADP-Ribose) Polymerases



Coordinator

José Yélamos López

Members

Coral Ampurdanés Descals

Judith Navarro Serer

Dulce Soto Soto

The aim of this group is to investigate the role of poly(ADP-ribosylation) of nuclear proteins, catalysed by PARP family members (especially PARP-1 and PARP-2), as a critical signaling pathway at nuclear level, in both innate and acquired immune responses. The results from this study could allow the identification of new therapeutic targets in different pathophysiological conditions associated with the immune system.

Main Publications 2013

- Farrés J, Martín-Caballero J, Martínez C, Lozano JJ, Llacuna L, Ampurdanés C, Ruiz C, Dantzer F, Schreiber V, Villunger A, Bigas A, Yélamos J. PARP-2 is required to maintain hematopoiesis following sublethal ϵ -irradiation in mice. *Blood* 2013;122(1):44-54.
- Bock FJ, Krumbschnabel G, Manzl C, Peintner L, Tanzer MC, Hermann-Kleiter N, Baier G, Llacuna L, Yélamos J, Villunger A. Loss of PIDD limits NF- κ B activation and cytokine production but not cell survival or transformation after DNA damage. *Cell Death Differ* 2013;20(4):546-557.
- Revilla-Nuin B, Parrilla P, Lozano J, Martínez de Haro LF, Ortiz A, Martínez C, Munitiz V, Ruiz de Angulo D, Bermejo J, Molina J, Cayuela ML, Yélamos J. Predictive Value of MicroRNAs in the Progression of Barrett Esophagus to Adenocarcinoma in a Long-Term Follow-Up Study. *Ann Surg* 2013;257(5):886-893.

Ongoing Research Projects 2013

- Papel de las enzimas Poli (ADP-ribosa) y polimerasas en carcinogénesis. Implicaciones diagnósticas, pronósticas y terapéuticas

- > Fundación Mutua Madrileña
 - > Principal researcher: Yélamos López, José
- Interacción funcional entre Poli (ADP-ribosa) polimerasa-2 y rutas de respuesta al daño en el DNA durante la timopoiesis y la hematopoiesis
 - > Ministerio de Ciencia e Innovación
 - > Principal researcher: Yélamos López, José

Group's Recognition

- SGR recognizing groups: Diferenciació i fisiopatologia limfocitària. 2009 SGR 524
 - > Principal researcher: Yélamos López, José

Other

► Licensing Products

- Hybridoma Purchasing & License agreement
 - > Company: Millipore
 - > From 1-2-2010 to 31-1-2020
 - > Principal researcher: José Yélamos
- Monoclonal Antibody Purchasing & License agreement
 - > Company: Enzo Life Sciences AG
 - > From 1-2-2010 to 31-1-2020
 - > Principal researchers: José Yélamos and Francisco Lozano

Stem Cells and Cancer

RESEARCH GROUP





Coordinator

Anna Bigas Salvans

Members

Juan Bertrán Comulada
Leonor da Gama Carvalho
Norton
Lluís Espinosa Blay
Eva Ferrando Martorell
Christos Gekas
Jéssica González Miranda
Erika López Arribillaga
Pol Margalef González
Cristina Ruiz-Herguido
Roshani Sinha

Our research group has the main aim of deciphering the molecular mechanisms regulating the generation and maintenance of stem cells, and their differentiation until they are mature and functional cells. Within this general aim, we are particularly interested in studying the signalling pathways that intervene, in one way or another, in controlling tumour processes.

Main Publications 2013

- Mulero MC, Ferres-Marco D, Islam A, Margalef P, Pecoraro M, Toll A, Drechsel NJ, Charneco C, Davis S, Bellora N, Gallardo F, López-Arribillaga E, Asensio-Juan E, Rodilla V, González J, Iglesias M, Shih V, Albà MM, di Croce L, Hoffmann A, Miyamoto S, Villà-Freixa J, López-Bigas N, Keyes WM, Domínguez M, Bigas A*, Espinosa L*(*equal contribution). Chromatin-bound IkBa regulates a subset of Polycomb-target genes in differentiation and cancer. *Cancer Cell* 2013;24(2):151-66.
- Guiu J, Shimizu R, D'Altri T, Fraser ST, Hatakeyama J, Bresnick EH, Kageyama R, Dzierzak E, Yamamoto M, Espinosa L*, Bigas A* (*equal contribution). Hes repressors are essential regulators of Hematopoietic Stem Cell Development downstream of Notch signaling. *J Exp Med* 2013;210(1):71-84.
- Nimmo R, Ciau-Uitz A, Ruiz C, Soneji S, Bigas A, Patient R, Enver T. miR-142-3p controls specification of the hemangioblastic precursors of the blood stem cell lineage. *Dev Cell* 2013;26(3):237-49.
- Shan M, Gentile M, Yeiser JR, Walland AC, Bornstein VU, Chen K, He B, Cassis L, Bigas A, Cols M, Comerma L, Huang B, Blander JM, Xiong H, Mayer L, Berin C, Augenlicht LH, Velcich A, Cerutti A. Mucus Enhances Gut Homeostasis and Oral Tolerance by delivering Immunoregulatory signals. *Science*, 2013;342(6157):447-53.
- Forn M, Muñoz M, Tauriello DV, Merlos A, Rodilla V, Bigas A, Batlle E, Jordà M, Peinado MA. Long range epigenetic silencing is a trans-species mechanism that results in cancer specific deregulation by overriding the chromatin domains of normal cells. *Mol Oncol* 2013;7(6):1129-1141.
- Farrés J, Martín-Caballero J, Martínez C, Lozano JJ, Llacuna L, Ampurdanés C, Ruiz C, Dantzer F, Schreiber V, Villunger A, Bigas A, Yélamos J. PARP-2 is required to maintain hematopoietic homeostasis following sublethal ε -irradiation treatment. *Blood* 2013;122(1):44-54.

► **Reviews**

- Mulero MC, Bigas A, Espinosa L. IkBa beyond the NFkB dogma (Editorial). *Oncotarget* 2013;4(10):1550-1551.
- Bigas A, Guiu J, Gama-Norton L. Notch and Wnt signaling in the emergence of hematopoietic stem cells. *Blood Cell Mol Dis* 2013;51(4):264-270.

Ongoing Research Projects 2013

- Generación de células madre hematopoyéticas humanas funcionales: aprendiendo del embrión ratón
 - > Ministerio de Ciencia e Innovación
 - > Principal researcher: Bigas Salvans, Anna
- Determinación del destino hematopoyético en el embrión de ratón: estudio para generar células madre normales y leucémicas
 - > Ministerio de Ciencia e Innovación
 - > Principal researcher: Bigas Salvans, Anna
- Estudio de las funciones tumorigénicas asociadas a elementos específicos de NFkB: Identificación de nuevas dianas terapéuticas
 - > Fondo de Investigación Sanitaria. ISCIII
 - > Principal researcher: Espinosa Blay, Lluís

- Mecanismos moleculares implicados en el desarrollo de leucemias infantiles
 - > Asociación Española Contra el Cáncer (AECC)
 - > Principal researcher: Bigas Salvans, Anna
- Notch1 and B-Catenin Crosstalk in T-cell Acute Lymphoblastic Leukemia
 - > Association for International Cancer Research (AICR)
 - > Principal researcher: Bigas Salvans, Anna

Participation in Research Networks

- Red temática de investigación cooperativa de cáncer
 - > Fondo de Investigación Sanitaria. Subprograma RETICS. RD06/0020/0098
 - > Principal researcher: Bigas Salvans, Anna

Group's Recognition

- SGR recognizing groups: Cèl·lules Mare i Càncer. 2009 SGR 23
 - > Principal researcher: Bigas Salvans, Anna

Translational Research in Colorectal Neoplasia

RESEARCH GROUP





Coordinator

Montserrat Andreu García

Members

Anna Abulí Vidal
Ana Cristina Álvarez-Urturi
Xavier Bessa Caserras
Felip Bory Ros
Josep Maria Dedeu Cuscó
Lucas Ilzarbe Sánchez
Lucía Márquez Mosquera
M. Francisca Murciano Gonzalo
Faust Riu Pons
Agustí Seoane Urgorri

The group of Translational Research in Colorectal Neoplasia has defined as the main strategic objective in its clinical and translational research, to gain a deeper insight into and understanding of the pathogenesis of different colorectal neoplastic processes and their prevention and treatment. At present, our research focuses on identifying factors related to the metachronous development of neoplastic lesions, especially advanced colorectal adenomas, in order to improve the surveillance of these patients, as well as identify epigenetic markers of the disease progression in patients with CRC.

Main Publications 2013

- Álvarez C, Andreu M, Castells A, Quintero E, Bujanda L, Cubiella J, Salas D, Lanas A, Carballo F, Morillas JD, Hernández C, Jover R, Sarasqueta C, Enríquez-Navascues JM, Hernández V, Estévez P, Macenlle R, Sala T, Balaguer F, Pellisé M, Moreira L, Gil I, Peris A, González-Rubio F, Ferrández A, Poves C, Ponce M, Grau J, Serradesanferm A, Ono A, Cruzado J, Pérez-Riquelme F, Alonso-Abreu I, Carrillo-Palau M, Santander C, Díaz-Tasende J, Herreros A, Cacho G, Barranco L, Bessa X, ColonPrev study investigators. Relationship of colonoscopy-detected serrated polyps with synchronous advanced neoplasia in average-risk individuals. *Gastrointest Endosc* 2013;78(2):333-341.e1.
- Castells A, Bessa X, Quintero E, Bujanda L, Cubiella J, Salas D, Lanas A, Carballo F, Morillas JD, Hernández C, Jover R, Montalvo I, Arenas J, Cosme A, Hernández V, Iglesias B, Castro I, Cid L, Sala T, Ponce M, Andrés M, Teruel G, Peris A, Roncales MP, González-Rubio F, Seoane A, Grau J, Serradesanferm A, Pellisé M, Ono A, Cruzado J, Pérez-Riquelme F, Alonso-Abreu I, Carrillo-Palau M, de la Vega-Prieto M, Iglesias R,

Amador J, Blanco JM, Sastre R, Ferrández J, González-Hernández MJ, Andreu M, for the COLONPREV study investigators. Risk of Advanced Proximal Neoplasms According to Distal Colorectal Findings: Comparison of Sigmoidoscopy-Based Strategies. *J Natl Cancer Inst* 2013;105(12):878-886.

- Fernández-Rozadilla C, Cazier JB, Tomlinson I, Brea-Fernández A, Lamas MJ, Baiget M, López-Fernández LA, Clofent J, Bujanda L, González D, de Castro L; The EPICOLON Consortium, Hemminki K, Bessa X, Andreu M, Jover R, Xicola R, Llor X, Moreno V, Castells A, Castellví-Bel S, Carracedo A, Ruiz-Ponte C. A genome-wide association study on copy-number variation identifies a 11q11 loss as a candidate susceptibility variant for colorectal cancer. *Hum Genet*. 2014;133(5):525-34.
- Abulí A, Lozano JJ, Rodríguez-Soler M, Jover R, Bessa X, Muñoz J, Esteban-Jurado C, Fernández-Rozadilla C, Carracedo A, Ruiz-Ponte C, Cubiella J, Balaguer F, Bujanda L, Reñé JM, Clofent J, Morillas JD, Nicolás-Pérez D, Xicola RM, Llor X, Piqué JM, Andreu M, Castells A, Castellví-Bel S, for the Gastrointestinal Oncology Group of the Spanish Gastroenterological Association. Genetic

susceptibility variants associated with colorectal cancer prognosis. *Carcinogenesis* 2013;34(10):2286-91.

- Fernández-Rozadilla C, Cazier JB, Tomlinson IP, Carvajal-Carmona LG, Palles C, Lamas MJ, Baiget M, López-Fernández LA, Brea-Fernández A, Abulí A, Bujanda L, Clofent J, González D, Xicola R, Andreu M, Bessa X, Jover R, Llor X; EPICOLON Consortium, Moreno V, Castells A, Carracedo A, Castellví-Bel S, Ruiz-Ponte C. A colorectal cancer genome-wide association study in a Spanish cohort identifies two variants associated with colorectal cancer risk at 1p33 and 8p12. *BMC Genomics* 2013;14(1):55.
- Picelli S, Bermejo JL, Chang-Claude J, Hoffmeister M, Fernández-Rozadilla C, Carracedo A, Castells A, Castellví-Bel S, Morillas JD, Naccarati A, Pardini B, Vodickova L, Müller H, Talseth-Palmer BA, Stibbard G, Peterlongo P, Nici C, Veneroni S, Li L, Casey G, Tenesa A, Farrington SM, Tomlinson I, Moreno V, van Wezel T, Wijnen JT, Dunlop M, Radice P, Scott RJ, Vodicka P, Ruiz-Ponte C, Brenner H, Buch S, Völzke H, Hampe J, Schafmayer C, Lindblom A, Members of the EPICOLON Consortium (Gastrointestinal Oncology Group

of the Spanish Gastroenterological Association). Meta-Analysis of Mismatch Repair Polymorphisms within the Cogent Consortium for Colorectal Cancer Susceptibility. *PLoS ONE* 2013;8(9):e72091.

- Jover R, Zapater P, Polanía E, Bujanda L, Lanas A, Hermo JA, Cubiella J, Ono A, González-Méndez Y, Peris A, Pellisé M, Seoane A, Herreros-de-Tejada A, Ponce M, Marín-Gabriel JC, Chaparro M, Cacho G, Fernández-Díez S, Arenas J, Sopeña F, de-Castro L, Vega-Villaamil P, Rodríguez-Soler M, Carballo F, Salas D, Morillas JD, Andreu M, Quintero E, Castells A; COLONPREV study investigators. Modifiable endoscopic factors that influence the adenoma detection rate in colorectal cancer screening colonoscopies. *Gastrointest Endosc* 2013;77(3):381-389.e1.
- Fernández-Rozadilla C, Palles C, Carvajal-Carmona L, Peterlongo P, Nici C, Veneroni S, Pinheiro M, Teixeira MR, Moreno V, Lamas MJ, Baiget M, López JL, González D, Brea-Fernández A, Clofent J, Bujanda L, Bessa X, Andreu M, Xicola RM, Llor X, Jover R, Castells A, Castellví-Bel S, Carracedo A, Tomlinson I, Ruiz-Ponte C, The EPICOLON Consortium. BMP2/BMP4 colorectal cancer susceptibility

loci in Northern and Southern European populations. *Carcinogenesis* 2013;34(2):314-318.

- Moreira L, Pellisé M, Carballal S, Bessa X, Ocaña T, Serradesanferm A, Grau J, Macià F, Andreu M, Castells A, Balaguer F; PROCOLON research group. High prevalence of serrated polyposis syndrome in FIT-based colorectal cancer screening programmes. *Gut* 2013;62(3):476-7.
- Dunlop MG, Tenesa A, Farrington SM, Ballereau S, Brewster DH, Koessler T, Pharoah P, Schafmayer C, Hampe J, Völzke H, Chang-Claude J, Hoffmeister M, Brenner H, von Holst S, Picelli S, Lindblom A, Jenkins MA, Hopper JL, Casey G, Duggan D, Newcomb PA, Abulí A, Bessa X, Ruiz-Ponte C, Castellví-Bel S, Niittymäki I, Tuupanen S, Karhu A, Aaltonen L, Zanke B, Hudson T, Gallinger S, Barclay E, Martín L, Gorman M, Carvajal-Carmona L, Walther A, Kerr D, Lubbe S, Broderick P, Chandler I, Pittman A, Penegar S, Campbell H, Tomlinson I, Houlston RS. Cumulative impact of common genetic variants and other risk factors on colorectal cancer risk in 42,103 individuals. *Gut* 2013;62(6):871-81.

Ongoing Research Projects

- Identificación de marcadores epigenéticos de progresión en una cohorte prospectiva de pacientes con cáncer colorrectal (CCR)
 - > Fondo de Investigación Sanitaria. ISCIII. FIS: PI 12/01177
 - > Principal researcher: Bessa Caserras, Xavier
- Variantes genéticas de susceptibilidad del CCR. Utilidad en un programa de cribado. Estudio de asociación caso-control.
 - > Fondo de Investigación Sanitaria. ISCIII. FSI: PI 10/00918
 - > Principal researcher: Andreu García, Montserrat

Clinical Trials Signed in 2013

- Phase II studies: 4 (2012/4934, 2012/4933, 2013/4992, 2013/4993)
- Phase III studies: 1 (2013/5181)
- Observational studies: 2 (2012/4699/I, 2013/5085)

Other

- Dr. Montserrat Andreu participated as external reviewer of the clinical practice guideline: quality in colonoscopy for colorectal cancer queried, AEG-SEED Work Group (Spanish Association of Gastroenterology (AEG) and Spanish Society of Digestive Endoscopy (SEED)). Editorial EDIMSA. Also in the preparation of the Functional Plan: Programme for the Early Detection of Colorectal Cancer: Barcelona Esquerra and Litoral Mar areas. Ergon, 2010.

Translational Research in Hematologic Neoplasms

RESEARCH GROUP



**Coordinator**

Lourdes Florensa Brichs

Members

Daniel Acemel Ballesteros
Leonor Arenillas Rocha
Carles Barranco Sanz
Gonzalo Blanco Ares
Sergi Clavé Safont
Beatriz Costán Medina
Blanca Espinet Solà
Ana Ferrer del Álamo
Fernando Gallardo Hernández
Belén Lloveras Rubio
Carme Pedro Olivé
Anna Puiggros Metje
María Rodríguez Rivera
Marta Salido Galeote
Agustí Toll Abelló

The Translational Research in Hematologic Neoplasms Group (GRETNHE) is a member group of the Cancer Programme of the Hospital del Mar Medical Research Institute (IMIM). The GRETNHE is a multidisciplinary group with different research areas. Among them, the most important are myelodysplastic syndromes (MDS), myeloproliferative neoplasms / myelodysplastic syndromes (NMP / MDS), chronic lymphocytic leukemia (CLL), mantle cell lymphoma / monoclonal B-cell lymphocytosis with cyclin D1-positive (LCM/MALD1), splenic marginal zone lymphomas (LZME) and cutaneous lymphomas (CL). Our aim is the phenotypic, cytogenetic, and molecular characterization of these entities.

Main Publications 2013

- Puiggros A, Delgado J, Rodríguez-Vicente A, Collado R, Aventín A, Luño E, Grau J, Hernández JA, Marugan I, Ardanaz M, González T, Valiente A, Osma M, Calasanz MJ, Sanzo C, Carrió A, Ortega M, Santacruz R, Abrisqueta P, Abella E, Bosch F, Carbonell F, Solé F, Hernández JM, Espinet B, Grupo Cooperativo Español de Citogenética Hematológica (GCECGH) and Grupo Español de Leucemia Linfática Crónica (GELLC). Biallelic losses of 13q do not confer a poorer outcome in chronic lymphocytic leukaemia: analysis of 627 patients with isolated 13q deletion. *Br J Haematol* 2013;163(1):47-54.
- Espinet B, Salgado R. Mycosis fungoides and sézary syndrome. In: Banerjee D, Shah SP, eds. *Array Comparative Genomic Hybridization: Protocols and Applications*.
- Ademà V, Hernández JM, Abáigar M, Lumbreiras E, Such E, Calull A, Domínguez E, Arenillas L, Mallo M, Cervera J, Marugan I, Tormo M, García F, González T, Luño E, Sanzo C, Martín ML, Fernández M, Costa D, Blázquez B, Barreña B, Marco F, Batlle A, Buño I, Martínez-Laperche C, Noriega V, Collado R, Ivars D, Carbonell F, Vallcorba I, Melero J, Delgado E, Vargas MT, Grau J, Salido M, Espinet B, Melero C, Florensa L, Pedro C, Solé F. Application of FISH 7q in MDS patients without monosomy 7 or 7q deletion by conventional G-banding cytogenetics: Does -7/7q- detection by FISH have prognostic value? *Leuk Res* 2013;37(4):416-421.
- Puiggros A, Puigdecanet E, Salido M, Ferrer A, Abella E, Gimeno E, Nonell L, Herranz MJ, Galvan AB, Rodríguez-Rivera M, Melero C, Navarro R, Pairet S, Bellosillo B, Serrano S, Florensa L, Solé F, Espinet B. Genomic arrays in chronic lymphocytic leukemia routine clinical practice: are we ready to substitute conventional cytogenetics and fluorescence in situ hybridization techniques? *Leukemia Lymphoma* 2013;54(5):986-995.
- Arenillas L, Mallo M, Ramos F, Quinta K, Barragán E, Lumbreiras E, Larrayoz MJ, de Paz R, Tormo M, Abáigar M, Pedro C, Cervera J, Such E, Calasanz MJ, Diez-Campelo M, Sanz GF, Hernández JM, Luño E, Saumell S, Maciejewski JP, Florensa L, Solé F. Single nucleotide polymorphism array karyotyping: A diagnostic and prognostic tool in myelodysplastic syndromes with unsuccessful conventional cytogenetic testing. *Genes Chromosome Canc* 2013;52(12):1167-1177.

- Mallo M, del Rey M, Ibáñez M, Calasanz MJ, Arenillas L, Larrayoz MJ, Pedro C, Jerez A, Maciejewski JP, Costa D, Nomdedeu M, Díez-Campelo M, Lumbreras E, González-Martínez T, Marugan I, Such E, Cervera J, Cigudosa JC, Álvarez S, Florensa L, Hernández JM, Solé F. Response to lenalidomide in myelodysplastic syndromes with del(5q): influence of cytogenetics and mutations. *Br J Haematol* 2013;162(1):74-86.
- Senent L, Arenillas L, Luño E, Ruiz JC, Sanz G, Florensa L. Reproducibility of the World Health Organization 2008 criteria for myelodysplastic syndromes. *Haematologica* 2013;98(4):568-575.
- Broseus J, Alpermann T, Wulfert M, Florensa L, Jeromin S, Lippert E, Rozman M, Lifermann F, Grossmann V, Haferlach T, Germing U, Luño E, Girodon F, Schnittger S, and for the MPN and MPNr-EuroNet (COST Action BM0902). Age, JAK2(V617F) and SF₃B1 mutations are the main predicting factors for survival in refractory anaemia with ring sideroblasts and marked thrombocytosis. *Leukemia* 2013;27(9):1826-1831.
- Valera A, López-Guillermo A, Cardesa-Salzmann T, Climent F, González-Barca E, Mercadal S, Espinosa I, Novelli S, Briones J, Mate JL, Salamero O, Sancho JM, Arenillas L, Serrano S, Erill N, Martínez D, Castillo P, Rovira J, Martínez A, Campo E, Colomo L, Grup per l'Estudi dels Limfomes de Catalunya i Balears (GELCAB). MYC protein expression and genetic alterations have prognostic impact in diffuse large B-cell lymphoma treated with immunochemotherapy. *Haematologica* 2013;98(10):1554-1562.
- Such E, Germing U, Malcovati L, Cervera J, Kuendgen A, Della Porta MG, Nomdedeu B, Arenillas L, Luño E, Xicoy B, Amigo ML, Valcárcel D, Nachtkamp K, Ambaglio I, Hildebrandt B, Lorenzo I, Cazzola M, Sanz G. Development and validation of a prognostic scoring system for patients with chronic myelomonocytic leukemia. *Blood* 2013;121(15):3005-3015.

Ongoing Research Projects 2013

- Caracterización biológica de los linfocitos B, linfocitos T y células NK en la linfocitosis B monoclonal de fenotipo LLC
-> Fondo de Investigación Sanitaria. ISCIII
-> Principal researcher: Espinet Solà, Blanca
- Caracterización del linfoma/leucemia esplénico de células B, no clasificable (linfoma esplénico de células B pequeñas con infiltración difusa de la pulpa roja y tricoleucemia variante)

- > Fondo de Investigación Sanitaria. ISCIII
- > Principal researcher: Ferrer del Álamo, Ana
- Estudio comparativo del perfil genómico y de expresión en carcinomas escamosos cutáneos invasivos e intraepiteliales
 - > Fondo de Investigación Sanitaria. ISCIII
 - > Principal researcher: Toll Abelló, Agustí

Group's Recognition

- SGR recognizing groups: Grup de Recerca Traslacional en neoplàsies hematològiques (GRETNHE).
2009 SGR 541
 - > Principal researcher: Florensa Brichs, Lourdes

Clinical Trials Signed in 2013

- Phase I b studies: 1 (2012/4968)
- Post-authorization studies: 1 (2013/5323)

Other

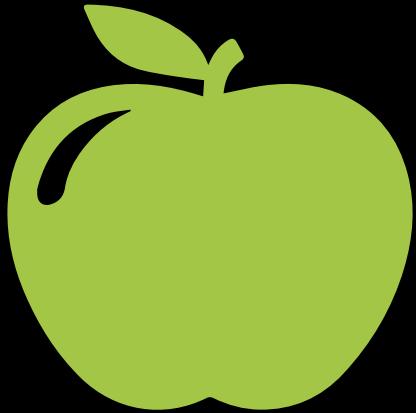
- Lourdes Florensa. Organization of the 37th Diada Internacional of the Societat Catalana d'Hematologia i Hemoteràpia 2013. Update in Myelodysplastic Syndromes.
- Eulàlia Puigdecanet. Award of the Institut d'Estudis Catalans de Bioquímica i Ciències Fisiològiques August Pi i

Sunyer, Premis Sant Jordi 2013, to the thesis "Anàlisi de l'expressió gènica en la trombocitèmia essencial. Relació amb la Policitèmia Vera", directed by Lourdes Florensa i Blanca Espinet.

► Clinical Guidelines

- Ros Hastings, Rod Howell, David Betts, Sarah Porter, Claudia Haferlach, Nicole Dastugue, Isabelle Radford-Weiss, H. Berna Beverloo, Annet Simons, Clemens Mellink, Simone Snijder, Eva Van Den Berg-De Ruiter, Jacqueline Schoumans, Blanca Espinet Solà, Reiner Siebert, Jerome Couturier, Alain Bernheim, Francesc Solé, Isabelle Luquet, Sabine Stioui, Simone Cavani. Guidelines and Quality Assurance for Acquired Disorders. A common European framework for quality assessment for banded chromosome studies and molecular cytogenetic investigations of acquired abnormalities. ECA PWG for Cytogenetics and Society. ECA Newsletter 2013;31:7-21.
- Florensa L, Arenillas L, Senent L, Vallespí T, Álvarez S, Ballesteros M, Calasanz MJ, Cervera J, Cigudosa J, Díez Campelo M, García Talavera J, Grau J, Lemes A, López L, Luño E, Millá F, Navarro B, Nomdedéu J, Ortuño J, Saumell S, Solé F, Such E, Vicente AI, Zamora L, Bonanad S, Sanz

G. Valcárcel D, Xicoy. Diagnóstico de los síndromes mielodisplásicos. Guías españolas de diagnóstico y tratamiento de los síndromes mielodisplásicos y la leucemia mielomonocítica crónica. Grupo Español de Síndromes Mielodisplásicos. Sociedad Española de Hematología y Hemoterapia. September 2013. Ed. Marketing Farmacéutico e Investigación Clínica.



PROGRAMME

Epidemiology and Public Health

The programme is made up of those research groups:

Clinical and Molecular Epidemiology of Cancer

Miquel Porta

Drug Abuse Epidemiology

Antònia Domingo

Epidemiology and Evaluation

Maria Sala

Health Services

Jordi Alonso

The programme associated groups are:

Occupational and Environmental Epidemiology

Manolis Kogevinas

Respiratory health, Air Pollution, Childhood Development

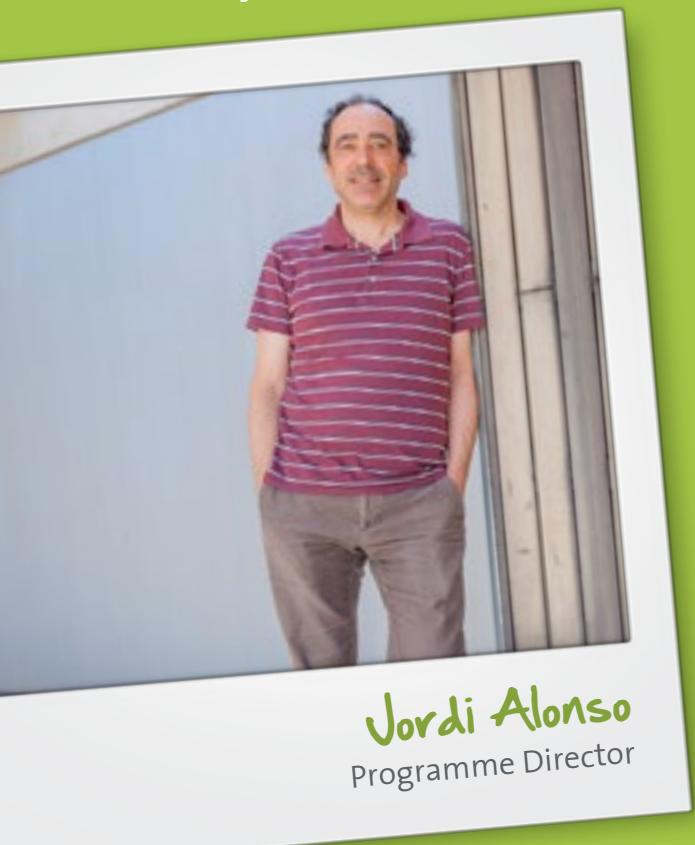
Jordi Sunyer

Social Epidemiology and Occupational Health

Fernando G. Benavides

The Epidemiology and Public Health Programme (EPISAP) includes seven research groups from the Hospital del Mar Medical Research Institute (IMIM), the Research Centre for Environmental Epidemiology (CREAL), and the Pompeu Fabra University (UPF).

EPISAP researchers apply advanced epidemiological approaches for a better understanding of: a) the frequency and burden of disease; b) the major risk



Jordi Alonso
Programme Director

factors and underpinning mechanisms; and c) the role of health services and interventions, and their impact on the health outcomes of individual and populations.

EPISAP carries out translational research and innovation and our researchers actively participate as experts in different community activities, including expert committees and advising health system institutions and organizations. Researchers of the programme have a longstanding research career with international recognition and have established solid relationships with Parc de Salut Mar and other national and international research institutions.

Teaching in graduate and postgraduate programmes in epidemiology and public health is a very important activity for EPISAP, many of whose researchers are faculty members of the Pompeu Fabra University (UPF) or the Autonomous University of Barcelona (UAB).



Research lines 2013

- Clinical and molecular epidemiology of exocrine pancreatic cancer, chronic pancreatitis and cancer of the extrahepatic biliary system.
- Monitoring “Symptom to Treatment Interval” (STI) and its impact on cancer survival.
- Health effects of Persistent Organic Pollutants and other environmental agents.
- Prevalence evolution of substance use, including alcohol, in the general population, with a labor perspective.
- Tools to estimate the prevalence of consumption of various substances.
- Drug users’ characteristics, with special attention to aspects related to the market (supply) of illegal substances.
- Quality, effectiveness, and costs of breast and colon cancer screening programs.
- Tools and methods for improving health services research, including simulation models for discrete event analysis.
- Information systems for assessment of costs per patient and risk adjustment.
- Methodology of measuring perceived health outcomes and Health-Related Quality of Life (HRQL).
- Size and determinants of the burden of mental disorders.
- Effectiveness and costs of health interventions in prostate cancer, asthma, and mental disorders.
- Environmental and occupational exposures, and genetic factors related to cancer, respiratory disease and child health. Environmental exposures include: radiation (smartphones, UV, ionizing), water pollutants (disinfection by-products in drinking water and swimming pools), air pollution, transport and green spaces in urban areas, hormonal disruption, lifestyle (diet, passive smoking). Occupational exposures include: cleaning workers and shift-work and circadian cycle disruption.
- Application of new technologies and analyses to environmental and occupational exposures: smartphones; exposome, biomarkers, genomics, epigenetics, metabolomics; and complex statistics and bioinformatics methods.
- Role of pre- and post-natal life periods in the origins of chronic diseases, such as obesity, metabolic syndrome, cognitive development, and the origins of asthma and allergy.

- Epidemiological studies and methods for understanding the early life origins of neurodevelopment, obesity and metabolic syndrome, and allergy and asthma.
- Work-related illnesses, workplace injuries, and sickness absence, prognosis (duration) and return to work, especially due to musculoskeletal and mental disorders.
- Quality and effectiveness of occupational health and risk prevention policies developed by governments and insurance companies.
- Occupational health information systems.
- Occupational health inequalities, with a particular focus on workers born in countries outside the EU.

Objectives Achieved in 2013

► Scientific Goals

- During 2013, researchers of the programme have published a total of 216 papers in scientific journals, 1 book, and 13 book chapters, in addition to numerous reports, conferences and public presentations.

- The relationship of work-related stress factors or loss of employment with substance use by gender in the context of economic recession has been studied.
- The burden of common mental disorders, including assessment of functional disability and physical comorbidity has been assessed in 24 countries (WMH Surveys).
- Two instruments for simultaneous diagnostic and severity assessment of depressive and anxiety disorders have been developed and evaluated (INSAyD project).
- A theoretical evaluation of new personalized population strategies for early detection of breast cancer based on the previous results of benefits and adverse effects has been completed by researchers in our programme.
- We have performed an adjustment of a cost of inpatient function to determine the impact of non-quality components in the cost of hospital care.
- The Spanish Multicentre Study of Clinically Localized Prostate Cancer has provided novel long-term valuable information for clinical decision-making, supporting brachytherapy.



- The integration of imaging together with the ‘exposome’ in epidemiological studies has opened up new opportunities for understanding which and how environmental risks play a detrimental role on neurodevelopment during the foetal stage and the first years of life, an effort promoted by the ERC-Adv Breathe project (PI: J Sunyer).
- Programme researchers have continued leading a large number of international projects (PHENOTYPE, GERONIMO, MOBI-KIDS, INTEROCC) and playing a key role in several EU funded projects (including EPI-CT, EXPOSOMICS, HELIX and AstroLab).

► **Technological & Translational Goals**

- BiblioPRO, the online library of reference for Patient Reported Outcomes (PRO) in Spanish, has reached 3,000 monthly visits and 3,500 new users during 2013.
- Members of the programme participated in several national and international expert committees, such as the IARC Monographs on the Evaluation of Carcinogenic Risks to Humans, and are members of the editorial boards of journals such as Environmental Health Perspectives and Occupational Environmental Medicine.

- Programme researchers have maintained close collaboration with numerous groups in the areas of epidemiology, exposure assessment and laboratory work in Spain (CIBERESP, CSIC, CRG, ISCIII, CNIO) and internationally (NCI, USA; INSERM, France; Imperial College, London; IRAS, Utrecht; Harvard University, Northwestern University, USA; TRIMBOS Institute, the Netherlands; University of Amsterdam; University of Lyon 1, France; KREFT Registeret - Institut for populasjons-basert kreftforskning, Norway; University of Copenhagen, Denmark).
- Programme researchers have had a significant impact in the mass media (press, TV, radio, online publications) and the programme features active community outreach activity involving regular school visits and frequent participation in open activities in the community.
- A platform to study working conditions and major health risks for workers who are exposed was developed from databases of the Social Security workforce (“Continuous Work History Sample”).
- A number of large national and international databases – including the

Working Conditions and Health Survey (Spain), the Spanish Network of Hospital Costs (RECH), one of the largest cohorts of screened women (CAMISS), the Central American institutions (SALTRA, Argentina), The Multi Case-Control study (CIBERESP, Spain), the Spanish household survey on alcohol and drugs (EDADES-Spain) and the World Mental Health (WMH) surveys (29 countries worldwide) – were managed and analysed by researchers of the programme to answer research questions.

- Multi Case-Control study (CIBERESP, Spain), the Spanish household survey on alcohol and drugs EDADES-Spain, and the World Mental Health (WMH) surveys (29 countries worldwide).

► Educational Goals

- Six doctoral theses were successfully defended by students mentored by programme researchers during 2013.
- A number of educational programmes and official degree courses have been led by programme researchers.
 - Postgraduate programmes: Master in Public Health (120 ECTS) with two specialties: research and professional; MSc in Occupational

Health and Safety (60 ECTS), offered online since the 2013-14 academic year, with three specialties: Practitioner in Occupational Health; Occupational Risks Prevention and Occupational Health Research; and Postgraduate Diploma in Public Health (30 ECTS).

- Graduate courses: Health System; Epidemiology; Community Health; Health Management; Preventive Medicine and Public Health (Medicine), among many others.
- The programme has continued actively participating in the Medical Specialties Residency Programme, as part of the educational units for the medical specialties of Preventive Medicine & Public Health, and Occupational Medicine.

Clinical and Molecular Epidemiology of Cancer

RESEARCH GROUP





Coordinator

Miquel Porta Serra

Members

Immaculada Collet Diví
Magda Gasull Panadès
Tomás López Jiménez
José Antonio Pumarega Rodríguez
Yolanda Rovira Pons

Cancer is a complex set of processes that result from the interaction of genetic, clinical, and environmental factors, with “environmental” including the physical environment, as well as the public health, cultural, economic, and political environments. Thus, integrative studies on the causes of cancer are a natural meeting point between molecular biology and epidemiology. Our aim is to achieve an optimal integration of professional cultures, scientific knowledge, methodologies and techniques from public health, clinical medicine, and the biological sciences. Our team has worked across several disciplines for more than a decade, and is one of the pioneering, leading groups in Spain on clinical and molecular epidemiology.



Main Publications 2013

- Arrebola JP, Pumarega JA, Gasull M, Fernández MF, Martín-Olmedo P, Molina-Molina JM, Fernández-Rodríguez M, Porta M, Olea N. Adipose tissue concentrations of persistent organic pollutants and prevalence of type 2 diabetes in adults from Southern Spain. *Environ Res* 2013;122:31-37.
- Gasull M, Pumarega JA, Rovira G, López T, Alguacil J, Porta M. Relative effects of educational level and occupational social class on body concentrations of persistent organic pollutants in a representative sample of the general population of Catalonia, Spain. *Environ Int* 2013;60:190-201.
- Kelly RS, Lundh T, Porta M, Bergdahl IA, Palli D, Johansson AS, Botsivali M, Vineis P, Vermeulen R, Kyrtopoulos S, Chadeau-Hyam M, on behalf of the EnviroGenoMarkers project consortium. Blood Erythrocyte Concentrations of Cadmium and Lead and the Risk of B-Cell Non-Hodgkin's Lymphoma and Multiple Myeloma: A Nested Case-Control Study. *PLoS ONE* 2013;8(11):e81892.
- Llop S, Porta M, Martínez MD, Aguinagalde X, Fernández MF, Fernández-Somoano A, Casas M, Vrijheid M, Ayerdi M, Tardón A, Ballester F. Estudio de la evolución de la exposición a plomo en la población infantil española en los últimos 20 años. ¿Un ejemplo no reconocido de «salud en todas las políticas»?. *Gac Sanit* 2013;27(2):149-155.
- Macià F, Pumarega JA, Gallén M, Porta M. Time from (clinical or certainty) diagnosis to treatment onset in cancer patients: the choice of diagnostic date strongly influences differences in therapeutic delay by tumor site and stage. *J Clin Epidemiol* 2013;66(8):928-939.
- Parker LA, Gómez-Saez N, Porta M, Hernández-Aguado I, Lumbreiras B. The impact of including different study designs in meta-analyses of diagnostic accuracy studies. *Eur J Epidemiol* 2013;28(9):713-720.
- Porta M, Vandebroucke JP, Ioannidis JPA, Sanz S, Fernández E, Bhopal R, Morabia A, Victora C, López T. Trends in Citations to Books on Epidemiological and Statistical Methods in the Biomedical Literature. *PLoS ONE* 2013;8(5):e61837.
- Espina C, Porta M, Schüz J, Hernández-Aguado I, Percival RV, Dora C, Slevin T, Rodríguez-Guzman J, Meredith T, Landrigan PJ, Neira M. Environmental and Occupational Interventions for Primary Prevention of Cancer: A Cross-Sectorial Policy Framework. *Environ Health Perspect* 2013;121(4):420-426.
- Gore AC, Balthazart J, Bikle D, Carpenter DO, Crews D, Czernichow P, Diamanti-

Kandarakis E, Dores RM, Grattan D, Hof PR, Hollenberg AN, Lange C, Lee AV, Levine JE, Millar RP, Nelson RJ, Porta M, Poth M, Power DM, Prins GS, Ridgway EC, Rissman EF, Romijn JA, Sawchenko PE, Sly PD, Söder O, Taylor HS, Tena-Sempere M, Vaudry H, Wallen K, Wang Z, Wartofsky L, Watson CS. Policy Decisions on Endocrine Disruptors Should be Based on Science Across Disciplines: A Response to Dietrich et al. *Andrology* 2013;1(6):802-805.

• Gore AC, Balthazart J, Bikle D, Carpenter DO, Crews D, Czernichow P, Diamanti-Kandarakis E, Dores RM, Grattan D, Hof PR, Hollenberg AN, Lange C, Lee AV, Levine JE, Millar RP, Nelson RJ, Porta M, Poth M, Power DM, Prins GS, Ridgway EC, Rissman EF, Romijn JA, Sawchenko PE, Sly PD, Söder O, Taylor HS, Tena-Sempere M, Vaudry H, Wallen K, Wang Z, Wartofsky L, Watson CS. Policy Decisions on Endocrine Disruptors Should Be Based on Science Across Disciplines: A Response to Dietrich et al. (Editorial). *Endocrinology* 2013;154(11):3957-3960.

• Gore AC, Balthazart J, Bikle D, Carpenter DO, Crews D, Czernichow P, Diamanti-Kandarakis E, Dores RM, Grattan D, Hof PR, Hollenberg AN, Lange C, Lee AV, Levine JE, Millar RP, Nelson RJ, Porta M, Poth M, Power DM, Prins GS, Ridgway EC, Rissman EF, Romijn JA, Sawchenko PE, Sly PD, Söder O, Taylor HS, Tena-Sempere M, Vaudry H, Wallen K, Wang Z, Wartofsky L,

Watson CS. Policy Decisions on Endocrine Disruptors Should Be Based on Science Across Disciplines: A Response to Dietrich et al. (Editorial). *Horm Res Paediatr* 2013;80(5):305-308.

• Gore AC, Balthazart J, Bikle D, Carpenter DO, Crews D, Czernichow P, Diamanti-Kandarakis E, Dores RM, Grattan D, Hof PR, Hollenberg AN, Lange C, Lee AV, Levine JE, Millar RP, Nelson RJ, Porta M, Poth M, Power DM, Prins GS, Ridgway EC, Rissman EF, Romijn JA, Sawchenko PE, Sly PD, Söder O, Taylor HS, Tena-Sempere M, Vaudry H, Wallen K, Wang Z, Wartofsky L, Watson CS. Policy Decisions on Endocrine Disruptors Should Be Based on Science Across Disciplines: A Response to Dietrich et al. (Editorial). *Eur J Endocrinol* 2013;169(6):e1-e4.

Participation in Research Networks

- CIBERESP: Epidemiología y salud pública
 > Fondo de Investigación Sanitaria. ISCIII. 4855 CBo6/o2/0034
 > Principal researcher: Porta Serra, Miquel

Group's Recognition

- SGR recognizing groups: Grup de Recerca en Epidemiologia Clínica & Molecular del Càncer. 2009 SGR 1350
 > Principal researcher: Porta Serra, Miquel

Drug Abuse Epidemiology

RESEARCH GROUP





Coordinator

Antònia Domingo Salvany

Members

Elisabet Arribas Ibáñez
Esther Colell Ortega
Yolanda Rovira Pons
Albert Sánchez Niubó

This group carries out studies to assess the scale of drug consumption in the population, as well as contributing to the study of its consequences and the suitability of treatments used. The objectives of the group are to contribute to knowledge regarding the extent and impact of this health problem, to assist in the implementation of suitable healthcare initiatives, and to study in greater depth drug users' characteristics related to crime and violence and their relation to the illegal market.



Main Publications 2013

- Sánchez-Niubó A, Sordo L, Fortiana J, Brugal MT, Domingo-Salvany A. Incidence Trends of Cannabis and Cocaine Use from Periodic Spanish General Population Surveys: effect of standardizing results by age structure. *Addiction* 2013;108(8):1450-1458.
- Chahua M, Sordo L, Barrio G, Domingo-Salvany A, Brugal MT, Molist G, de la Fuente L, Bravo MJ, and ITINERE Project Group. Non-Fatal Opioid Overdose and Major Depression among Street-Recruited Young Heroin Users. *Eur Addict Res* 2013;20(1):1-7.
- Colell E, Sánchez-Niubó A, Domingo-Salvany A. Sex differences in the cumulative incidence of substance use by birth cohort. *Int J Drug Policy* 2013;24(4):319-325.
- Sánchez-Niubó A, Aalen OO, Domingo-Salvany A, Amundsen EJ, Fortiana J, Roysland K. A multi-state model to estimate incidence of heroin use. *BMC Med Res Method* 2013;13(1):4.
- Thanki D, Domingo-Salvany A, Barrio G, Sánchez-Mañez A, Llorens N, Suelves JM, Brime B, Vicente J. The Choice of Screening Instrument Matters: The Case of Problematic Cannabis Use Screening in

Spanish Population of Adolescents. ISRN Addiction 2013;2013:Article ID 723131.

- Benavides FG, Ruiz-Fores N, Delclòs J, Domingo-Salvany A. Consumo de alcohol y otras drogas en el medio laboral en España. *Gac Sanit* 2013;27(3):248-253.
- Cuenca A, Torrens M, Sánchez-Niubó A, Suelves JM, Domingo-Salvany A. Comorbilidad psiquiátrica en jóvenes-adultos consumidores de cannabis. *Adicciones* 2013;25(1):45-54.
- Domingo-Salvany A, Colell E, Sánchez-Niubó A, Benavides FG. Exploración y validación de las preguntas relacionadas con las condiciones de empleo y trabajo incluidas en la Encuesta Domiciliaria sobre Alcohol y Drogas en España (EDADES). *Arch Prev Riesgos Labor* 2013;16(3):130-135.
- Torrens M, Fonseca F, Castillo C, Domingo-Salvany A. Methadone maintenance treatment in Spain: the success of a harm reduction approach. *B World Health Organ* 2013;91:136-141.
- Domingo-Salvany A, Bacigalupe A, Carrasco JM, Espelt A, Ferrando J, Borrell C, del Grupo de Determinantes Sociales de la Sociedad Española de Epidemiología. Propuestas de clase social neoweberiana y neomarxista a partir de

la Clasificación Nacional de Ocupaciones
2011. Gac Sanit 2013;27(3):263-272.

Ongoing Research Projects 2013

- Análisis de la encuesta a población general EDADES bajo una perspectiva de salud laboral
 - > Ministerio de Sanidad y Política Social
 - > Principal researcher: Domingo Salvany, Antònia
- Desarrollo de herramientas metodológicas para la evaluación de programas y políticas en el campo de las drogodependencias
 - > Fondo de Investigación Sanitaria. ISCIII
 - > Principal researcher: Domingo Salvany, Antònia

Epidemiology and Evaluation

RESEARCH GROUP



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Members

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Esther Martínez Amor

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Isabel Torà Rocamora

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Epidemiology and Public Health

Epidemiology and Evaluation

This is a group with multidisciplinary training (epidemiology, health economics, statistics and nursing) which has carried out research activity in the field of health services research (HSR), specifically in the evaluation of the effectiveness and costs of health services and interventions; the assessment of the needs and use of health services; and the development of instruments for HSR. Current research lines are centred mainly on the evaluation of the healthcare process in cancer patients and the process's impact on survival.

Main Publications 2013

- Macià F, Pumarega JA, Gallén M, Porta M. Time from (clinical or certainty) diagnosis to treatment onset in cancer patients: the choice of diagnostic date strongly influences differences in therapeutic delay by tumor site and stage. *J Clin Epidemiol* 2013;66(8):928-939.
- Román M, Hubbard R, Sebuodegard S, Miglioretti DL, Castells X, Hofvind S. The cumulative risk of false-positive results in the Norwegian Breast Cancer Screening Program: Updated results. *Cancer* 2013;119(22):3952-3958.
- Blanch J, Sala M, Román M, Ederra M, Salas D, Zubizarreta R, Sánchez M, Rué M, Castells X, CFPR group (...Burón A, Domingo L, Macià F,...). Cumulative risk of cancer detection in breast cancer screening by protocol strategy. *Breast Cancer Res Tr* 2013;138(3):869-877.
- Román M, Rué M, Sala M, Ascunce N, Baré M, Baroja A, De La Vega M, Galceran J, Natal C, Salas D, Sánchez-Jacob M, Zubizarreta R, Castells X, the Cumulative False Positive Risk Group (...Blanch J, Romero A,...). Trends in detection of invasive cancer and ductal carcinoma in situ at biennial screening mammography in Spain: a retrospective cohort study. *PLoS ONE* 2013;8(12):e83121.
- Domingo L, Blanch J, Servitja S, Corominas JM, Murta-Nascimento C, Rueda A, Redondo M, Castells X, Sala M. Aggressiveness features and outcomes of true interval cancers: comparison between screen-detected and symptom-detected cancers. *Eur J Cancer Prev* 2013;22(1):21-28.
- Domingo L, Jacobson KK, von Euler-Chelpin M, Vejborg I, Schatz W, Sala M, Lynge E. Seventeen-years overview of breast cancer inside and outside screening in Denmark. *Acta Oncol* 2013;52(1):48-56.
- Hoffmeister L, Lavados PM, Comas M, Vidal C, Cabello R, Castells X. Performance measures for in-hospital care of acute ischemic stroke in public hospitals in Chile. *BMC Neurol* 2013;13:23.
- Castells X, Román M, Romero A, Blanch J, Zubizarreta R, Ascunce N, Salas D, Burón A, Sala M, the Cumulative False Positive Risk Group. Breast cancer detection risk in screening mammography after a false-positive result. *Cancer Epidemiol* 2013;37(1):85-90.
- Domingo L, Romero A, Blanch J, Salas D, Sánchez M, Rodríguez-Arana AM, Ferrer J, Ibáñez J, Vega A, Laso MS, Castells X, Sala M. Clinical and radiological features



of breast tumors according to history of false-positive results in mammography screening. *Cancer Epidemiol* 2013;37(5):660-665.

- Buron A, Vernet MM, Román M, Checa MA, Pérez JM, Sala M, Comas M, Murta-Nascimento C, Castells X, Macià F. Can the Gail model increase the predictive value of a positive mammogram in a European population screening setting? Results from a Spanish cohort. *Breast* 2013;22(1):83-88.
- Busse R, Geissler A, Aaviksoo A, Cots F, Häkkinen U, Kobel C, Mateus C, Or Z, O'Reilly J, Serden L, Street A, Tan SS, Quentin W. Diagnosis related groups in Europe: moving towards transparency, efficiency, and quality in hospitals? *BMJ* 2013;346:f3197.

Ongoing Research Projects 2013

- Efecto del cáncer de intervalo y del proceso cribado en la supervivencia y periodo libre de enfermedad en cáncer de mama
 - > Fondo de Investigación Sanitaria. ISCIII
 - > Principal researcher: Sala Serra, Maria
- El coste de los eventos adversos en los hospitales del Sistema Nacional de

Salud. Proyecto CoNoCE (Costes de la No Calidad en España)

- > Fondo de Investigación Sanitaria. ISCIII
- > Principal researcher: Cots Reguant, Francesc

- Proyecto ESSCAM: Determinantes, evolución y características biológicas del cáncer de mama detectado en una cohorte de mujeres cribadas
 - > Fondo de Investigación Sanitaria. ISCIII
 - > Principal researcher: Castells Oliveres, Xavier
- Estimación de los recursos necesarios para iniciar un programa poblacional de cribado de cáncer colorectal
 - > Fundación Mutua Madrileña
 - > Principal researcher: Comas Serrano, Mercè
- Demora diagnóstica y estrategias de seguimiento en el cáncer colorrectal: su influencia en el pronóstico
 - > Fondo de Investigación Sanitaria. ISCIII
 - > Principal researcher: Macià Guilà, Francesc Assís
- Evaluación de la tasa de cáncer de intervalo y sus determinantes en los programas de detección precoz del cáncer de mama
 - > Fondo de Investigación Sanitaria. ISCIII
 - > Principal researcher: Sala Serra, Maria

Participation in Research Networks

- Red de Investigación en Servicios de Salud en Enfermedades Crónicas
 - > Fondo de Investigación Sanitaria. ISCIII.
Subprograma RETICS. 8430RD12/0001/0015
 - > Principal researcher: Sala Serra, Maria
- CIBERESP: Epidemiología y salud pública
 - > Fondo de Investigación Sanitaria. ISCIII. 4855
CBo6/02/0034
 - > Principal researcher: Sala Serra, Maria

Group's Recognition

- SGR recognizing groups: Servei d'Avaluació i Epidemiologia Clínica. 6201
2009 SGR 788
 - > Principal researcher: Castells Oliveres, Xavier

Other

- First prize for Best Scientific Study awarded to: Domingo L, Ferrer J, Baré M, Blanch J, Torà N, Sala M. Densitat mamària en els càncers de mama detectats en el cribatge i en l'interval. V Congrés Nacional de Radiòlegs de Catalunya. Reus, 9-11 May 2013.

Health Services

RESEARCH GROUP





Coordinator

Jordi Alonso Caballero

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Gabriela Barbaglia Navarro
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Roser Busquets Domingo
Pere Castellvi Obiols
Montserrat Ferrer Forés
Olatz Garin Boronat
David John Macfarlane Self
Elena Olariu
Yolanda Pardo Cladellas
Àngels Pont Acuña
Gemma Vilagut Saiz

Our team does research into the measurement of perceived health and on the application of this indicator as an outcome of health services use and of the need for healthcare. Our research focuses on common mental health disorders and cancer. Our team consists of some 20 professionals with different backgrounds such as medicine, statistics, psychology, sociology, and economics, and our mission is to produce scientifically valid and socially significant knowledge on the needs of health services and health outcomes. Besides research, we carry out a number of educational, mentoring and knowledge transfer activities. Our group is part of the CIBER in Epidemiology and Public Health and is recognized by AGAUR.



Main Publications 2013

- Alonso J, Vilagut G, Adroher ND, Chatterji S, He Y, Andrade LH, Bromet E, Bruffaerts R, Fayyad J, Florescu S, de Girolamo G, Gureje O, Haro JM, Hinkov H, Hu Ch, Iwata N, Lee S, Levinson D, Lepine JP, Matschinger H, Medina-Mora ME, O'Neill S, Ormel J, Posada-Villa JA, Ismet Taib N, Xavier M, Kessler RC. Disability mediates the impact of common conditions on perceived health. *PLoS ONE* 2013;8(6):e65858-e65878.
- Alonso J, Chatterji S, He Y (eds). *The Burdens of Mental Disorders: Global Perspectives from the WHO World Mental Health Surveys*. New York: Cambridge University Press;2013. pp: 1-319.
- Ferrer M, Guedea F, Suárez JF, de Paula B, Macías V, Mariño A, Hervás A, Herruzo I, Ortiz MJ, Ponce de León J, Sancho G, Boladeras A, Ayala A, Craven-Bratle J, Ávila M, Cunillera O, Pardo Y, Alonso J, Aguiló F. Quality of Life Impact of Treatments for Localized Prostate Cancer: Cohort Study with a 5 Year Follow-up. *Radiother Oncol* 2013;108(2):306-13.
- Cates CJ, Jaeschke R, Schmidt S, Ferrer M. Regular treatment with formoterol and inhaled steroids for chronic asthma: serious adverse events (Review). *Cochrane Database Syst Rev* 2013;6:CD006924.
- Forero CG, Vilagut G, Duran N, Alonso J. Multidimensional Item Response Theory models yielded good fit and reliable scores for the SF-12 questionnaire. *J Clin Epidemiol* 2013;66(7):790-801.
- Fullana MA, Vilagut G, Mataix-Cols D, Duran-Adroher N, Bruffaerts R, Bunting B, Caldas de Almedia JM, Florescu S, de Girolamo G, de Graaf R, Haro JM, Kovess V, Alonso J. Is ADHD in childhood associated with lifetime hoarding symptoms? An epidemiological study. *Depress Anxiety* 2013;30(8):741-748.
- Garin O, Ferrer M, Pont A, Wiklund I, Van Ganse E, Vilagut G, Almansa J, Ribera A, Alonso J. Evidence on the global measurement model of the Minnesota Living with Heart Failure Questionnaire. *Qual Life Res* 2013;22(10):2675-2684.
- Hollmann M, Garin O, Galante M, Ferrer M, Domínguez A, Alonso J. Impact of Influenza on Health-Related Quality of Life among Confirmed (H1N1)2009 Patients. *PLoS ONE* 2013;8(3):e60477-e60486.
- López MA, Gabilondo A, Codony M, Forero CG, Vilagut G, Castellvi P, Ferrer M, Alonso J. Adaptation into Spanish of

the Warwick-Edinburgh Mental Well-Being Scale (WEMWBS) and preliminary validation in a student sample. *Qual Life Res* 2013;22(5):1099-1104.

- Villalonga-Olives E, García-Forero C, Maydeu-Olivares A, Palacio Vieira JA, Valderas JM, Ferrer M, Rajmil L, Alonso J. Environmental risk and protective factors on adolescents' and youths' mental health. Differences between parent's appraisal and self reports. *Qual Life Res* 2013;22(3):613-622.

Ongoing Research Projects 2013

- Coordinated study on the new version of EuroQol (EQ-5D) for use in Spain. Subproject 1: Evaluation of the metric benefits of the new EQ-5D-5L and reference standards
 - > Instituto de Salud Carlos III. FEDER. Exp. PI12/00772 - 2012-15
 - > Principal researcher: Ferrer Forés, Montserrat
- Assessment of the safety of LABAs in asthma in routine care by combining health-care databases and direct patient follow-up
 - > European Commission Health. F5-2011-282593
 - > Principal researcher: Ferrer Forés, Montserrat
- Assessment of severity based on mood disorders and anxiety symptoms.

Epidemiological and clinical implications for DSM-V

- > Instituto de Salud Carlos III. FEDER. Exp. PI10/00530 - 2011-13
 - > Principal researcher: Alonso Caballero, Jordi
- BiblioPRO: virtual library of Health-Related Quality of Life instruments
 - > RECRECAIXA 2010. ACUP 00158 2011-13
 - > Principal researcher: Alonso Caballero, Jordi
- Cost effectiveness and cost utility of the main treatments for localized prostate cancer: 7-year follow-up study
 - > Agència d'Informació, Avaluació i Qualitat en Salut 436/05/2008 2009-13
 - > Principal researcher: Ferrer Forés, Montserrat

Participation in Research Networks

- CIBERESP: Epidemiología y salud pública
 - > Fondo de Investigación Sanitaria-ISCIII. CBo6/02/0034
 - > Principal researcher: Alonso Caballero, Jordi

Group's Recognition

- SGR recognizing groups: Grup de Recerca en Serveis Sanitaris. 2009 SGR 1095
 - > Principal researcher: Alonso Caballero, Jordi

Occupational and Environmental Epidemiology

ASSOCIATED RESEARCH GROUP





Coordinator

Manolis Kogevinas

Members

Lourdes Arjona Camí
Gemma Castaño Vinyals
Anna Delgado Llobet
Anna Espinosa Morano
Laia Font Ribera
Kyriaki Papantoniou
Cristina Villanueva Belmonte

Our main research focuses on environmental, occupational, and genetic factors in relation to asthma and bladder cancer. Among the main environmental exposures we are currently examining disinfection by-products in drinking water and in swimming pools, both in epidemiological and in mechanistic studies. In recent years, we have also participated on studies in children mainly in relation to environmental exposure.



Main Publications 2013

- Vafeiadi M, Agramunt S, Papadopoulou E, Besselink H, Mathianaki K, Karakosta P, Spanaki A, Koutis A, Chatzi L, Vrijheid M, Kogevinas M. In Utero exposure to dioxins and dioxin-like compounds and distance in newborns and infants. *Environ Health Perspect* 2013;121(1):125-30.
- Perdersen M, Schoket B, Godschalk RW, Wright J, von Stedingk H, Tornqvist M, Sunyer J, Nielsen JK, Merlo DF, Méndez MA, Meltzer HM, Lukacs V, Landstrom A, Kyrtopoulos SA, Kovacs K, Knudsen LE, Haugen M, Hardie LJ, Gutzkow KB, Fleming S, Fthenou E, Farmer PB, Espinosa A, Chatzi L, Brunborg G, Brady NJ, Botsivali M, Arab K, Anna L, Alexander J, Agramunt S, Kleinjans JC, Segerback D, Kogevinas M. Bulky DNA adducts in cord blood, maternal fruit-and-vegetable consumption, and birth weight in a European Mother-Child Study (NewGeneris). *Environ Health Perspect* 2013;121(10):1200-1206.
- Salas LA, Cantor KP, Tardon A, Serra C, Carrato A, Garcia-Closas R, Rothman N, Malats N, Silverman D, Kogevinas M, Villanueva CM. Biological and statistical approach for modeling exposure to specific trihalomethanes and bladder cancer risk. *Am J Epidemiol* 2013;178(4):652-60.
- Balbas-Martínez C, Sagrera A, Carrillo-de-Santa-Pau E, Earl J, Márquez M, Vázquez M, Lapi E, Castro-Giner F, Beltrán S, Bayés M, Carrato A, Cigudosa JC, Dominguez O, Gut M, Herranz J, Juanpere N, Kogevinas M, Langa X, López-Knowles E, Lorente JA, Lloreta J, Pisano DG, Richart L, Rico D, Salgado RN, Tardon A, Chanock S, Heath S, Valencia A, Losada A, Gut I, Malats N, Real FX. Recurrent inactivation of STAG2 in bladder cancer is not associated with aneuploidy. *Nat Genet* 2013;45(12):1464-9. (letter)
- Papadopoulou E, Caspersen IH, Kvalem HE, Knutsen HK, Duarte-Salles T, Alexander J, Meltzer HM, Kogevinas M, Brantsaeter AL, Haugen M. Maternal dietary intake of dioxins and polychlorinated biphenyls and birth size in the Norwegian Mother and Child Cohort Study (MoBa). *Environ Int* 2013;60:209-16.

Respiratory Health, Air Pollution, Childhood Development

ASSOCIATED RESEARCH GROUP





Epidemiology and Public Health

Respiratory Health, Air Pollution, Childhood Development



Coordinator

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Eva Morales Bartolomé

Mariona Pinart Gilberga

Gemma Punyet Ribes

The pre and post-natal periods of life are critical for the origins of chronic diseases, such as obesity, metabolic syndrome, cognitive development, and the origins of asthma and allergy. The major scientific objective of the group is to perform epidemiological studies on the early-life origins of neurodevelopment, obesity and metabolic syndrome and allergy and asthma.

More information at:

www.creal.cat

Main Publications 2013

- Casas M, Chatzi L, Carsin AE, Amiano P, Guxens M, Kogevinas M, Koutra K, Lertxundi N, Murcia M, Rebagliato M, Riano I, Rodríguez-Bernal CL, Roumeliotaki T, Sunyer J, Méndez M, Vrijheid M. Maternal pre-pregnancy overweight and obesity, and child neuropsychological development: two Southern European birth cohort studies. *Int J Epidemiol* 2013;42(2):506-17.
- Rzehak P, Wijga AH, Keil T, Eller E, Bindslev-Jensen C, Smit HA, Weyler J, Dom S, Sunyer J, Méndez M, Torrent M, Vall O, Bauer CP, Berdel D, Schaaf B, Chen CM, Bergstrom A, Fantini MP, Mommers M, Wahn U, Lau S, Heinrich J. Body mass index trajectory classes and incident asthma in childhood: Results from 8 European Birth Cohorts-a Global Allergy and Asthma European Network initiative. *J Allergy Clin Immunol* 2013;131(6):1528-36.
- Aguilera I, Pedersen M, García-Estebaran R, Ballester F, Basterrechea M, Esplugues A, Fernández-Somoano A, Lertxundi A, Tardon A, Sunyer J. Early life exposure to outdoor air pollution and respiratory health, ear infections, and eczema in infants from the INMA Study. *Environ Health Perspect* 2013;121(3):387-92.
- Guxens M, Tiemeier H, Jansen PW, Raat H, Hofman A, Sunyer J, Jaddoe VW. Parental psychological distress during pregnancy and early growth in preschool children: The Generation R Study. *Am J Epidemiol* 2013;177(6):538-47.
- Jílvez J, Álvarez-Pedrerol M, Rebagliato M, Murcia M, Forns J, García-Estebaran R, Lertxundi N, Espada M, Tardon A, Riano Galán I, Sunyer J. Thyroxine levels during pregnancy in healthy women and early child neurodevelopment. *Epidemiology* 2013;24(1):150-7.

Social Epidemiology and Occupational Health

ASSOCIATED RESEARCH GROUP



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Busquets
Sandra Garrido Salmerón

David Gimeno Ruiz de Porras
María Andrée López Gómez
María López Ruiz
José Miguel Martínez Martínez
Pamela Alexandra Merino
Salazar
José María Ramada Rodilla



Consol Serra Pujadas
Mònica Ubalde López
Sergio Vargas Prada Figueroa
Elena Zaballa Lasala

More information at:
CEXS-UPF: <http://www.upf.edu/cisal/>



The Research Center in Social Epidemiology and Occupational Health (CISAL) is a CEXS-UPF research group that is associated with IMIM and CIBERESP and is recognized as a consolidated group by AGAUR.

The Center studies occupational health issues with important implications for employees, businesses and governments, and that are particularly relevant for social welfare systems. The Center aims for its research to be of use in improving worker health, evaluating the impact of preventive programs in the workplace, and informing health policy priorities.

The Center bases its activity on the values of teamwork, intellectual rigor and social responsibility.

- Generate new knowledge in occupational health that is scientifically valid and socially useful.
- Translate this knowledge actively, to assist stakeholders in making better decisions that protect and promote workers' health.
- Train the next generation of highly qualified researchers and professionals to address occupational health problems, old and new.
- Promote a collaborative, multidisciplinary academic environment that attracts and retains high quality researchers and students who contribute to meeting the Center's mission.

Main Publications 2013

- Ramada JM, Serra C, Amick III BC, Castaño JR, Delclòs GL. Cross-Cultural Adaptation of the Work Role Functioning Questionnaire to Spanish Spoken in Spain. *J Occup Rehabil* 2013;23(4):566-575.
- García AM, González-Galarzo MC, Kauppinen T, Delclòs GL, Benavides FG. A job-exposure matrix for research and surveillance of occupational health and safety in Spanish workers: MatEmESp. *Am J Ind Med* 2013;56(10):1226-1238.
- Coggon D, Ntani G, Palmer K, Felli VE, Harari R, Barrero LH, Felknor SA, Gimeno D, Cattrell A, Vargas-Prada S, Bonzini M, Solidaki E, Merisalu E, Habib R, Sadeghian F, Kadir M, Warnakulasuriya SS, Matsudaira K, Nyantumbu B, Sim MR, Harcombe H, Cox K, Marziale MH, Sarquis LM, Harari F, Freire R, Harari N, Monroy MV, Quintana LA, Rojas M, Salazar-Vega EJ, Harris EC, Serra C, Martínez-Martínez JM, Delclòs GL, Benavides FG, Carugno M, Ferrario MM, Pesatori AC, Chatzi L, Bitsios P, Kogevinas M, Oha K, Sirk T, Sadeghian A, Peiris-John RJ, Sathiakumar N, Wickremasinghe AR, Yoshimura N, Kelsall HL, Hoe VC, Urquhart DM, Derrett S, McBride D, Herbison P, Gray A. Patterns of Multi-Site Pain and Associations With Risk Factors. *Pain* 2013;154(9):1769-1777.
- Coggon D, Ntani G, Vargas-Prada S, Martínez-Martínez JM, Serra C, Benavides FG, Palmer K, and other members of the CUPID Collaboration. International variation in absence from work attributed to musculoskeletal illness: findings from the CUPID study. *Occup Environ Med* 2013;70(8):575-584.
- Domingo-Salvany A, Colell E, Sánchez-Niubó A, Benavides FG. Exploración y validación de las preguntas relacionadas con las condiciones de empleo y trabajo incluidas en la Encuesta Domiciliaria sobre Alcohol y Drogas en España (EDADES). *Arch Prev Riesgos Labor* 2013;16(3):130-135.
- Coggon D, Ntani G, Palmer K, Felli VE, Harari R, Barrero LH, Felknor SA, Gimeno D, Cattrell A, Serra C, Bonzini M, Solidaki E, Merisalu E, Habib R, Sadeghian F, Kadir M, Warnakulasuriya SS, Matsudaira K, Nyantumbu B, Sim MR, Harcombe H, Cox K, Marziale MH, Sarquis LM, Harari F, Freire R, Harari N, Monroy MV, Quintana LA, Rojas M, Salazar-Vega EJ, Harris EC, Vargas-Prada S, Martínez-Martínez JM, Delclòs GL, Benavides FG, Carugno M, Ferrario MM, Pesatori AC, Chatzi L, Bitsios



P, Kogevinas M, Oha K, Sirk T, Sadeghian A, Peiris-John RJ, Sathiakumar N, Wickremasinghe AR, Yoshimura N, Kelsall HL, Hoe VC, Urquhart DM, Derrett S, McBride D, Herbison P, Gray A. Disabling musculoskeletal pain in working populations: Is it the job, the person, or the culture? *Pain* 2013;154(6):856-863.

- Ramada JM, Serra C, Delclòs GL. Adaptación cultural y validación de cuestionarios de salud: revisión y recomendaciones metodológicas. *Salud Pública México* 2013;55(1):57-66.
- Vargas-Prada S, Serra C, Martínez-Martínez JM, Ntani G, Delclos GL, Palmer K, Coggon D, Benavides FG. Psychological and culturally-influenced risk factors for the incidence and persistence of low back pain and associated disability in Spanish workers: findings from the CUPID study. *Occup Environ Med* 2013;70(1):57-62.

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PROGRAMME

Inflammatory and Cardiovascular Disorders

The programme is made up of those research groups:

B Cell Biology
Andrea Cerutti

Biomedical Research into Heart Diseases
Josep Comín

Cardiovascular Epidemiology and Genetics
Roberto Elosua

Cardiovascular Risk and Nutrition
Montserrat Fitó Colomer,
Maribel Covas Planells (until august 2013)

Cell Research on Inflammation and Cartilage
Pere Benito

Hepatologic Research
Ricard Solà

Immunity and Infection
Miguel López-Botet

Inflammatory and Neoplastic Dermatological Diseases
Ramón M. Pujol

Kidney Disease
Julio Pascual

Musculoskeletal Research
Xavier Nogués

Myogenesis, Inflammation, and Muscle Function
Joaquim Gea

Neuro-Enteric Translational Science Research
Sílvia Delgado

Neurovascular
Jaume Roquer

Rehabilitation
Esther Duarte

The programme has one associated group:

Genetic Causes of Disease
Xavier Estivill

The Research in Inflammatory and Cardiovascular Disorders (RICAD) programme combines the knowledge, endeavour, and experience of 15 research groups comprised of more than 40 investigators and technical and administrative support personnel. The objective of this programme is to expand the available knowledge about the physiopathological, inflammatory, and genetic mechanisms of cardiovascular, respiratory and bone disorders, among other acute and chronic conditions, and their diagnosis and treatment.

This multidisciplinary programme includes groups working in basic research (e.g., immunology), epidemiology (e.g., the causes underlying atherosclerosis), and clinical studies (cardiology, neurology, osteoporosis, dermatology, and chronic respiratory diseases). Inflammation is the common nexus of all these research agendas because it is the origin

of most of the chronic diseases of the western world.

The main priority of all members of the RICAD programme is to propose basic biomedical research questions that emerge from clinical practice and to address them using the teams' knowledge, resources, and skills and a translational research focus, ensuring that the patient and society as a whole are the main beneficiaries of the research effort.



A black and white photograph of Jaume Marrugat, Programme Director. He is a middle-aged man with short, light-colored hair, wearing a dark jacket over a purple plaid shirt and grey trousers. He is standing outdoors, looking directly at the camera with his hands in his pockets.

Jaume Marrugat
Programme Director



Main Lines of Research

The main RICAD research lines share a common nexus: inflammation. There are six broad areas of study:

- Cardiovascular diseases: Study of the population incidence, determinants (genetics, lifestyle, etc.), prevention using cardiovascular risk assessment and nutritional analysis, and clinical prognostic factors.
- Degenerative osteoarticular diseases: Study of determining factors, mechanisms, diagnostic methods, treatment, and prevention.
- Dermatological diseases: Analysis of aspects related to the immune system and its relevance in the development and progression of skin diseases such as pemphigoid and psoriasis.
- Respiratory diseases: Study of chronic obstructive pulmonary disease, primarily, and its interrelationship with muscle function and cachexia, the mechanisms involved (such as inflammation and oxidative aggression).
- Hepatic and enterological diseases: Analysis of the factors that determine the progression of hepatitis to cirrhosis and carcinoma, and its treatment; study of

gastrointestinal motor function and the sensory functions and mechanisms that lead to dysfunction and disorders.

- Basic immunology research: Study of the regulation and activation of natural killer cells, B cells, and antibody production, and the implications for infectious diseases and the development of vaccines.

General Objectives Achieved in 2013

- Science: Total scientific production of RICAD investigators in 2013 was 274 publications (222 original articles and 52 notes and reviews), of which 30 were collaborations between RICAD groups.
- Technology: One patent has been awarded and is under development; various contracts with industry are supporting R&D&I projects; and the REGICOR cardiovascular risk function is being officially used by the primary healthcare networks of five of Spain's autonomous communities.
- Education: In 2013, three doctoral dissertations were successfully defended. RICAD organizes monthly professional development sessions for internal and external researchers.

- Finally, the RICAD groups make an effort to collaborate in ways that make the best use of the available resources and facilities. This endeavour is reflected in the notable number (30) of collaborative publications in 2013.

Other

- With the retirement of Dr. Maria Isabel Covas, Dr. Montserrat Fitó was named to lead the Cardiovascular Risk and Nutrition (CARIN) research group.
- Dr. Jordi Jiménez-Conde received an extension of his ISCIII intensification grant.
- Dr. Rosa María Vivanco was awarded a post-specialization one-year research grant.
- Dr. Elisa Torres received a one-year extension of her Jordi Gras research grant, awarded to her as a PSMAR 2012 resident.
- Marta Crespo received an extension of her 2012 IMIM intensification grant.

B Cell Biology

RESEARCH GROUP





Coordinator

Andrea Cerutti

Members

Carolina Barra Quaglia
Sabrina Daniela Bascones
Gleave
Linda Cassis
Alejo Chorny
Laura Comerma Blesa
Maurizio Gentile
David Lligé Santafé
Giuliana Magri
Irene Puga Siesto
Raquel Albero González

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 immunoglobulin (Ig) class switching of the antibody heavy chains. 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 and mucosal B cells regulate class switching in response to signals from microbial products and innate immune cells.



Main Publications 2013

- Puga I, Cerutti A. Protection by natural IgG: A sweet partnership with soluble lectins does the trick! *EMBO J* 2013; 32(22):2897-2899.
- Romberg N, Chamberlain N, Saadoun D, Gentile M, Kinnunen T, Ng YS, Virdee M, Menard L, Cantaert T, Morbach H, Rachid R, Martínez-Pomar N, Matamoros N, Geha R, Grimbacher B, Cerutti A, Cunningham-Rundles C, Meffre E. CVID-associated TACI mutations affect autoreactive B cell selection and activation. *J Clin Invest* 2013;123(10):4283-4293.
- Cerutti A, Puga I, Magri G. The B cell helper side of neutrophils. *J Leukocyte Biol* 2013;94(4):677-682.
- Shan M, Gentile M, Yeiser JR, Walland A.C, Bornstein VU, Chen K, He B, Cassis L, Bigas A, Cols M, Comerma L, Huang B, Blander JM, Xiong H, Mayer L, Berin C, Augenlicht LH, Velcich A, Cerutti A. Mucus enhances gut homeostasis and oral tolerance by delivering immunoregulatory signals. *Science* 2013;342(6157):447-453.
- Alsina L, González-Roca E, Giner MT, Piquer M, Puga I, Pascal M, Ruiz-Ortiz E,

- Badell I, Martín-Mateos MA, Cerutti A, Juan M, Yagüe J, Plaza AM, Aróstegui Jl. Massively parallel sequencing reveals maternal somatic IL2RG mosaicism in an X-linked severe combined immunodeficiency family. *J Allergy Clin Immunol* 2013;132(3):741-743.e2.
- Almejun MB, Cols M, Zelazko M, Oleastro M, Cerutti A, Oppezzo P, Cunningham-Rundles C, Danielian S. Naturally occurring mutation affecting the MyD88-binding site of TNFRSF13B impairs triggering of class switch recombination. *Eur J Immunol* 2013;43(3):805-814.
 - Cerutti A, Cols M, Puga I. Marginal zone B cells: Virtues of innate-like antibody-producing lymphocytes. *Nat Rev Immunol* 2013;13(2):118-132.

Ongoing Research Projects 2013

- Regulation and function of IgD in systemic lupus erythematosus
 - > European Community
 - > Principal researcher: Cerutti, Andrea
- Regulación de linfocitos B humanos de la zona marginal por neutrófilos
 - > Ministerio de Ciencia e Innovación
 - > Principal researcher: Cerutti, Andrea

- Innate Signalling Networks in B-Cell Antibody Production: New Targets for Vaccine Development (ERC grant)
 - > European Community
 - > Principal researcher: Cerutti, Andrea

Other

- Dr. Andrea Cerutti was among the scientific organizers of the 2013 Keystone Symposium on B Cell Development and Function. Keystone, Colorado Feb 10 - Feb 15, 2013.
- The 7th Biogen-Idec Foundation Award for Young Scientists in Immunology went to Dr. Irene Puga.
- Travel Awards for the Aegean Conferences 5th International Conference on Crossroads between Innate and Adaptive Immunity awarded to Dr. Giuliana Magri and Sabrina Bascones
- Conference Assistance scholarship awarded to Dr. Giuliana Magri for the Keystone Symposium - B Cell Development and Function, Keystone Resort, Colorado on Feb 10 - Feb 15, 2013
- Jordi Gras Research Grant from Fundació IMIM awarded to Laura Comerma
- Rio Hortega Research Grant from Instituto de Salud Carlos III awarded to Laura Comerma

The European Research Council (ERC) awarded Andrea Cerutti an Advanced Grant, with funding of 2 million euros over a five-year period. The objective of the ERC Advanced Grant is to support excellent research projects in the field of science, which are highly innovative and led by prominent researchers of renowned international prestige, who may be from any EU member state or associated country. 'Signalling Networks in the Production of Antibodies for B Cells: New Targets for Vaccine Development' is the title of the winning project that will investigate the cell signalling routes needed to induce the diversification and production of antibodies in B cells in the splenic marginal zone.

Biomedical Research into Heart Diseases

RESEARCH GROUP



Coordinator

Josep Comín Colet

Members

Neus Badosa Marcè
Víctor Bazán Gelizo
Begoña Benito Villabriga
Jordi Bruguera Cortada
Paula Cabero Cereto
Mercè Cladellas Capdevila



Cristina Enjuanes Grau
Cosme García García
Marina García Rodríguez
Miquel Gómez Pérez
M. Jesús González Moneo
Anna Herranz Blasco
Consol Ivern Díaz

Anna Maria Linàs Alonso
Julio Martí Almor
Oona Meroño Dueñas
Lluís Molina Ferragut
Núria Ribas Barquet
Sonia Ruiz Bustillo
Maria Pilar Ruiz Rodríguez

Cristina Soler Ayats
Helena Tizón Marcos
Ermengol Vallès Gras
José M. Verdú Rotellar



Inflammatory and Cardiovascular Disorders

Biomedical Research into Heart Diseases

The group's multidisciplinary vocation is to generate new scientific knowledge that connects basic research with the most practical aspects of patient care, in collaboration with other groups of the Programme, in order to build a translational research philosophy with an impact on reducing the morbidity and mortality of heart diseases. This objective must materialize in the publication of biomedical studies of great impact and the attainment of competitive financing.

International Main Publications 2013

- Comín J, Lainscak M, Dickstein K, Filippatos G, Johnson P, Lüscher TF, Mori C, Willenheimer R, Ponikovwski P, Anker SD. The effect of intravenous ferric carboxymaltose on health-related quality of life in patients with chronic heart failure and iron deficiency: a subanalysis of the FAIR-HF study. *Eur Heart J* 2013;34(1):30-38.
- Guasch E, Benito B, Qi X, Cifelli C, Naud P, Shi Y, Mighiu A, Tardif JC, Tadevosyan A, Chen Y, Gillis MA, Iwasaki YK, Dobrev D, Mont L, Heximer S, Nattel S. Atrial Fibrillation Promotion by Endurance Exercise : Demonstration and Mechanistic Exploration in an Animal Model. *J Am Coll Cardiol* 2013;62(1):68-77.
- Vallès E, Bazan V, Benito B, Jauregui-Abularach M, Bruguera J, Guijo MA, Altaba C, Martí-Almor J. Incremental His-To-Coronary Sinus Maneuver: A Non-Local Electrogram-Based Technique to Assess Complete Cavo-Tricuspid Isthmus Block during Typical Flutter Ablation. *Circ Arrhythm Electrophysiol* 2013;6(4):784-789.
- Le Quang K, Benito B, Naud P, Qi X, Shi YF, Tardif JC, Gillis MA, Dobrev D, Charpentier F, Nattel S. T-type Calcium Current Contributes to Escape Automaticity and Governs the Occurrence of Lethal Arrhythmias Following Atrioventricular Block in Mice. *Circ Arrhythm Electrophysiol* 2013;6(4):799-808.
- Bazan V, Grau N, Vallès E, Félez MA, Sanjuás C, Caínzos-Achirica M, Benito B, Jauregui-Abularach M, Gea J, Bruguera J, Martí-Almor J. Obstructive Sleep Apnea in Patients with Typical Atrial Flutter: Prevalence and Impact on Arrhythmia Control Outcome. *Chest* 2013;143(5):1277-1283.
- Tobaldini E, Brugada J, Benito B, Molina I, Montserrat J, Kara T, Leinveber P, Porta A, Macedo PG, Montano N, Somers VK. Cardiac autonomic control in Brugada syndrome patients during sleep: The effects of sleep disordered breathing. *Int J Cardiol* 2013;168(4):3267-3272.
- Comín J, Enjuanes C, González-Robledo G, Torrens A, Cladellas M, Meroño O, Ribas N, Ruiz-Bustillo S, Gómez-Pérez MA, Verdú JM, Bruguera J. Iron deficiency is a key determinant of health-related quality of life in patients with chronic heart failure regardless of anaemia status. *Eur J Heart Failure* 2013;15(10):1164-1172.
- Klip IT, Comín J, Voors AA, Ponikovwski P, Enjuanes C, Banasiak W, Lok DJ, Rosentryt



- P, Torrens A, Polonski L, van Veldhuisen DJ, van der Meer P, Jankowska EA. Iron deficiency in chronic heart failure: an international pooled analysis. *Am Heart J* 2013;165(4):575-582.e3.
- Gay-Jordi G, Guash E, Benito B, Brugada J, Nattel S, Mont L, Serrano A. Losartan prevents heart fibrosis induced by long-term intensive exercise in an animal model. *PLoS ONE* 2013;8(2):e55427.
 - Frigola E, Verdú JM, Comín J, Davins J, Hermosilla E, Wensing M, Suñol R. Prescription in patients with chronic heart failure and multimorbidity attended in primary care. *Qual Prim Care* 2013;21(4):211-219.

Ongoing Research Projects 2013

- Micro-RNAs plasmáticos en la fibrilación auricular asociada a la insuficiencia cardiaca crónica: desde la fisiopatología a la utilidad clínica
 - > Sociedad Española de Cardiología
 - > Principal researcher: Benito Villabriga, Begoña
- Evaluació de la intervenció educativa infermera: valoració de la qualitat de vida i capacitat funcional en el pacient sotmès a una cirurgia valvular
 - > Col·legi Oficial d’Infermeria de Barcelona
 - > Principal researcher: Cabero Cereto, Paula

- Efecto de la Dieta Mediterránea sobre mecanismos asociados a la mejora de la funcionalidad de la HDL
 - > Fondo de Investigación Sanitaria. ISCIII
 - > Principal researcher: Cladellas Capdevila, Mercè
- Validación de un cuestionario abreviado de actividad física
 - > Fondo de Investigación Sanitaria. ISCIII
 - > Principal researcher: Molina Ferragut, Lluís
- Ferro-SCA. Estudio del déficit de hierro en pacientes con síndrome coronario aguda para la determinación de su influencia en la calidad de vida
 - > Societat Catalana de Cardiologia
 - > Principal researcher: Meroño Dueñas, Oona

Clinical Trials Signed in 2013

- Phase I: 1 (2012/4895)
- Health Product: 1 (2012/4972)
- Phase II studies: 1 (2012/4689)
- Phase II b studies: 1 (2013/5125)
- Phase III studies: 4 (2012/4893, 2013/5039, 2013/5184, 2013/5189)
- Phase II-III studies: 1 (2013/5240)
- Phase IV studies: 1 (2013/5153)
- Observational studies: 2 (2013/5190, 2013/5408)

Other

► Award

- Comín Colet, J. BESOSS 2013: Programa Integral d'Atenció al Pacient amb Insuficiència Cardíaca (PIAPIC). April 2013.

► Book Chapter

- Bruguera J, García C. Nitratos, ivabradina, ranolazina y otros fármacos antianginosos. Cardiomecum 2013. Barcelona: Permanyer, 2013: In press.

Cardiovascular Epidemiology and Genetics

RESEARCH GROUP



Coordinator

Roberto Elosua Llanos

Members

Jaume Marrugat de la Iglesia
María Grau Magaña
Irene Román Dégano
Carla Lluís Ganella
María del Mar Vila Muñoz
Sergi Sayols Buxaderas

Joan Salvador Vila Domènech
Isaac Subirana Cachinero
Judith Peñaflor Muñoz
David Giménez Prada
Susanna Tello Rovira
Marta Cabañero Marimón
Leny Franco Rojas

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Sigrid Segura Roca
Judith Grau Expósito
Yolanda Ferrer Campo
Esmeralda Gómez Pires
Sònia Gaixas Vasallo
Gemma Blanchart Cuella



Inflammatory and Cardiovascular Disorders

Cardiovascular Epidemiology and Genetics

The group focuses on the study of the epidemiology and the genetic basis of cardiovascular disorders and their risk factors. The research team involves a multidisciplinary group of epidemiologists, biologists, biochemists, cardiologists and biostatisticians who work together to tackle these topics. The best-known study is the REGICOR project (REgistre Gironi del COR). The group is currently working on research into cardiovascular protective factors in the South of Europe, mainly physical activity and the Mediterranean diet, to shed light on the Mediterranean paradox, defined by a high prevalence of risk factors and a low incidence of cardiovascular disease.

Main Publications 2013

- Bosch X, Marrugat J, Sanchis J. Platelet glycoprotein IIb/IIIa blockers during percutaneous coronary intervention and as the initial medical treatment of non-ST segment elevation acute coronary syndromes. *Cochrane Database Syst Rev* 2013;11:CD002130.
- Elosua R, Redondo A, Segura A, Fiol M, Aldasoro E, Vega G, Forteza J, Martí H, Arteagoitia JM, Marrugat J. Dose-response association of physical activity with acute myocardial infarction: Do amount and intensity matter? *Prev Med* 2013;57(5):567-572.
- Grau M, Baena-Díez JM, Félix-Redondo FJ, Fernández-Bergés DJ, Comas-Cufí D, Forès R, Marrugat J, Ramos R. Estimating the risk of peripheral artery disease using different population strategies. *Prev Med* 2013;57(4):328-333.
- Basagaña X, Aguilera I, Rivera M, Agis D, Foraster M, Marrugat J, Elosua R, Künzli N. Measurement Error in Epidemiologic Studies of Air Pollution Based on Land-Use Regression Models. *Am J Epidemiol* 2013;178(8):1342-1346.
- Subirana I, González JR. Genetic Association Analysis and Meta-Analysis of Imputed SNPs in Longitudinal Studies. *Genet Epidemiol* 2013;37(5):465-477.
- Dégano IR, Elosua R, Marrugat J. Epidemiología del síndrome coronario agudo en España: estimación del número de casos y la tendencia de 2005 a 2049. *Rev Esp Cardiol* 2013;66(6):472-481.
- Pocock SJ, Calvo G, Marrugat J, Prasad S, Tavazzi L, Wallentin L, Zannad F, Alonso-García A. International differences in treatment effect: do they really exist and why? *Eur Heart J* 2013;34(24):1846-1852.
- Rivera M, Basagaña X, Aguilera I, Foraster M, Agis D, de Groot E, Pérez-Grau L, Méndez MA, Bouso L, Targa J, Ramos R, Sala J, Marrugat J, Elosua R, Künzli N. Association between Long-Term Exposure to Traffic-Related Air Pollution and Subclinical Atherosclerosis: The REGICOR Study. *Environ Health Perspect* 2013;121(2):223-230.
- Agüero F, Dégano IR, Subirana I, Grau M, Zamora A, Sala J, Ramos R, Treserras R, Marrugat J, Elosua R. Impact of a Partial Smoke-Free Legislation on Myocardial Infarction Incidence, Mortality and Case-Fatality in a Population-Based Registry: The REGICOR Study. *PLoS ONE* 2013;8(1):e53722.



- Dégano IR, Elosua R, Kaski JC, Fernández-Bergés DJ, Grau M, Marrugat J.
Estabilidad de la placa aterosclerótica y la paradoja del sur de Europa. Rev Esp Cardiol 2013;66(1):56-62.

Ongoing Research Projects 2013

- Canals iònics en la patogènesi i resposta farmacològica de la hipertensió essencial
 - > Fundació La Marató de TV3
 - > Principal researcher: Sentí Clapés, Mariano
- Análisis de variantes genéticas asociadas con factores de riesgo cardiovascular y de su relación con el riesgo de infarto de miocardio
 - > Fondo de Investigación Sanitaria. ISCIII
 - > Principal researcher: Elosua Llanos, Roberto
- Papel del genotipo de riesgo coronario, y de los niveles basales y cambios a 10 años de 16 biomarcadores bioquímicos, en la expresión pre-clínica de la arteriosclerosis
 - > Fondo de Investigación Sanitaria. ISCIII
 - > Principal researcher: Marrugat de la Iglesia, Jaume
- Asociación de la proteína C-Reactiva y los marcadores de metabolismo lipídico con la presencia de atherosclerosis preclínica en población general
 - > Sociedad Española de Cardiología
 - > Principal researcher: Marrugat de la Iglesia, Jaume

- Formulación de proyecto de creación del registro cardiovascular en Chile
 - > Ministerio de Asuntos Exteriores y de Cooperación
 - > Principal researcher: Marrugat de la Iglesia, Jaume
- EUROpean treatment & Reduction of Acute Coronary Syndromes cost analysis
 - > European Commission
 - > Principal researcher: Marrugat de la Iglesia, Jaume
- Papel de la metilación del ADN en la relación de los estilos de vida con los factores de riesgo vascular y la enfermedad cardiovascular subclínica
 - > Fondo de Investigación Sanitaria. ISCIII
 - > Principal researcher: Elosua Llanos, Roberto
- Burden of cardiovascular diseases associated with chronic inflammatory conditions: a population approach
 - > Fondo de Investigación Sanitaria. ISCIII
 - > Principal researcher: Grau Magaña, María

Participation in Research Networks

- Heracles: Determinants genètiques i ambientals de la disfunció vascular en la hipertensió i en la cardiopatia isquèmica
 - > Fondo de Investigación Sanitaria-ISCIII. Subprograma RETICS. RD06/0009/0000
 - > Coordinator: Marrugat de la Iglesia, Jaume

- Red Cardiovascular

- > Fondo de Investigación Sanitaria-ISCIII.
Subprograma RETICS. RD12/0042/0061
- > Principal researcher: Marrugat de la Iglesia,
Jaume

- Red Cardiovascular

- > Fondo de Investigación Sanitaria-ISCIII.
Subprograma RETICS. RD12/0042/0013
- > Principal researcher: Elosua Llanos, Roberto

Group's Recognition

- SGR recognizing groups: Unitat de Lípids
i Epidemiología Cardiovascular. 2009 SGR

1195

- > Principal researcher: Marrugat de la Iglesia,
Jaume

Cardiovascular Risk and Nutrition

RESEARCH GROUP



Coordinator

Montserrat Fitó Colomer,
Maribel Covas Planells
(until august 2013)

Members

David Benaiges Boix
Anna Maria Blasco Lapuente
Olga Castañer Niño
Juan José Chillarón Jordán



Óscar Díaz Gil

Marta Farràs Mañé

Juana Antonia Flores Le Roux

Anna Funtikova

Albert Goday Arno

Saray Heredia Leo

Álvaro Hernández Camba

Sílvia Martín Jaurena

Sandra María Martín Peláez

Daniel Muñoz Aguayo

Helmut Schröder

Montserrat Villatoro Moreno



Inflammatory and Cardiovascular Disorders

Cardiovascular Risk and Nutrition

The Mediterranean diet, its foods and the interaction of nutrients, has healthy effects against the morbidity and mortality related to cardiovascular diseases that have been widely described and scientifically proven. In this context, the main objective of our research is to determine the effect of diet on cardiovascular risk factors and cardiovascular diseases, as well as to establish the cellular and molecular mechanisms that contribute to these beneficial effects. To achieve these goals, we are working at present on the following research lines: Nutrition Studies and Cardiovascular Risk, Molecular and cellular mechanisms related with risk and protective factors for cardiovascular disease, Nutritional Epidemiology and Childhood Obesity.

Main Publications 2013

- Schröder H, Méndez MA, Gómez SF, Fitó M, Ribas L, Aranceta J, Serra-Majem L. Energy density, diet quality, and central body fat in a nationwide survey of young Spaniards. *Nutrition* 2013;29(11-12):1350-1355.
- Castañer O, Corella D, Covas MI, Sorli JV, Subirana I, Flores-Mateo G, Nonell L, Bullo M, de la Torre R, Portolés O, Fitó M. In vivo transcriptomic profile after a Mediterranean diet in high-cardiovascular risk patients: a randomized controlled trial. *Am J Clin Nutr* 2013;98(3):845-853.
- Rovira M, Grau M, Castañer O, Covas MI, Schröder H, REGICOR Investigators. Dietary Supplement Use and Health-Related Behaviors in a Mediterranean Population. *Journal Of Nutrition Education And Behavior* 2013;45(5):386-391.
- Farràs M, Valls RM, Fernández-Castillejo S, Giralt M, Solà R, Subirana I, Motilva MJ, Konstantinidou V, Covas MI, Fitó M. Olive oil polyphenols enhance the expression of cholesterol efflux related genes in vivo in humans. A randomized controlled trial. *J Nutr Biochem* 2013;24(7):1334-1339.
- Claret C, Goday A, Benaiges D, Chillarón JJ, Flores JA, Hernández E, Corretger JM, Cano JF. Subclinical hypothyroidism in the first years of life in patients with Down syndrome. *Pediatr Res* 2013;73(5):674-678.
- Konstantinidou V, Covas MI, Solà R, Fitó M. Up-to-date knowledge on the in vivo transcriptomic effect of the Mediterranean diet in humans. *Mol Nutr Food Res* 2013;57(5):772-783.
- Martín-Peláez S, Covas MI, Fitó M, Kusar A, Pravst I. Health effects of olive oil polyphenols: Recent advances and possibilities for the use of health claims. *Mol Nutr Food Res* 2013;57(5):760-761.
- Benaiges D, Flores JA, Pedro-Botet J, Chillarón JJ, Renard M, Parri A, Ramon-Moros JM, Pera MR, Goday A. Sleeve gastrectomy and Roux-en-Y gastric bypass are equally effective in correcting insulin resistance. *Int J Surg* 2013;11(4):309-313.
- Estruch R, Ros E, Salas-Salvadó J, Covas MI, Corella D, Arós F, Gómez-Gracia E, Ruiz-Gutiérrez V, Fiol M, Lapetra J, Lamuela RM, Serra-Majem L, Pintó X, Basora J, Muñoz MA, Sorli JV, Martínez JA, Martínez-González MA, for the PREDIMED Study Investigators (...Tello



S, Vila JS, Fitó M, Schröder H, de la Torre R, Muñoz D, Elosua R, Marrugat J, Farré M,...). Primary Prevention of Cardiovascular Disease with a Mediterranean Diet. *New Engl J Med* 2013;368(14):1279-1290.

- Hernández E, Flores JA, Benaiges D, Sagarra E, Chillarón JJ, Payá A, Puig de Dou J, Goday A, López-Vilchez MA, Pedro-Botet J. Gestational diabetes in a multiethnic population of Spain: Clinical characteristics and perinatal outcomes. *Diabetes Res Clin Pract* 2013;100(2): 215-221.

Ongoing Research Projects 2013

- Metabolic Fate of Olive Oil Phenolic compounds and/or complementary phenols in humans: Nutrigenomic Effect. The MEFOP Project
 - > Ministerio de Economía y Competitividad
 - > Principal researcher: Fitó Colomer, Montserrat (since September 2103)
- Molecular mechanisms of the Mediterranean diet on the improvement on the HDL functionality
 - > Fondo de Investigación Sanitaria. ISCIII
 - > Principal researcher: Fitó Colomer, Montserrat (until August 2013)

- Effects of a lifestyle intervention on the prevention of childhood obesity: a community-based model (POIBC study)
 - > Fondo de Investigación Sanitaria. ISCIII
 - > Principal researcher: Schröder, Helmut
- PREDIMED-PLUS: Effect of a hypocaloric Mediterranean diet and physical activity promotion on the primary prevention of cardiovascular disease. Pilot study on intermediate markers
 - > Fondo de Investigación Sanitaria. ISCIII
 - > Principal researcher: Goday Arno, Albert
- Genetic, life-style, and inflammatory factors as predictors of depression in a general population
 - > Fundació La Marató de TV3
 - > Principal researcher: Covas Planells, M. Isabel

Participation in Research Networks

- CIBEROBN: Fisiopatología de la obesidad y nutrición
 - > Fondo de Investigación Sanitaria. ISCIII. CBo6/o3/0028
 - > Principal researcher: Fitó Colomer, Montserrat
- CIBERESP: Epidemiología y salud pública
 - > Fondo de Investigación Sanitaria. ISCIII. CBo6/o2/0029
 - > Principal researcher: Schröder, Helmut

Clinical Trials Signed in 2013

- Post-authorization studies: 2 (2013/5303, 2013/5345)

Other

- Health Claim: EFSA European Food Safety Authority (EFSA) health claim concerning the benefits of the consumption of polyphenols from olive oil on the protection of low density lipoprotein (LDL) oxidation based on several of the scientific publications of the Research Group. Reference: EFSA Journal 2011;9(4):2033. Date: 01/11/2011. Research Group: Dr. Montserrat Fitó Colomer, Dr. Rafael de la Torre and Dr. Magí Farré Ms. Daniel Muñoz, Dr. Jaume Marrugat and Dr. Maria Isabel Covas Planells.
- Membership of the Centre Català de la Nutrició de l'Institut d'Estudis Catalans (CCNIEC). Dr. Montserrat Fitó Colomer.

Cell Research on Inflammation and Cartilage

RESEARCH GROUP





Coordinator

Pedro Benito Ruiz

Members

Eduard Alentorn Geli
Marcos Cruz Sánchez
Aina Farran Díaz Cano
Jone Llorente Onaindia
Santos Martínez Díaz
Jordi Monfort Faure
Juan Carlos Monllau García
Luís Puig Verdié
Laura Tío Barrera
Raúl Torres Claramunt

Our group comprises multidisciplinary researchers with wide experience in the field of clinical surgery and degenerative diseases where the line of research into osteoporosis and osteoarthritis has been consolidated. In addition, we have succeeded in coordinating basic and clinical research in which the two scientific aspects complement each other, with the possibility of obtaining results in basic research with clinical applicability.



Main Publications 2013

- Alentorn-Geli E, Leal J, Guirro P, Hinarejos P, Pelfort X, Puig L. Comparison of Quality of Life Between Elderly Patients Undergoing TKA. *Orthopedics* 2013;36(4):e415-e419.
- Torres R, Leal J, Hinarejos P, Pelfort X, Puig L. Correlation Study Between KSS, WOMAC and SF-36 Scores in Patients Undergoing Total Knee Arthroplasty in a Spanish Speaking Population. *J Arthroplasty* 2013;28(6):950-953.
- Hinarejos P, Piñol I, Torres A, Prats E, Gil-Gómez G, Puig L. Highly Crosslinked Polyethylene Does Not Reduce the Wear in Total Knee Arthroplasty: In Vivo Study of Particles in Synovial Fluid. *J Arthroplasty* 2013;28(8):1333-1337.
- Monfort J, Lisbona-Pérez MP, Giménez-Arnau AM, Iglesias M, Llorente-Onaindia J, Benito P. Immunoallergic reaction following intraarticular injection of high molecular weight hyaluronic acid. *Joint Bone Spine* 2013;80(5):551-552.
- Leal J, Alentorn-Geli E, Ginés A, Martínez-Díaz S, Cáceres-Palou E, Puig L. Effects of an educational audiovisual videodisc on patients' pre-operative expectations with total knee arthroplasty: a prospective randomized comparative study. *Knee Surg Sports Traumatol Arthrosc* 2013;21(11):2595-2602.
- Serrano A, Márquez A, Mackie SL, Carmona FD, Solans R, Miranda-Filloy JA, Hernández-Rodríguez J, Cid MC, Castañeda S, Morado IC, Narváez J, Blanco R, Sopeña B, García-Villanueva MJ, Monfort J, Ortego-Centeno N, Unzurrunzaga A, Marí-Alfonso B, Sánchez-Martín J, De Miguel E, Magro C, Raya E, Braun N, Latus J, Molberg O, Lie BA, Moosig F, Witte T, Morgan AW, González-Gay MA, Martín J, UK GCA Consortium, Spanish GCA Consortium. Identification of the PTPN22 functional variant R620W as susceptibility genetic factor for giant cell arteritis. *Ann Rheum Dis* 2013;72(11):1882-1886.
- Torres R, Pelfort X, Erquicia J, Gil-González S, Gelber PE, Puig L, Monllau JC. Knee joint infection after ACL reconstruction: prevalence, management and functional outcomes. *Knee Surg Sports Traumatol Arthrosc* 2013;21(12):2844-2849.

Ongoing Research Projects 2013

- Reparación de lesiones condrales mediante microesferas de quitosano como soporte de condrocitos alogénicos. Estudio experimental “in vivo” en un modelo de conejo
 - > Sociedad Española de Cirugía Ortopédica y Traumatología
 - > Principal researcher: Martínez Díaz, Santos
- Búsqueda de marcadores moleculares para el diagnóstico precoz de la osteoartritis. Identificación de sustratos potenciales de las diferentes isoformas de MMP-13 en cartílago
 - > Fundación Española de Reumatología
 - > Principal researcher: Monfort Faure, Jordi
- Identificació de diferents isoformes de MMP-13 en individus artròsics. Caracterització de les seves capacitats catalítiques
 - > Societat Catalana de Reumatologia
 - > Principal researcher: Monfort Faure, Jordi

Participation in Research Networks

- Red de investigación en inflamación y enfermedades reumáticas
 - > Fondo de Investigación Sanitaria-ISCIII. Subprograma RETICS. RDo8/0075/0021
 - > Principal researcher: Monfort Faure, Jordi

Clinical Trial Signed in 2013

- Phase IV studies: 1 (2013/5036)

Other

- SEMERGEN Research Award in osteoarthritis and chondroprotection. 35 National Congress of Spanish Society of Primary Medical Care (SEMERGEN)
 - > Principal researcher: Monfort Faure, Jordi

Hepatologic Research

RESEARCH GROUP





Coordinator

Ricard Solà Lamoglia

Members

Beatriz Cabrero Iñiguez

Núria Cañete Hidalgo

José Antonio Carrión Rodríguez

Susana Coll Estrada

Montserrat García Retortillo

Maria Dolors Giménez Romaní

Diego Lázaro Agudo

Anna Teis Feliu

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 co-infection;
- Adherence to hepatitis C treatment and the study, prevention and treatment of psychiatric pathology associated with interferon and
- The progression of fibrosis in hepatitis C with or without HIV co-infection.

Recently we also have initiated different studies in hepatitis B (particularly adherence to treatment and reactivation) and in hepatocellular carcinoma.



Main Publications 2013

- Carrión JA, González-Colominas E, García-Retortillo M, Cañete N, Cirera I, Coll S, Giménez MD, Márquez C, Martín-Escudero V, Castellví P, Navinés R, Castaño JR, Galeras JA, Salas E, Bory F, Martín-Santos R, Solà R. A multidisciplinary support programme increases the efficiency of pegylated interferon alfa-2a and ribavirin in hepatitis C. *J Hepatol* 2013;59(5):926-933.
- Udina M, Moreno-España J, Navinés R, Giménez D, Langohr K, Gratacòs M, Capuron L, de la Torre R, Solà R, Martín-Santos R. Serotonin and interleukin-6: The role of genetic polymorphisms in IFN-induced neuropsychiatric symptoms. *Psychoneuroendocrinology* 2013;38(9):1803-1813.
- Urquijo JJ, Diago M, Boadas J, Planas R, Solà R, del Olmo JA, Crespo J, Erdozaín JC, Antón MD, Arocena C, Suárez D, Giné J, Barrera JM, Gracia-Samaniego J, Pérez R, Dalmau B, Montoro M. Safety and efficacy of treatment with pegylated interferon alpha-2a with ribavirin in chronic hepatitis C genotype 4. *Ann Hepatol* 2013;12(1):30-35.
- Rojas A, del Campo JA, Maraver M, Aparcero R, García-Valdecasas M, Diago M, Carmona I, Andrade RJ, Solà R, Romero-Gómez M. Hepatitis C virus infection alters lipid metabolism depending on IL28B polymorphism and viral genotype and modulates gene expression in vivo and in vitro. *J Viral Hepatitis* 2014;21(1):19-24.
- Foster GR, Zeuzem S, Pianko S, Sarin SK, Piratvisuth T, Shah S, Andreone P, Sood A, Chuang WL, Lee CM, George J, Gould M, Flisiak R, Jacobson IM, Komolmit P, Thongsawat S, Tanwandee T, Rasenack J, Sola R, Messina I, Yin Y, Cammarata S, Feutren G, Brown KK. Decline in pulmonary function during chronic hepatitis C virus therapy with modified interferon alfa and ribavirin. *J Viral Hepatitis* 2013;4:e115-e123.
- González-Colominas E, Solà R, Barrantes-González M, Salas E. Prevalencia de las interacciones potenciales entre el tratamiento antirretroviral y boceprevir o telaprevir en pacientes coinfecados por el virus de la inmunodeficiencia humana-virus de la hepatitis C. *Enferm Infect Microbiol Clin* 2013;31(5):350-351.

Ongoing Research Projects 2013

- Bases neurobiológicas de la depresión inducida por interferón en la hepatitis C crónica". Estudio PSICOCIT-VHC.

Subproyecto II

- > Fondo de Investigación Sanitaria. ISCIII
- > Principal researcher: Solà Lamoglia, Ricard

Clinical Trials Signed in 2013

- Phase II studies: 2 (2013/4462, 5369)
- Phase III studies: 7 (2013/4970, 4490, 4483, 4555, 4559, 4554, 5478)
- Observational studies: 5 (2013/8012, 8813, 8963, 9266, 99977)

Immunity and Infection

RESEARCH GROUP



**Coordinator**

Miguel López-Botet Arbona
(IMIM-UPF)

Members

Aura Muntasell Castellví
Jordi Pou Sánchez
Andrea Vera Barrón
Jordi Síntes Castro (UPF)
Diogo Baia (UPF)
María López-Montaños (UPF)
Aldi Pupuleku (UPF)
José Enrique Martínez
Rodríguez
Elvira Munteis Olivas
Raquel Rasal Soteras
Ramón Gimeno Martínez
Juan Pablo Horcajada Gallego

Our interest is mainly focused on the biology of human Natural Killer (NK) cells, involved in the innate immune response against infections and tumors. Knowledge on the genetics, distribution, and function of NK-cell receptors and their ligands is essential to understand their biological role and to address their immunotherapeutic potential. In this regard, we are currently studying the innate immune response against cytomegalovirus (CMV), a herpesvirus highly prevalent in all human populations that establishes a life-long persistent infection with a multifaceted impact on human health. Our group is composed of basic and clinical researchers from the Hospital del Mar Medical Research Institute (IMIM) and Pompeu Fabra University (UPF). Drs. J.E. Martínez and E. Munteis are staff members of the Neurology Service, Hospital del Mar. Dr. J.P. Horcajada (Infectious Diseases Service, Hospital del Mar) joined the team in a transition towards the development of a new group, according to his specific scientific interests.



Main Publications 2013

- Muntasell A, López-Montaños M, Vera A, Heredia G, Romo N, Peñafiel J, Moraru M, Vila J, Vilches C, López-Botet M. NKG2C zygosity influences CD94/NKG2C receptor function and the NK-cell compartment redistribution in response to human cytomegalovirus. *Eur J Immunol* 2013;43(12):3268-78.
- Martínez-Rodríguez JE, Munné-Collado J, Rasal R, Cuadrado E, Roig L, Ois A, Muntasell A, Baro T, Alameda F, Roquer J, López-Botet M. Expansion of the NKG2C+ natural killer-cell subset is associated with high-risk carotid atherosclerotic plaques in seropositive patients for human cytomegalovirus. *Arterioscler Thromb Vasc Biol* 2013;33(11):2653-9.
- Muntasell A, Vilches C, Angulo A, López-Botet M. Adaptive reconfiguration of the human NK-cell compartment in response to cytomegalovirus: a different perspective of the host-pathogen interaction. *Eur J Immunol* 2013;43(5):1133-1141.
- Sorlí L, Luque S, Grau S, Berenguer N, Segura C, Montero MM, Álvarez-Lerma F, Knobel H, Benito N, Horcajada JP. Trough colistin plasma level is an independent

risk factor for nephrotoxicity: a prospective observational cohort study. *BMC Infect Dis* 2013;13(1):380.

- Puig-Verdié L, Alentorn-Geli E, González-Cuevas A, Sorlí L, Salvadó M, Alier A, Pelfort X, Portillo ME, Horcajada JP. Implant sonication increases the diagnostic accuracy of infection in patients with delayed, but not early, orthopaedic implant failure. *Bone Joint J* 2013;95-B(2):244-249.
- Portillo ME, Salvadó M, Trampuz A, Plasencia V, Rodríguez-Villasante M, Sorlí L, Puig L, Horcajada JP. Sonication versus vortexing of implants for diagnosis of prosthetic joint infection. *J Clin Microbiol* 2013;51(2):591-594.

Ongoing Research Projects 2013

- New protocols for immunotherapy: Production of activated NK cells for clinical use.
 - > Sudoe Program (EU)
 - > Principal researcher: López-Botet Arbona, Miguel
- Arterioesclerosis carotídea y respuesta inmune innata al citomegalovirus humano
 - > Plan Nacional I+D (Ministerio de Economía y Competitividad)

- > Principal researcher: Martínez Rodríguez, José Enrique
- Recuperación del componente linfoide en el postrasplante mediante la infusión de progenitores y células T específicas
 - > Fondo de Investigación Sanitaria. ISCIII
 - > Principal researcher: Gimeno Martínez, Ramón
- Estudio Comparativo de la Eficacia de Pautas “Cortas” y “Largas” de la Combinación Rifampicina-Levofloxacino en la Infección Estafilocócica Postquirúrgica Precoz y Hematógena de Prótesis Articular
 - > Fondo de Investigación Sanitaria. ISCIII
 - > Principal researcher: Horcajada Gallego, Juan Pablo
- Utilidad de la monitorización de niveles plasmáticos de colistina y colistimetato sódico en pacientes con infecciones por bacilos gram negativos multirresistentes tratados con colistina
 - > Fondo de Investigación Sanitaria. ISCIII
 - > Principal researcher: Horcajada Gallego, Juan Pablo
- Estudio multicéntrico sobre la utilidad de la monitorización de niveles plasmáticos de colistina y colistimetato sódico en pacientes con infecciones por bacilos gram negativos multirresistentes tratados con colistina
 - > Ministerio de Sanidad, Política Social e Igualdad
 - > Principal researcher: Horcajada Gallego, Juan Pablo

► Pompeu Fabra University (UPF) Projects

- Characterization of the innate immune response to human cytomegalovirus: implications for the pathogenesis of vascular disease (coordinator). Subproject 1 (PI): Characterization of the innate immune response and viral subversion mechanisms in cytomegalovirus infection
 - > Plan Nacional I+D (Ministerio de Economía y Competitividad)
 - > Principal researcher: López-Botet Arbona, Miguel
- Natural killer cell-based anti-cancer Immunotherapies (NATURIMMUN): Research training in molecular medicine and biotechnology business
 - > FP7 Marie Curie Training Network (EU)
 - > Principal researcher: López-Botet Arbona, Miguel
- Evaluation of NK cell contribution to chronic kidney allograft rejection in response to HLA-specific alloantibodies, genetic mismatch and CMV infection
 - > Fundació La Marató de TV3
 - > Principal researcher: López-Botet Arbona, Miguel

Participation in Research Networks

- Heracles: Determinants genètiques i ambientals de la disfunció vascular en la hipertensió i en la cardiopatia isquèmica



Inflammatory and Cardiovascular Disorders

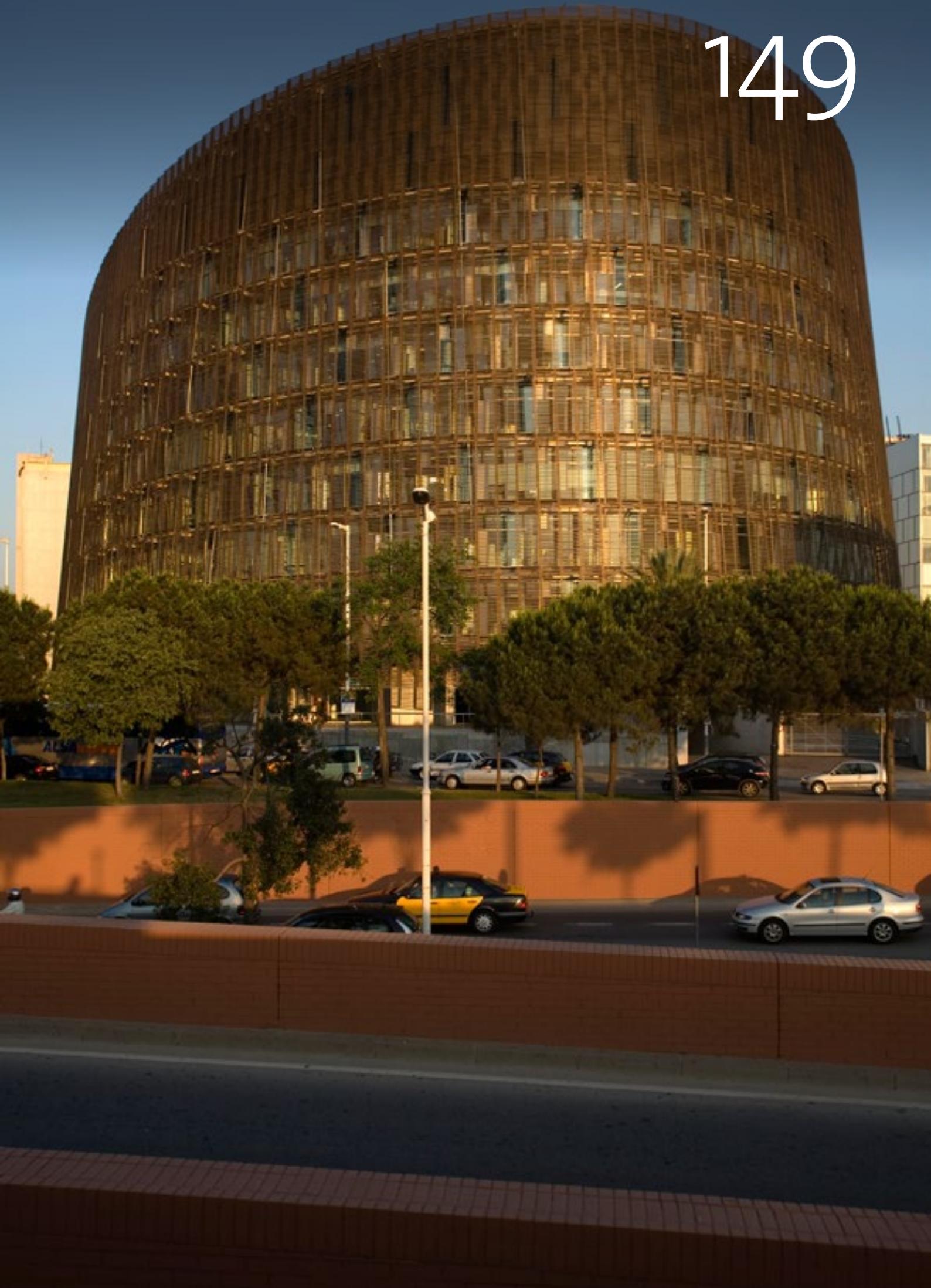
Immunity and Infection

- > Fondo de Investigación Sanitaria-ISCIII.
Subprograma RETICS. RD06/0009/0015
- > Principal researcher: López-Botet Arbona,
Miguel
- Red Española de Esclerosis Múltiple
 - > Fondo de Investigación Sanitaria-ISCIII.
Subprograma RETICS. RD12/0032/0016
 - > Principal researcher: López-Botet Arbona,
Miguel

Clinical Trials Signed in 2013

- Phase II studies: 3 (2012/4889, 2012/4959, 2013/5364)
- Phase III studies: 4 (2012/4866, 2012/4971, 2013/5180, 2013/5148)
- Phase II-III studies: 1 (2013/5078)
- Phase IV studies: 1 (2012/4757)
- Observational studies: 1 (2013/5376)
- Post-authorization: 2 (2012/4883, 2013/5051)

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Inflammatory and Neoplastic Dermatological Diseases

RESEARCH GROUP





Coordinator

Ramon Maria Pujol Vallverdú

Members

Lluïsa Carnero Sánchez

Marta Ferran Farrés

Anna Maria Giménez Arnau

Alicia González Mena

Josep Herrero González

Sonia Segura Tigell

The Group for Research in 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:

1. The study of inflammatory dermatological diseases, mainly psoriasis (as a model of CLA+ T cells inflammatory disease) and bullous diseases.
2. Research into the pathogenetic mechanisms of progression and immunological response to non-melanoma skin cancer.



Main Publications 2013

- Ferran M, Romeu ER, Rincón C, Sagristà M, Giménez-Arnau AM, Celada A, Pujol RM, Holló P, Jókai H, Santamaria LF. Circulating CLA+ T lymphocytes as peripheral cell biomarkers in T-cell-mediated skin diseases. *Exp Dermatol* 2013;22(7):439-442.
- Ferran M, Galván AB, Rincón C, Romeu ER, Sacristà M, Barboza E, Giménez-Arnau AM, Celada A, Pujol RM, Santamaria LF. Streptococcus Induces Circulating CLA(+) Memory T-Cell-Dependent Epidermal Cell Activation in Psoriasis. *J Invest Dermatol* 2013;133(4):999-1007.
- Navarro R, Vilarrasa E, Herranz P, Puig L, Bordas X, Carrascosa JM, Taberner R, Ferran M, García-Bustinduy M, Romero-Maté A, Pedragosa R, García-Díez A, Daudén E. Safety and effectiveness of ustekinumab and anti-tumor necrosis factor therapy in patients with psoriasis and chronic viral hepatitis b or c. A retrospective, multicentre study in a clinical setting. *Br J Dermatol* 2013;168(3):609-616.
- Sanchez-Moya AI, García-Doval I, Carretero G, Sánchez-Carazo JL, Ferrández C, Herrera-Ceballos E, Alsina M, Ferran M, López-Estebaranz JL, Gómez-García F, de la Cueva-Dobao P, Carrascosa JM, Vanaclocha F, Belinchon I, Peral F, Daudén E, the BIOBADADERM StudyGroup. Latent tuberculosis infection and active tuberculosis in patients with psoriasis: a study on the incidence of tuberculosis and the prevalence of latent tuberculosis disease in patients with moderate-severe psoriasis in Spain. BIOBADADERM registry. *J Eur Acad Dermatol Venereol* 2013;27(11):1366-1374.
- Krause K, Giménez-Arnau AM, Martínez-Escala E, Farré M, Abajian M, Church MK, Maurer M. Platelet-activating factor (PAF) induces wheal and flare skin reactions independent of mast cell degranulation. *Allergy* 2013;68(2):256-258.
- Maurer M, Rosen K, Hsieh HJ, Saini S, Grattan C, Giménez-Arnau AM, Agarwal S, Doyle R, Canvin J, Kaplan A, Casale T. Omalizumab for the Treatment of Chronic Idiopathic or Spontaneous Urticaria. *New Engl J Med* 2013;368(10):924-935.
- Gonçalo M, Ferguson J, Boneville A, Bruynzeel D, Giménez-Arnau AM, Goossens A, Kerr A, Lecha M, Neumann N, Niklasson B, Pigatto P, Rhodes LE, Rustemeyer T, Sarkany R, Thomas P, Wilkinson M. Photopatch testing: recommendations for a European

photopatch test baseline series. Contact Dermatitis 2013;68(4):239-243.

Ongoing Research Projects 2013

- Estudio in vivo sobre la relevancia patogénica de componentes del sistema inmune innato y de la coagulación en la epidermolisis ampollosa adquirida
 - > Fondo de Investigación Sanitaria. ISCIII (09/1410)
 - > Principal researcher: Herrero González, Josep

Clinical Trials Signed in 2013

- Phase III studies: 2 (2012/4936, 2013/5406)
- Phase III b studies: 1 (2013/5231)
- Observational studies: 2 (2013/5310, 2013/5363)
- Post-authorization: 1 (2013/5044)

Other

- Course Organization: J. Herrero and RM. Pujol. I Curso de Enfermedades Ampollosas Autoinmunes y Manejo de Inmunosupresores en Dermatología (16-17 October 2013)

Awards

- Best presented work at the V Simposio Nacional de Psoriasis INNOVARA (26 October 2013, Barcelona). M. Ferran. Aumento de la respuesta inflamatoria Th17 y disminución de la expresión de filagrina y loricrina en un modelo de cocultivo inducido por estreptococo en pacientes con psoriasis portadores del alelo HLA-Cwo602.
- 2nd selected paper in the International Psoriasis Council's semi-annual review of the top five papers (January- June 2013). Psoriasis Review. December 2013; vol 9: number 2. Ferran M, Galván AB, Rincón C, et al. Streptococcus induces circulating CLA(+) memory T-cell-dependent epidermal cell activation in psoriasis. J Invest Dermatol. 2013;133(4):999-1007.

Kidney Disease

RESEARCH GROUP



Coordinator

Julio Pascual Santos

Members

Lidia Anguiano Gómez
Clara Barrios Barrera
Sergi Clotet Freixas
Sílvia Collado Nieto
Marta Crespo Barrio

Núria Cubino Junyent
Anna Faura Vendrell
Javier Gimeno Beltrán
Anna Oliveras Serrano
Marta Rebull Santamaría
María Dolores Redondo Pachón

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Marta Riera Oliva

Judit Rigol Giner

Eva Rodríguez García

M. José Soler Romeo

Susana Vázquez González



The group aims to contribute to clarifying the mechanisms involved in the onset and progression of kidney disease through preclinical research into *in vivo* and *in vitro* models which allow the study of the molecular mechanisms involved, and will thus help us to identify treatment targets and new strategies against kidney disease. It also aims to study new treatment targets and strategies in depth by conducting controlled clinical trials and observational projects of major interest, while securing all levels of possible commitment: promoters, main researchers, collaboration in multi-centre projects and own projects. Our research focuses mainly on kidney diseases such as diabetic or polycystic nephropathy, in addition to treatment-resistant hypertension and the search for biomarkers in chronic and acute kidney failure.

Main Publications 2013

- Ortiz-Pérez JT, Riera M, Bosch X, de Caralt TM, Perea RJ, Pascual J, Soler MJ. Role of circulating angiotensin converting enzyme 2 in left ventricular remodeling following myocardial infarction: a prospective controlled study. *PLoS ONE* 8(4):e61695.
- Crespo M, Torio A, Mas V, Redondo D, Pérez-Sáez MJ, Mir M, Faura A, Guerra R, Montes-Ares O, Checa MD, Pascual J. Clinical relevance of pretransplant anti-HLA donor-specific antibodies: does C1q-fixation matter?. *Transpl Immunol* 2013;29(1-4):28-33.
- Oliveras A, Armario P, Sierra C, Arroyo JA, Hernández-del-Rey R, Vázquez S, Larrousse M, Sans L, Roca-Cusachs A, de la Sierra A. Urinary albumin excretion at follow-up predicts cardiovascular outcomes in subjects with resistant hypertension. *Am J Hypertens* 2013;26(9):1148-54.
- Oliveras A, García-Ortiz L, Segura J, Banegas JR, Martell-Claros N, Vigil L, Suárez C, Gómez-Marcos MA, Abad-Cardiel M, Vázquez S, de la Cruz JJ, Franklin SS, Ruilope LM, de la Sierra A; PRESCEN Study, Spain. Association between urinary albumin excretion and both central and peripheral blood pressure in subjects with insulin resistance. *J Hypertens* 2013;31(1):103-108.

Ongoing Research Projects 2013

- Evaluation of NK cell contribution to chronic kidney allograft rejection in response to HLA-specific alloantibodies, genetic mismatch and CMV infection
 - > Fundació La Marató de TV3
 - > Principal researcher: Crespo Barrio, Marta
- Denervación simpática renal versus escalada terapéutica farmacológica en la hipertensión arterial resistente
 - > Ministerio de Sanidad, Política Social e Igualdad
 - > Principal researcher: Oliveras Serrano, Anna
- Monitorización de la respuesta inmune humoral y celular en el trasplante renal y su correlación clínica
 - > Fondo de Investigación Sanitaria. ISCIII
 - > Principal researcher: Pascual Santos, Julio
- Actividad sérica del ECA2 en pacientes diabéticos con Enfermedad Renal Crónica. Efecto de la delección del ECA2 en la nefropatía diabética experimental.
 - > Fondo de Investigación Sanitaria. ISCIII
 - > Principal researcher: Soler Romeo, M. José

Participation in Research Networks

- Red de Investigación Renal
 - > Fondo de Investigación Sanitaria-ISCIII. Subprograma RETICS. RD12/0021/0024
 - > Principal researcher: Principal researcher: Pascual Santos, Julio

Clinical Trials Signed in 2013

- Phase II studies: 3 (2012/4894, 2012/4932, 2013/5043)
- Phase III studies: 4 (2012/4967, 2013/4991, 2013/5077, 2013/5233)
- Phase IV studies: 4 (2011/4532, 2013/5149, 2013/5326, 2013/5329)
- Post-authorization: 1 (2013/5196)

Other

► Organization of symposium and congresses

- XLIII Congreso Nacional de la Sociedad Española de Nefrología. Bilbao, 5-9 October, 2013.

Musculoskeletal Research

RESEARCH GROUP





Coordinator

Francesc Xavier Nogués Solán

Members

Sergi Ariño Ballester
Isabel Aymar Fabrega
Josep Blanch Rubio
Jordi Carbonell Abelló
Manel Ciria Recasens
Laura de Ugarte Corbalán
Elisabeth del Amo Laforga
Adolf Díez Pérez
Natalia García Giralt
Arturo Garrido Saldaña
Leonardo Mellibovsky Saioler
Daniel Prieto Alhambra
María Rodríguez Sanz
Guillem Saló Bru
Elisa Torres del Pliego

Our group's research focuses on the study of bone mineral metabolism in patients with osteoporosis and others diseases related with bone loss. Three major lines of investigation are being carried out by the Unit: Genetics, Epidemiology and Bone Quality. The study of gene polymorphisms related with bone and osteoporosis, functional analysis and association studies are the Genetics milestones. Our group is co-investigator in the development of a novel, hand-held Reference Point Indentation (RPI) instrument, which measures how well the bone of living patients resists indentation. Local and international epidemiological studies are also being carried out in our Unit.



Main Publications 2013

- Randall C, Bridges D, Gürri-Fernández R, Nogués X, Puig L, Torres E, Mellibovsky L, Hoffseth K, Stalbaum T, Srikanth A, Weaver JC, Rosen S, Barnard H, Brimer D, Proctor A, Candy J, Saldana C, Chandrasekar S, Lescun T, Nielson CM, Orwoll ES, Herhel D, Kopeikin H, Yang HT, Farr JN, McCready L, Khosla S, Díez-Pérez A, Hansma P. Applications of a New Handheld Reference Point Indentation Instrument Measuring Bone Material Strength. *J Med Device* 2013;7(4):410051-410056.
- García-Giralt N, Rodríguez-Sanz M, Prieto-Alhambra D, Servitja S, Torres E, Balcells S, Albanell J, Grinberg D, Díez-Pérez A, Tusquets I, Nogués X. Genetic determinants of aromatase inhibitor-related arthralgia: the B-ABLE cohort study. *Breast Cancer Res Tr* 2013;140(2):385-395.
- Yoskovitz G, García-Giralt N, Rodríguez-Sanz M, Urreizti R, Gürri-Fernández R, Ariño S, Prieto-Alhambra D, Mellibovsky L, Grinberg D, Nogués X, Balcells S, Díez-Pérez A. Analyses of RANK and RANKL in the post-GWAS context; functional evidence of vitamin D stimulation through a RANKL distal region. *J Bone Miner Res* 2013;28(12):2550-2560.
- Gürri-Fernández R, Nogués X, Quesada JM, Torres E, Puig L, García-Giralt N, Yoskovitz G, Mellibovsky L, Hansma P, Díez-Pérez A. Microindentation for in vivo measurement of bone tissue material properties in atypical femoral fracture patients and controls. *J Bone Miner Res* 2013;28(1):162-168.
- Prieto-Alhambra D, Nogués X, Javaid MK, Wyman A, Arden NK, Azagra R, Cooper C, Adachi JD, Boonen S, Chapurlat RD, Compston JE, Gehlbach S, Greenspan SL, Hooven FH, Netelenbos JC, Pfeilschifter J, Rossini M, Sambrook PN, Silverman S, Siris ES, Watts NB, Díez-Pérez A. An increased rate of falling leads to a rise in fracture risk in postmenopausal women with self-reported osteoarthritis: a prospective multinational cohort study (GLOW). *Ann Rheum Dis* 2013;72(6):911-917.
- Costa AG, Wyman A, Siris ES, Watts NB, Silverman S, Saag KG, Roux C, Rossini M, Pfeilschifter J, Nieves JW, Netelenbos JC, March L, LaCroix AZ, Hooven FH, Greenspan SL, Gehlbach S, Díez-Pérez A, Cooper C, Compston JE, Chapurlat RD, Boonen S, Anderson Jr FA, Adachi JD, Adami S. When, Where and How Osteoporosis-Associated Fractures Occur: An Analysis from the Global Longitudinal

Study of Osteoporosis in Women (GLOW).
PLoS ONE 2013;8(12):e83306.

- Torres E, Vilaplana L, Güerri-Fernández R, Díez-Pérez A. Measuring bone quality. Curr Theumatol Rep 2013;15(11):373.

Ongoing Research Projects 2013

- Multicentre project: Análisis Genético de la Osteoporosis mediante Estudio de micro RNAs
 - > Fondo de Investigación Sanitaria. ISCIII
 - > Principal researcher: Díez Pérez, Adolf
- Inhibidores de la aromatasa en mujeres posmenopáusicas con cáncer de mama. Respuesta génica relacionada con la osteoporosis y aparición de artralgias.
 - > Fondo de Investigación Sanitaria. ISCIII
 - > Principal researcher Nogués Solan, Francesc Xavier

Participation in Research Networks

- Red Temática de Investigación Cooperativa en Envejecimiento y Fragilidad
 - > Fondo de Investigación Sanitaria. ISCIII. Subprograma RETICS. RD06/0013/1009
 - > Principal researcher: Díez Pérez, Adolf
- Red Temática de Investigación Cooperativa en Envejecimiento y Fragilidad
 - > Fondo de Investigación Sanitaria. ISCIII. Subprograma RETICS. RD12/0043/0022
 - > Principal researcher: Díez Pérez, Adolf

Group's Recognition

- SGR recognizing groups: Unitat de Recerca Fisiopatologia Òssia i Articular. 2009 SGR 818
 - > Principal researcher: Nogués Solan, Francesc Xavier

Clinical Trials Signed in 2013

- Phase III studies: 1 (2012/4929)
- Phase IV studies: 3 (2010/3857, 2012/4930, 2013/5390)
- Observational: 1 (2013/5343)
- Post-authorization: 1 (2013/5337)

Other

- Invited Professor. Nuffield Department of Orthopedics, Botnar Research Center, University of Oxford. Adolfo Díez Pérez, 1-30 September 2013.
- Invited lecture. Massachusetts General Hospital. Department of Endocrinology. Harvard University Medical School, Boston, USA. Adolfo Díez Pérez. January 2013.
- Medal of Achievement. International Osteoporosis Foundation (IOF) 2013. Adolfo Díez Pérez

Myogenesis, Inflammation and Muscle Function

RESEARCH GROUP



Coordinator

Joaquim Gea Guiral

Members

Mireia Admetlló Papiol
Pilar Ausín Herrero
Ana Balañá Corberó
Eva Balcells Vilarnau
Carme Casadevall Fusté
Esther Garrido Pedregal
Helena Giménez Palau
Antoni Ferrer Monreal
Juana María Martínez Llorens
Josep Oriol Pallás Villaronga
Sergi Pascual Guardia
Roser Pedreny Ventura
Diego Agustín Rodríguez



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



Main Publications 2013

- Blanco I, Santos S, Gea J, Güell R, Torres F, Gimeno-Santos E, Rodríguez DA, Vilaró J, Gómez B, Roca J, Barberà JA. Sildenafil to improve respiratory rehabilitation outcomes in COPD: a controlled trial. *Eur Respir J* 2013;42(4):982-992.
- Donaire-González D, Gimeno-Santos E, Balcells E, Rodríguez DA, Farrero E, de Batlle J, Benet M, Ferrer A, Barberà JA, Gea J, Rodríguez-Roisin R, Antó JM, Garcia-Aymerich J. Physical activity in COPD patients: patterns and bouts. *Eur Respir J* 2013;42(4):993-1002.
- Bazán V, Grau N, Valles E, Félez M, Sanjuás C, Cainzos-Achirica M, Benito B, Jauregui-Abularach M, Gea J, Bruguera-Cortada J, Martí-Almor J. Obstructive sleep apnea in patients with typical atrial flutter: prevalence and impact on arrhythmia control outcome. *Chest* 2013;143(5):1277-83.
- Ramírez M, Martínez-Llorens J, Sánchez JF, Bagó J, Molina A, Gea J, Cáceres E. Body composition in adolescent idiopathic scoliosis. *Eur Spine J* 2013;22(2):324-9.
- Marco E, Ramírez-Sarmiento AL, Coloma A, Sartor M, Comín-Colet J, Vila J, Enjuanes C, Bruguera J, Escalada F, Gea J, Orozco-Levi M. High-intensity vs. sham inspiratory muscle training in patients with chronic heart failure: a prospective randomized trial. *Eur J Heart Fail* 2013;15(8):892-901.
- Rubini Giménez M, Hoeller R, Reichlin T, Zellweger C, Twerenbold R, Reiter M, Moehring B, Wildi K, Mosimann T, Mueller M, Meller B, Hochgruber T, Ziller R, Sou SM, Murray K, Sakarikos K, Ernst S, Gea J, Campodarve I, Vilaplana C, Haaf P, Steuer S, Minners J, Osswald S, Mueller C. Rapid rule out of acute myocardial infarction using undetectable levels of high-sensitivity cardiac troponin. *Int J Cardiol* 2013;168(4):3896-901.
- Barreiro E, Fermoselle C, Mateu-Jiménez M, Sánchez-Font A, Pijuan L, Gea J, Curull V. Oxidative stress and inflammation in the normal airways and blood of patients with lung cancer and COPD. *Free Radic Biol Med* 2013;65:859-71.
- Cases M, Furlong LI, Albanell J, Altman RB, Bellazzi R, Boyer S, Brand A, Brookes AJ, Brunak S, Clark TW, Gea J, Ghazal P, Graf N, Guigó R, Klein TE, López-Bigas N, Maojo V, Mons B, Musen M, Oliveira JL, Rowe A, Ruch P, Shabo A, Shortliffe EH, Valencia A, van der Lei J, Mayer MA, Sanz F. Improving data and knowledge management to better integrate health care and research. *J Intern Med* 2013;274(4):321-8.

Projects 2013

- Estadificación molecular del cáncer de pulmón: inflamación y señalización
 - > Fondo de Investigación Sanitaria. ISCIII
 - > Principal researcher: Ausín Herrero, Pilar
- Fibromiàlgia: Relacions entre els símptomes i fenòmens moleculars locals (expressió de citoquines i estrès oxidatiu) en els músculs
 - > Fundació La Marató de TV3
 - > Principal researcher: Gea Guiral, Joaquim
- Papel de TNF-a en la regulación de la capacidad regenerativa muscular de sujetos sanos y de pacientes con EPOC
 - > Ministerio de Ciencia e Innovación
 - > Principal researcher: Gea Guiral, Joaquim

Participation in Research Networks

- CIBERES: Enfermedades respiratorias
 - > Fondo de Investigación Sanitaria. ISCIII. CBo6/o6/oo43
 - > Principal researcher: Gea Guiral, Joaquim

Group's Recognition

- SGR recognizing groups: Unitat de Recerca en Múscul i Aparell Respiratori. 2009 SGR 393
 - > Principal researcher: Gea Guiral, Joaquim

Clinical Trials Signed in 2013

- Health Product:1 (2013/5083)
- Phase II studies: 1 (2012/4928)
- Phase III studies: 4 (2012/4965, 2013/5188, 2013/5182, 2013/5238, 2013/5438)

Other

- Joaquim Gea, PhD MD, Chair ERS Annual Congress 2013. Barcelona, 7-11 September 2013.
- Joaquim Gea, PhD MD. Director V curs de malaltia pulmonar obstructiva crònica (MPOC) per a metges d'assistència primària. Servei de Pneumologia, Hospital del Mar-PSMAR. Barcelona, from 7 to 14 October 2013.
- Joaquim Gea, PhD MD. Head of Barcelona Respiratory Network, Collaborative Research, founded in Barcelona in April 2013.
- Joaquim Gea, PhD MD. Patent: Chamber with control of inspired oxygen fraction (FiO₂) for drug nebulization. Publication no: 12 256191 0000 0000.

Neuro-Enteric Translational Science Research

RESEARCH GROUP





Coordinator

Sílvia Delgado Aros

Members

María del Carmen Alonso Romera

Jenny Rosario Haya Hidalgo

Inés Ana Ibáñez Zafón

Irene Martín Muñoz

The group is broadly interested in the study of the brain-gut axis, which includes all the mechanisms and structures that participate in the control of gut function and also influence, in a bidirectional mode, brain function. These include neural, immune, endocrine and microbiotic systems within the gut. We are currently focusing on two lines:

1. Satiation/Obesity: the study of gastrointestinal mechanisms that control human satiation and weight
2. Neuromodulation: assessing the impact of electrical neurostimulation on gastrointestinal functions



Inflammatory and Cardiovascular Disorders

Neuro-Enteric Translational Science Research

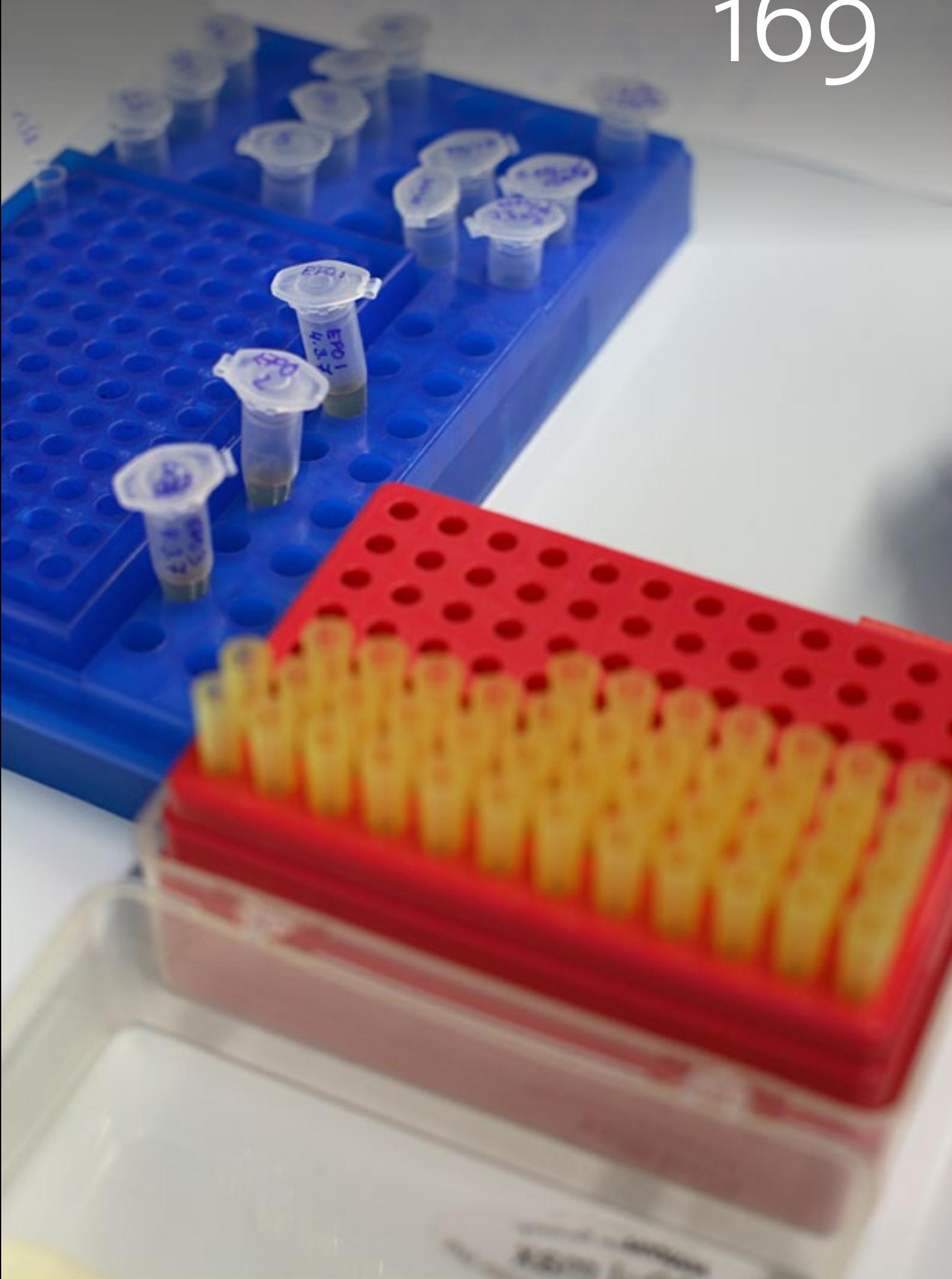
Main Publications 2013

- Cañas-Ventura A, Márquez L, Bessa X, Dedeu JM, Puigvehí M, Delgado S, Ibáñez-Zafón I, Seoane A, Barranco L, Bory F, Andreu M, González-Suárez B. Outcome in obscure gastrointestinal bleeding after capsule endoscopy. *World J Gastrointest Endosc* 2013;5(11):551-558.

Ongoing Research Project 2013

- Proposal to improve Neurogenic Bowel Dysfunction and related Quality of Life outcomes in subjects with brain or spinal cord injury
 - > Fundació La Marató de TV3
 - > Principal researcher: Delgado Aros, Sílvia

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Neurovascular

RESEARCH GROUP



Coordinator

Jaume Roquer González

Members

Elisa Cuadrado Godia
Eva Giralt Steinhauer
Jordi Jiménez Conde
Marina Mola Caminal
Ángel Javier Ois Santiago
Lluís Planellas Giné

Alessandro Principe
Ana María Rodríguez Campello
Gemma Romeral Ballester
Miguel Ángel Rubio Pérez
Carolina Soriano Tárraga
Rosa María Vivanco Hidalgo





Inflammatory and Cardiovascular Disorders

Neurovascular

This is a clinical group involved in stroke research. Currently our group is included in the “Red de Investigación Cardiovascular” (Cardiovascular Research Network - RIC), which is one of the main Spanish research networks. The strengths of our group are: firstly, our ongoing database named BASICMAR, which contains extensive demographic, epidemiological, clinical, and outcome data about all stroke patients ($n=5,100$) admitted to our hospital, and second, our large collection of blood samples of stroke patients for genetic and biomarkers studies ($n=3,600$). Our two main research lines are:

1. Clinical research and biomarkers in stroke:
Epidemiology, natural history and vascular risk factors, stroke biomarkers, diet and stroke (REHANIM), neurosonology and neuro-imaging.
2. Genetics and stroke research: Our unit is part of the International Stroke Genetics Consortium, which includes many international (USA, Europe) and national groups working to develop GWS (genome-wide scan) studies and projects.

Main Publications 2013

- Giralt-Steinhauer E, Cuadrado-Godia E, Ois Á, Jiménez-Conde J, Rodríguez-Campello A, Soriano C, Roquer J. Comparison between CHADS₂ and CHA₂DS₂-VASc score in a stroke cohort with atrial fibrillation. *Eur J Neurol* 2013;20(4):623-628.
- Cuadrado-Godia E, Jimena S, Ois A, Rodríguez-Campello A, Giralt-Steinhauer E, Soriano-Tárraga C, Jiménez-Conde J, Martínez-Rodríguez JE, Capellades J, Roquer J. Factors associated with early outcome in patients with large-vessel carotid strokes. *J Neurol Neurosurg Psychiatry* 2013;84(3):305-309.
- Anderson CD, Biffi A, Nalls MA, Devan WJ, Schwab K, Ayres A, Valant V, Ross OA, Rost NS, Saxena R, Viswanathan A, Worrall BB, Brott TG, Goldstein JN, Brown DL, Broderick JP, Norrving B, Greenberg SM, Silliman SL, Hansen BM, Tirschwell DL, Lindgren A, Slowik A, Schmidt R, Selim M, Roquer J, Montaner J, Singleton A, Kidwell CS, Woo D, Furie KL, Meschia JF, Rosand J, on behalf of the International Stroke Genetics Consortium. Common Variants Within Oxidative Phosphorylation Genes Influence Risk of Ischemic Stroke and Intracerebral Hemorrhage. *Stroke* 2013;44(3):612-619.
- Devan WJ, Falcone GJ, Anderson CD, Jagiella JM, Schmidt H, Hansen BM, Jiménez-Conde J, Giralt-Steinhauer E, Cuadrado-Godia E, Soriano C, Ayres AM, Schwab K, Kassis SB, Valant V, Pera J, Urbanik A, Viswanathan A, Rost NS, Goldstein JN, Freudenberger P, Stögerer EM, Norrving B, Tirschwell DL, Selim M, Brown DL, Silliman SL, Worrall BB, Meschia JF, Kidwell Ch S, Montaner J, Fernández-Cadenas I, Delgado P, Greenberg SM, Roquer J, Lindgren A, Slowik A, Schmidt R, Woo D, Rosand J, Biffi A. Heritability Estimates Identify a Substantial Genetic Contribution to Risk and Outcome of Intracerebral Hemorrhage. *Stroke* 2013;44(6):1578-1583.
- Soriano C, Jiménez-Conde J, Giralt E, Ois A, Rodríguez-Campello A, Cuadrado E, Fernández-Cadenas I, Montaner J, Lucas G, Elosua R, on behalf of GeneStroke "The Spanish Stroke Genetics Consortium". DNA Isolation Method Is a Source of Global DNA Methylation Variability Measured with LUMA. Experimental Analysis and a Systematic Review. *PLoS ONE* 2013;8(4):e60750.
- Ois A, Cuadrado-Godia E, Rodríguez-Campello A, Giralt-Steinhauer E, Jiménez-Conde J, López-Cuiña M, Ley M, Soriano C, Roquer J. Relevance of stroke subtype



in vascular risk prediction. *Neurology* 2013;81(6):575-580.

- Benavente OR, Coffey CS, Conwit R, Hart RG, McClure LA, Pearce LA, Pergola PE, Szchowski JM, SPS3 Study Group (...), Roquer J, Oliveras A, Jiménez-Conde J, Rodríguez-Campello A, Romeral G,...). Blood-pressure targets in patients with recent lacunar stroke: the SPS3 randomised trial. *Lancet* 2013;382(9891):507-515.
- Martínez-Rodríguez JE, Munné-Collado J, Rasal R, Cuadrado E, Roig L, Ois A, Muntasell A, Baró T, Alameda F, Roquer J, López-Botet M. Expansion of the NKG2C+ Natural Killer-Cell Subset Is Associated With High-Risk Carotid Atherosclerotic Plaques in Seropositive Patients for Human Cytomegalovirus. *Arterioscler Thromb Vasc Biol* 2013;33(11):2653-2659.
- Giralt E, Rodríguez-Campello A, Cuadrado E, Ois A, Jiménez-Conde J, Soriano C, Roquer J. External Validation of the DRAGON Score in an Elderly Spanish Population: Prediction of Stroke Prognosis after IV Thrombolysis. *Cerebrovasc Dis* 2013;36(2):110-114.
- Escolar G, Fernández-Gallego V, Arellano-Rodrigo E, Roquer J, Reverter JC, Sanz VV, Molina P, López-Vilchez I, Díaz-Ricart M,

Galán AM. Reversal of apixaban induced alterations in hemostasis by different coagulation factor concentrates: significance of studies in vitro with circulating human blood. *PLoS ONE* 2013;8(11):e78696.

Ongoing Research Projects 2013

- Bases genéticas de la leucoaraiosis. Estudio de Genome Wide Association en población española. Consorcio Español de Genética del Ictus (Genestroke)
 - > Fondo de Investigación Sanitaria. ISCIII
 - > Principal researcher: Jiménez Conde, Jordi
- GODS project: Genetic contribution to functional Outcome and Disability after Stroke
 - > Fundació La Marató de TV3
 - > Principal researcher: Jiménez Conde, Jordi
- Epigenética en el riesgo de ictus. Estudio de Epigenome-Wide Association en los subtipos etiológicos de ictus isquémico. Consorcio Español de Genética del Ictus (Genestroke)
 - > Fondo de Investigación Sanitaria. ISCIII
 - > Principal researcher: Roquer González, Jaume

Participation in Research Networks

- Heracles: Determinants genètics i ambientals de la disfunció vascular en la hipertensió i en la cardiopatia isquèmica
 - > Fondo de Investigación Sanitaria. ISCIII.
Subprograma RETICS. RD06/0009/0015
 - > Principal researcher: Roquer González, Jaume
- Red Cardiovascular
 - > Fondo de Investigación Sanitaria. ISCIII.
Subprograma RETICS. RD12/0042/0020
 - > Principal researcher: Roquer González, Jaume

Group's Recognition

- SGR recognizing groups: NEUROMAR.
2009 SGR 1223
 - > Principal researcher: Roquer González, Jaume

Clinical Trials Signed in 2013

- Health Product: 1 (2012/4960)
- Phase III studies: 2 (2012/4892, 2013/5370)

Rehabilitation

RESEARCH GROUP





Coordinator

Esther Duarte Oller

Members

Roser Belmonte Martínez

Maria Coll Molinos

María Fernanda Donaire Mejías

Ferran Escalada Recto

Ester Marco Navarro

Monique Messaggi Sartor

Josep Maria Muniesa Portolés

Eva Pascual García

The main scientific objectives of the group are to advance the knowledge of brain plasticity and motor recovery in stroke patients and to assess the effects of physical training on cardiovascular disease, cancer and ageing. The group has worked in the development of Telerehabilitation systems applied to osteoarticular, neurological and cardiorespiratory diseases, encouraging interaction between basic and clinical sciences and health services, with potential translational application, providing innovative and potentially effective treatment alternatives.



Main Publications 2013

- Alentorn-Geli E, Gil S, Bascuas I, Donaire MF, Boza R, Pidemunt G, Puig L, Zabala S, Ginés A. Correlation of Dorsiflexion Angle and Plantar Pressure Following Arthrodesis of the First Metatarsophalangeal Joint. *Foot & Ankle Int* 2013;34(4):504-511.
- Piqueras M, Marco E, Coll M, Escalada F, Ballester A, Cinca C, Belmonte R, Muniesa JM. Effectiveness of an interactive virtual telerehabilitation system in patients after total knee arthroplasty: A randomized controlled trial. *J Rehabil Med* 2013;45(4):392-396.
- Marco E, Ramírez-Sarmiento A, Coloma A, Sartor M, Comín J, Vila JS, Enjuanes C, Bruguera J, Escalada F, Gea J, Orozco-Levi M. High-intensity vs. sham inspiratory muscle training in patients with chronic heart failure: a prospective randomized trial. *Eur J Heart Failure* 2013;15(8):892-901.
- Guillén-Solà A, Marco E, Chiarella-Privette S, and Escalada F (2013). Dysphonia as non-local tumour expression. *Med Clin (Barc)*;139(13):e28. (IF: 1.399). (Q2)
- Bascuas I, Tejero M, Monleón-Castelló S, Boza R, Muniesa JM, Belmonte R. Balance 1 year after TKA: correlation with clinical variables. *Orthopedics* 2013;36(1):e6-e12.
- Amengual JL, Rojo N, Veciana de las Heras M, Marco-Pallarés J, Grau-Sánchez J, Schneider S, Vaquero L, Juncadella M, Montero J, Mohammadi B, Rubio F, Rueda N, Duarte E, Grau C, Altenmüller E, Münte TF. Sensorimotor plasticity after music-supported therapy in chronic stroke patients revealed by transcranial magnetic stimulation. *PLoS ONE* 2013;8(4):e61883.
- Aguirrezzabal A, Duarte E, Rueda N, Cervantes C, Marco E. Effects of information and training provision in satisfaction of patients and carers in stroke rehabilitation. *Neurorehabilitation* 2014;33(4):639-647.
- Guillén A, Marco E, Martínez-Orfila JA, Donaire MF, Depolo M, Duarte E, Escalada F. Usefulness of the volume-viscosity swallow test for screening dysphagia in subacute stroke patients in rehabilitation income. *Neurorehabilitation* 2013;33(4):631-638.

Ongoing Research Projects 2013

- Efectos sobre la marcha del uso repetido de la Toxina Botulínica Tipo A Sin Proteínas Complejantes en el pie equino varoespástico del adulto: Ensayo clínico aleatorizado
 - > SERMEF
 - > Principal researcher: Duarte Oller, Esther
- Estudio RETORNUS. Entrenamiento Dual para Restaurar la Función de los Músculos Respiratorios en Pacientes con Ictus.
 - > Fondo de Investigación Sanitaria. ISCIII
 - > Principal researcher: Marco Navarro, Ester

Genetic Causes of Disease

ASSOCIATED RESEARCH GROUP



**Coordinator**

Xavier Estivill Pallejà

Members

Mónica Báñez Coronel
Georgia Escaramis Babiano
Marc Riemer Friedländer
Charlotte Hor
Hyun-Gyu Hor
Anna Jacoba Sara Houben
Birgit Kagerbauer
Esther Lizano González
Eulàlia Martí Puig
Marta Morell Oriol
Raquel Rabionet Janssen
Aparna Prasad
Daniel Trujillano Lidón

Our lab conducts experimental and bioinformatics research in medical genomics. The group explores how different types of genetic variants (single nucleotide variants, structural variations, copy number variants, and insertion/deletion variants) contribute to human diseases, mostly neuropsychiatric, neurodegenerative and inflammatory disorders. The interaction of genetic factors with environmental conditions is one of the group's main areas of research and is addressed by integrating epidemiological and clinical data with genetics information. This interaction can be evaluated through a longitudinal approach in the clinical course of each human disorder. We study very well characterized cohorts of patients and use high-throughput genomic platforms and functional studies, including longitudinal investigations of patients at different time-points and cohorts in which exposure to the environment has been monitored.



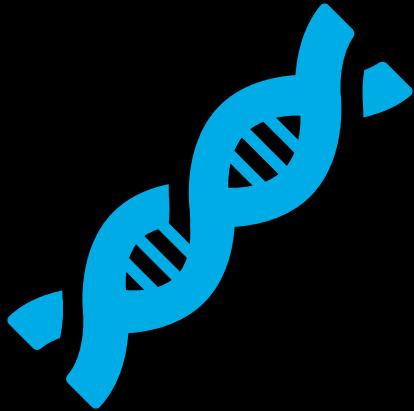
Publications

- Bassaganyas L, Bea S, Escaramís G, Tornador C, Salaverria I, Zapata L, Drechsel O, Ferreira PG, Rodríguez-Santiago B, Tubio JM, Navarro A, Martín-García D, López C, Martínez-Trillos A, López-Guillermo A, Gut M, Ossowski S, López-Otín C, Campo E, Estivill X. Sporadic and reversible chromothripsis in chronic lymphocytic leukemia revealed by longitudinal genomic analysis. *Leukemia* 2013;27(12):2376-2379.
- Hoen PA, Friedländer M, Almlöf J, Sammeth M, Pulyakhina I, Anvar SY, Laros JF, Buermans HP, Karlberg O, Brännvall M, den Dunnen JT, van Ommen GJ, Gut IG, Guigó R, Estivill X, Syvänen AC, Dermitzakis ET, Lappalainen T, The GEUVADIS Consortium. Reproducibility of high-throughput mRNA and small RNA sequencing across laboratories. *Nat Biotechnol* 2013;31(11):1015-1022.
- Lappalainen T, Sammeth M, Friedländer M, Hoen PA, Monlong J, Rivas M, González-Porta M, Kurbatova N, Griebel T, Ferreira PG, Barann M, Wieland T, Greger L, van Iterson M, Almlöf J, Ribeca P, Pulyakhina I, Esser D, Giger T, Tikhonov A, Sultan M, Bertier G, MacArthur D, Lek M, Lizano E, Buermans HP, Padoleau I, Schwarzmayr T, Karlberg O, Ongen H, Kilpinen H, Beltran S, Gut M, Kahlem K, Amstislavskiy V, Stegle O, Pirinen M, Montgomery SB, Donnelly P, McCarthy MI, Flück P, Strom TM, Lehrach H, Schreiber S, Sudbrak R, Carracedo A, Antonarakis SE, Häslar R, Syvänen AC, van Ommen GJ, Brazma A, Meitinger T, Rosenstiel P, Guigó R, Gut IG, Estivill X, Dermitzakis ET, The Geuvadis Consortium. Transcriptome and genome sequencing uncovers functional variation in humans. *Nature* 2013;501(7468):506-511.
- Sailani MR, Makrythanasis P, Valsesia A, Santoni FA, Deutsch S, Popadin K, Borel C, Migliavacca E, Sharp AJ, Sail GD, Falconnet E, Rabionet R, Serra-Juhé C, Vicari S, Laux D, Grattau Y, Dembour G, Megarbane A, Touraine R, Stora S, Kitsiou S, Fryssira H, Chatzisebastou-Ioukidou C, Kanavakis E, Merla G, Bonnet D, Pérez-Jurado L, Estivill X, Delabar JM, Antonarakis SE. The complex SNP and CNV genetic architecture of the increased risk of congenital heart defects in Down syndrome. *Genome Res* 2013;23(9):1410-1421.
- Álvarez-Mora MI, Rodríguez-Revenga L, Madrigal I, Torres-Silva F, Mateu-Huertas E, Lizano E, Friedländer M, Martí E, Estivill

X, Milà M. MicroRNA expression profiling in blood from fragile X-associated tremor/ataxia syndrome patients. *Genes Brain Behav* 2013;12(6):595-603.

- Trujillano D, Ramos MD, González J, Tornador C, Sotillo F, Escaramís G, Ossowski S, Armengol L, Casals T, Estivill X. Next generation diagnostics of cystic fibrosis and CFTR-related disorders by targeted multiplex high-coverage resequencing of CFTR. *J Med Genet* 2013;50(7):455-462.
- Aigner J, Villatoro S, Rabionet R, Roquer J, Jiménez-Conde J, Martí E, Estivill X. A common 56-kilobase deletion in a primate-specific segmental duplication creates a novel butyrophilin-like protein. *BMC Genet* 2013;14(1):61.
- Escaramís G, Tornador C, Bassaganyas L, Rabionet R, Tubio JM, Martínez-Fundichely A, Cáceres M, Gut M, Ossowski S, Estivill X. PeSV-Fisher: Identification of Somatic and Non-Somatic Structural Variants Using Next Generation Sequencing Data. *PLoS ONE* 2013;8(5):e63377.
- Bassaganyas L, Riveira-Muñoz E, García-Aragonés M, González JR, Cáceres M, Armengol L, Estivill X. Worldwide population distribution of the common

LCE3C-LCE3B deletion associated with psoriasis and other autoimmune disorders. *BMC Genomics* 2013;14(1):261.



PROGRAMME

Biomedical Informatics

The programme is made up of those research groups:

Evolutionary Genomics
Mar Albà

Integrative Biomedical Informatics
Ferran Sanz

Systems Pharmacology
Jordi Mestres

The programme has two associated groups:

Computational Genomics
Roderic Guigó

Pharmacoinformatics
Manuel Pastor

Ferran Sanz
Programme Director

The Research Programme on Biomedical Informatics (GRIB) is a joint research programme of Hospital del Mar Medical Research Institute (IMIM) and Pompeu Fabra University (UPF). Ferran Sanz is the Director of GRIB.

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

GRIB coordinates jointly with Farmaindustria the Plataforma Tecnológica Española de Medicamentos Innovadores (Spanish Technological Platform for Innovative Medicines - PTEMI) and the Director of GRIB was, until 2013, a member of the Scientific Committee of the European Innovative Medicines Initiative (IMI JTI). GRIB is recognized and funded by the Autonomous Government of Catalonia and one of the centres of TECNIO, the Catalan Technological Innovation Network created by ACCIO and is also the node for Biomedical Informatics of the Spanish Institute of Bioinformatics (INB). GRIB is a participant in the new platform Bioinformatics Barcelona (BIB) which aims to promote training, research, and the transfer of technology in bioinformatics, and Ferran Sanz is the scientific director.

The GRIB is currently composed of more than 60 members, organized into five research groups:

- Evolutionary genomics: focused on the use of comparative genomics and large-scale data analysis to gain a deeper understanding of the evolution of genes and genomes and to predict functional elements. Mar Albà (ICREA) is the group leader.
- Systems pharmacology: dedicated to developing and applying computational tools for the systematic identification of active molecules for therapeutically significant target families. Jordi Mestres is the group leader.
- Pharmacoinformatics: focused on the development and application of computational methodologies in the area of drug design. Manuel Pastor is the group leader. Jana Selent (Miguel Servet researcher) is a senior researcher in this group.
- Integrative biomedical informatics: dedicated to the generation and execution of research initiatives for the solution of biomedical problems based on the methods and strategies afforded in different GRIB groups. Laura I. Furlong (Miguel Servet researcher) is the group

leader and Ferran Sanz, director of GRIB, is also PI of this group.

Computational genomics is devoted to the development and application of methods to identify functional domains in genomic sequences. The main researcher in this group is Roderic Guigó (CRG).

The GRIB members' backgrounds are multidisciplinary: biologists, chemists, pharmacists, medical doctors, computer scientists, information specialists, etc., and some 30% of them come from foreign countries: Germany, Italy, UK, Argentina and others. Almost 40% of the members are postdoctoral researchers.

Objectives Achieved in 2013

- 60 international indexed publications, 80% of them in first quartile magazines, with an average impact factor of 6.6.
- Participation and coordination of research projects funded by the European Commission:



- We are academic coordinators of this first-call IMI project for the *in silico* prediction of drug toxicities with a budget over €12M which

was extended during 2013 until the end of 2016. Thirteen international pharmaceutical companies (including Lab. Esteve), six SMEs (three of them from Catalonia) and seven academic groups are participating in this project.



- Second-call IMI project based on computational extraction, integration and exploitation of open-source knowledge to support drug discovery. The budget is €16.4M and in 2014 the project was extended until August 2016. Eight international pharmaceutical companies (including Lab. Esteve) and 14 academic groups and SMEs (one from Catalonia) are participating in this project.



- 7th Framework Programme CSA (Coordination and Support Actions) Project coordinated by GRIB. The objective of this project is to monitor

the evolution of the BMI field and to address its scientific challenges. The budget is €1.1M.

- Collaboration contracts signed with two international pharmaceutical companies: Roche Diagnostics GmbH and Sanofi Aventis Deutschland GmbH.
- Organization of international events in the field of bioinformatics:
 - I Jornada de Bioinformàtica i Biologia Computacional (1st Bioinformatics and Computational Biology Conference), organised jointly with IEC and BIB on 22 November in Barcelona, with the participation of more than 300 bioinformaticians.
 - Translational Knowledge Management in Pharmaceutical Research & Development, organised jointly with IMI on 11-12 July in Brussels, within the framework of the INBIOMEDvision project, with the participation of 48 international experts from scientific, pharmaceutical, and political fields.
 - 6th Annual Conference of the Spanish Technological Platform for Biomedical research, organised jointly with Farmaindustria on 20-21 March in Madrid, with more than 200 participants.

Evolutionary Genomics

RESEARCH GROUP





Coordinator

Maria del Mar Albà Soler

Members

Laura Baldo

Steve Laurie

Núria Radó Trilla

Jorge Ruiz Orera

Juan Antonio Subirana

José Luis Villanueva Cañas

The Evolutionary Genomics Group led by Mar Albà uses comparative genomics and large-scale data analysis to understand the complexity of gene regulation and evolutionary innovation. The group develops bioinformatics methods to predict functional elements in the genome and measure the influence of natural selection in shaping gene evolution. Some projects are conducted in collaboration with experimental groups.

Main Publications 2013

- Villanueva-Cañas JL, Laurie S, Albà MM. Improving genome-wide scans of positive selection by using protein isoforms of similar length. *Genome Biol Evol* 2013;5(2):457-467.
- Toll-Riera M, Albà MM. Emergence of novel domains in proteins. *BMC Evol Biol* 2013;13(1):47.
- Bornberg-Bauer E, Albà MM. Dynamics and adaptive benefits of modular protein evolution. *Curr Opin Struct Biol* 2013;23(3):459-466.
- Trilling M, Bellora N, Rutkowski AJ, de Graaf M, Dickinson P, Robertson K, Prazeres da Costa O, Ghazal P, Friedel CC, Albà MM, Dölken L. Deciphering the modulation of gene expression by type I and II interferons combining 4sU-tagging, translational arrest and in silico promoter analysis. *Nucleic Acids Res* 2013;41(17):8107-8125.
- Pegueroles C, Laurie S, Albà MM. Accelerated evolution after gene duplication: a time-dependent process affecting just one copy. *Mol Biol Evol* 2013;30(8):1830-1842.
- Mulero MC, Ferrés-Marco D, Islam A, Margalef P, Pecoraro M, Toll A, Drechsel N, Charneco C, Davis S, Bellora N,

Gallardo F, López-Arribillaga E, Asensio-Juan E, Rodilla V, González J, Iglesias M, Shih V, Albà MM, Di Croce L, Hoffmann A, Miyamoto S, Villà-Freixa J, López-Bigas N, Keyes WM, Domínguez M, Bigas A, Espinosa L. Chromatin-Bound IkBa Regulates a Subset of Polycomb Target Genes in Differentiation and Cancer. *Cancer Cell* 2013;24(2):151-166.

Ongoing Research Project 2013

- Evolución de nuevas funciones génicas en genomas de mamíferos
 - > Ministerio de Economía y Competitividad
 - > Principal researcher: Albà Soler, Maria del Mar

Participation in Research Networks

- Red española de esclerosis múltiple
 - > Fondo de Investigación Sanitaria. ISCIII.
 - > Subprograma RETICS. RD07/0060/0027
 - > Principal researcher: Albà Soler, Maria del Mar

Integrative Biomedical Informatics

RESEARCH GROUP



**Coordinator**

Ferran Sanz Carreras
(IMIM-UPF)

Members

Àlex Bravo Serrano
Montse Cases Amat
María Jesús Donlo Fernández
Laura I. Furlong Nespolo
Alfons González Pauner
Solene Grosdidier
Alba Gutiérrez Sacristán
Miguel Ángel Mayer Pujades
Carina Oliver Dutrem
Janet Piñero González
Núria Queralt Rosinach
Maria Saarela
Miguel Ángel Sánchez Gómez

This group promotes and tackles synergistic and integrative strategies for approaching biomedical problems, making use of ideas developed within the IBI group but also fostering the collaboration between research groups of the GRIB. At present, an increasing wealth of information, particularly that generated by biomedical research, is left unused. There are major difficulties in both the identification and use of clinically actionable information. The goal of our group is to develop methods and tools to help to solve this problem, with a special focus on methods that promote an understanding of human health and disease. The current research lines of Integrative Biomedical Informatics are:

- Development of new strategies and tools for the extraction of knowledge from biomedical literature and other publicly available sources.
- Network biology for the study of human diseases and drug toxicity
- Integrative knowledge management and exploitation in drug discovery and development, including multi-level and multi-scale modelling and simulation.

Main Publications 2013

- Cases M, Furlong LI, Albanell J, Altman RB, Bellazzi R, Boyer S, Brand A, Brookes AJ, Brunak S, Clark TW, Gea J, Ghazal P, Graf N, Guigó R, Klein TE, López-Bigas N, Maojo V, Mons B, Musen M, Oliveira JL, Rowe A, Ruch P, Shabo A, Shortliffe EH, Valencia A, van der Lei J, Mayer MA, Sanz F. Improving data and knowledge management to better integrate health care and research. *J Intern Med* 2013;274(4):321-8.
- De la Iglesia D, García-Remesal M, de la Calle G, Kulikowski C, Sanz F, Maojo V. The Impact of Computer Science in Molecular Medicine: Enabling High-throughput Research. *Curr Top Med Chem* 2013;13(5):526-575.
- Martí-Solano M, Guixà-González R, Sanz F, Pastor M, Selent J. Novel Insights into Biased Agonism at G Protein-Coupled Receptors and their Potential for Drug Design. *Curr Pharm Design*, 2013;19(28):5156-5166.
- Coloma PM, Schuemie MJ, Trifirò G, Furlong L, van Mulligen E, Bauer-Mehren A, Avillach P, Kors J, Sanz F, Mestres J, Oliveira JL, Boyer S, Helgee EA, Molokhia M, Matthews J, Prieto-Merino D, Gini R, Herings R, Mazzaglia G, Picelli G, Scotti L, Pedersen L, van der Lei J, Sturkenboom M; EU-ADR consortium. Drug-induced acute myocardial infarction: identifying 'prime suspects' from electronic healthcare records-based surveillance system. *PLoS ONE* 2013;8(8):e72148.
- Lopes P, Nunes T, Campos D, Furlong LI, Bauer-Mehren A, Sanz F, Carrascosa MC, Mestres J, Kors J, Singh B, van Mulligen E, Van der Lei J, Diallo G, Avillach P, Ahlberg E, Boyer S, Díaz C, Oliveira JL. Gathering and Exploring Scientific Knowledge in Pharmacovigilance. *PLoS ONE* 2013;8(12):e83016.
- Oliveira JL, Lopes P, Nunes T, Campos D, Boyer S, Ahlberg E, van Mulligen EM, Kors JA, Singh B, Furlong LI, Sanz F, Bauer-Mehren A, Carrascosa MC, Mestres J, Avillach P, Diallo G, Díaz Acedo C, van der Lei J. The EU-ADR Web Platform: delivering advanced pharmacovigilance tools. *Pharmacoepidemiol Drug Saf* 2013;22(5):459-467.
- Cases M, Pastor M, Sanz F. The eTOX Library of Public Resources for in Silico Toxicity Prediction. *Mol Inf* 2013;32:24-35.
- Kaczor AA, Selent J, Sanz F, Pastor M. Modeling Complexes of Transmembrane Proteins: Systematic Analysis of ProteinProtein Docking Tools. *Mol Inf* 2013;32(8):717-733.

- Furlong LI. Human diseases through the lens of network biology. Trends Genet 2013;29(3):150-159.

Ongoing Research Projects 2013

- Development of a computational approach for the study of the biological mechanisms underlying drug adverse reactions
 - > Fondo de Investigación Sanitaria. ISCIII
 - > Principal researcher: Furlong Nespolo, Laura Inés
- VPH NoE: Virtual Physiological Human Network of Excellence
 - > European Community
 - > Principal researcher: Sanz Carreras, Ferran
- eTOX: Integrating bioinformatics and chemoinformatics approaches for the development of expert systems allowing the in silico prediction of toxicities
 - > Innovative Medicines Initiative (IMI)
 - > Principal researcher: Sanz Carreras, Ferran
- OpenPhacts: Open Pharmacological Concepts Triple Store
 - > Innovative Medicines Initiative (IMI)
 - > Principal researcher: Sanz Carreras, Ferran
- INBIOMEDvision: Promoting and Monitoring Biomedical Informatics in Europe
 - > European Community
 - > Principal researcher: Sanz Carreras, Ferran
- eTOX-ENSO: Integrating bioinformatics and chemoinformatics approaches for the development of expert systems allowing the in silico prediction of toxicities
 - > Innovative Medicines Initiative (IMI)
 - > Principal researcher: Sanz Carreras, Ferran
- Desarrollo de un prototipo original de microarreglo de expresión de ADN basado en un transcripto novedoso, para el diagnóstico de la progresión de tumores epiteliales en humanos
 - > Fondo para la Investigación Científica y Tecnológica, Argentina
 - > Principal researcher: Furlong Nespolo, Laura Inés

Participation in Research Networks

- Red temática de investigación cooperativa en biomedicina computacional
 - > Fondo de Investigación Sanitaria. ISCIII. Subprograma RETICS. RD07/0067/0001
 - > Principal researcher: Sanz Carreras, Ferran

Group's Recognitions

- SGR recognizing groups: Unitat de Recerca en Informàtica Biomèdica. 2009 SGR 1553
 - > Principal researcher: Sanz Carreras, Ferran

Other

► Relevant positions in external organizations

- Ferran Sanz is academic coordinator of the Spanish Technology Platform on Innovative Medicines (PTEMI), Coordinator of the Biomedical Informatics Node of the Spanish Institute of Bioinformatics (INB) and Scientific Director of Barcelona Bioinformatics.

► Bioinformatics tools and resources created by the group

- ADR-Substantiation
Tool for finding plausible biological mechanisms of adverse drug reactions. <http://ibi.imim.es/tools/adr-substantiation/>
- DisGeNET
Knowledge discovery platform of human diseases and genes. <http://ibi.imim.es/tools/disgenet/>
- BeFree
Text mining approach for the identification of relationships between biomedical entities from the literature. <http://ibi.imim.es/tools/befree/>

- Disease-related biomarker database
Database of disease-related biomarkers developed by applying text mining approaches to the biomedical literature.
<http://ibi.imim.es/disease-related-biomarker-database/>

Systems Pharmacology

RESEARCH GROUP





Coordinator

Jordi Mestres López

Members

Albert Antolín Hernández

M. Carmen Carrascosa Baena

Xavier Jalencas Giménez

Joaquim Olivés Farrés

Nikita Remez Vinogradov

Viktoria Szabo

The Systems Pharmacology group, led by Jordi Mestres, performs research at the interface between chemistry, biology, toxicology, medicine, and informatics, with the focus on the development of new computational methods and integrative biochemoinformatics tools directly applicable to drug design and discovery. Our aim is to facilitate the access to and efficient integration of the enormous amount of data available currently on the connections of both small molecules and proteins with other systemic entities (such as biological pathways, organs, side effects, and diseases, to name a few) in order to provide a twenty-first century systems view of medicinal chemistry.

Main Publications 2013

- Azzaoui K, Jacoby E, Senger S, Rodríguez EC, Loza M, Zdrazil B, Pinto M, Williams AJ, de la Torre V, Mestres J, Pastor M, Tabouret O, Rarey M, Chichester C, Petiffer S, Blomberg N, Harland L, Williams-Jones B, Ecker GF. Scientific competency questions as the basis for semantically enriched open pharmacological space development. *Drug Discov Today* 2013;18:843-852.
- Spitzmüller A, Mestres J. Prediction of the *P. falciparum* Target Space Relevant to Malaria Drug Discovery. *PLoS Comput Biol* 2013;9(10):e1003257.
- Jalencas X, Mestres J. Chemoisosterism in the Proteome. *J Chem Inf Model* 2013;53(2):279-292.
- Coloma PM, Schuemie MJ, Trifirò G, Furlong L, van Mulligen E, Bauer-Mehren A, Avillach P, Kors J, Sanz F, Mestres J, Oliveira JL, Boyer S, Helgee EA, Molokhia M, Matthews J, Prieto-Merino D, Gini R, Herings R, Mazzaglia G, Picelli G, Scotti L, Pedersen L, van der Lei J, Sturkenboom M; EU-ADR consortium. Drug-induced acute myocardial infarction: identifying 'prime suspects' from electronic healthcare records-based surveillance system. *PLoS ONE* 2013;8(8):e72148.
- Lopes P, Nunes T, Campos D, Furlong LI, Bauer-Mehren A, Sanz F, Carrascosa MC, Mestres J, Kors J, Singh B, van Mulligen E, Van der Lei J, Diallo G, Avillach P, Ahlberg E, Boyer S, Díaz C, Oliveira JL. Gathering and Exploring Scientific Knowledge in Pharmacovigilance. *PLoS ONE* 2013;8(12):e83016.
- Jalencas X, Mestres J. On the origins of drug polypharmacology. *MedChemComm* 2013;4(1):80-87.
- Oliveira JL, Lopes P, Nunes T, Campos D, Boyer S, Ahlberg E, van Mulligen EM, Kors JA, Singh B, Furlong LI, Sanz F, Bauer-Mehren A, Carrascosa MC, Mestres J, Avillach P, Diallo G, Díaz Acedo C, van der Lei J. The EU-ADR Web Platform: delivering advanced pharmacovigilance tools. *Pharmacoepidemiol Drug Saf* 2013;22(5):459-467.
- Baumann K, Ecker GF, Mestres J, Schneider G. Sustained Success of Molecular Informatics. *Mol Inform* 2013;32(1):3-3SI.
- Jalencas X, Mestres J. Identification of Similar Binding Sites to Detect Distant Polypharmacology. *Mol Inform* 2013;32(11-12):976-990.
- Antolín AA, Carotti A, Nuti R, Hakkaya A, Camaioni E, Mestres J, Pellicciari R,

Macchiarulo A. Exploring the effect of PARP-1 flexibility in docking studies. *J Mol Graph Model* 2013;45:192-201.

Ongoing Research Projects 2013

- Arrhythmogenic potential of drugs
 - > European Community
 - > Principal researcher: Mestres López, Jordi
- El espacio químico de los sistemas biológicos: cobertura, completitud, mecanismos de acción, e implicaciones evolutivas.
 - > Ministerio de Ciencia e Innovación
 - > Principal researcher: Mestres López, Jordi
- Drug Repositioning for Rare Diseases
 - > Fondo de Investigación Sanitaria. ISCIII
 - > Principal researcher: Mestres López, Jordi

Computational Genomics

ASSOCIATED RESEARCH GROUP



Coordinator

Roderic Guigó Serra

Members

Amaya Abad Cacho
Estel Aparicio Prat
Carme Arnan Ros
Alessandra Breschi
Francisco Câmara Ferreira
Joao Filipe Ferreira Curado Silva
Sarah Djebali

Alex Esteban Franco
Rory Johnson
Dariusz Kedra
Julien Lagarde
Marco Mariotti
Marta Melé Messeguer
Emilio Palumbo
Sílvia Pérez Lluch

201



Dmitry Pervushin

Ferran Reverter

Dídac Santesmasses Ruiz

Reza Sodaei

Sebastian Ullrich

Barbara Uszczynska

Anna Vlasova

More information at CRG:

[http://www.crg.eu/en/programmes-groups/
computational-biology-rna-processing](http://www.crg.eu/en/programmes-groups/computational-biology-rna-processing)

Research in the Computational genomics group (http://big.crg.cat/bioinformatics_and_genomics) focuses on the investigation of the signals involved in gene specification in genomic sequences (promoter elements, splice sites, translation initiation sites, etc.). The group is interested both in the mechanism of their recognition and processing, and in their evolution. In addition, but related to this basic component of its research, the group is also involved in the development of software for gene prediction and annotation in genomic sequences. The group has actively participated in the analysis of many eukaryotic genomes and it is involved in a number of international projects: ENCODE, GTEx, BluePrint and the International Cancer Genome Consortium. The group is the Genomics node of the Spanish Instituto Nacional de Bioinformática.

Main Publications 2013

- Hoen PA, Friedländer M, Almlöf J, Sammeth M, Pulyakhina I, Anvar SY, Laros JF, Buermans HP, Karlberg O, Brännvall M, den Dunnen JT, van Ommen GJ, Gut IG, Guigó R, Estivill X, Syvänen AC, Dermitzakis ET, Lappalainen T, The GEUVADIS Consortium. Reproducibility of high-throughput mRNA and small RNA sequencing across laboratories. *Nat Biotechnol* 2013;31(11):1015-1022.
- Lappalainen T, Sammeth M, Friedländer M, Hoen PA, Monlong J, Rivas M, González-Porta M, Kurbatova N, Griebel T, Ferreira PG, Barann M, Wieland T, Greger L, van Iterson M, Almlöf J, Ribeca P, Pulyakhina I, Esser D, Giger T, Tikhonov A, Sultan M, Bertier G, MacArthur D, Lek M, Lizano E, Buermans HP, Padioletti I, Schwarzmayr T, Karlberg O, Ongen H, Kilpinen H, Beltrán S, Gut M, Kahlem K, Amstislavskiy V, Stegle O, Pirinen M, Montgomery SB, Donnelly P, McCarthy MI, Flück P, Strom TM, Lehrach H, Schreiber S, Sudbrak R, Carracedo A, Antonarakis SE, Häsler R, Syvänen AC, van Ommen GJ, Brazma A, Meitinger T, Rosenstiel P, Guigó R, Gut IG, Estivill X, Dermitzakis ET, The Geuvadis Consortium. Transcriptome and genome sequencing uncovers functional variation in humans. *Nature* 2013;501(7468): 506-511.

Pharmacoinformatics

ASSOCIATED RESEARCH GROUP



**Coordinator**

Manuel Pastor Maeso

Members

Núria Boada Centeno
Pau Carrió Gaspar
Ramón Guixà González
Oriol López Massaguer
María Martí Solano
Jana Selent

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

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

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

Main Publications 2013

- Cases M, Pastor M, Sanz F. The eTOX Library of Public Resources for in Silico Toxicity Prediction. *Mol Inf* 2013;32(1): 24-35.
- Jabeen I, Wetwitayaklung P, Chiba P, Pastor M, Ecker GF. 2D- and 3D-QSAR studies of a series of benzopyranes and benzopyrano[3,4b][1,4]-oxazines as inhibitors of the multidrug transporter P-glycoprotein. *J Comput Aid Mol Des* 2013;27(2):161-171.
- Selent J, Kaczor AA, Guixà-González R, Carrió P, Pastor M, Obiol-Pardo C. Rational design of the survivin/CDK4 complex by combining protein-protein docking and molecular dynamics simulations. *J Mol Model* 2013;19(4):1507-1514.
- Azzaoui K, Jacoby E, Senger S, Rodríguez EC, Loza M, Zdráhal B, Pinto M, Williams AJ, de la Torre V, Mestres J, Pastor M, Tabouret O, Rarey M, Chichester C, Petiffer S, Blomberg N, Harland L, Williams-Jones B, Ecker GF. Scientific competency questions as the basis for semantically enriched open pharmacological space development. *Drug Discov Today* 2013;18:843-852.
- Martí-Solano M, Guixà-González R, Sanz F, Pastor M, Selent J. Novel Insights

- into Biased Agonism at G Protein-Coupled Receptors and their Potential for Drug Design. *Curr Pharm Design*, 2013;19(28):5156-5166.
- Kaczor AA, Selent J, Sanz F, Pastor M. Modeling Complexes of Transmembrane Proteins: Systematic Analysis of ProteinProtein Docking Tools. *Mol Inf* 2013;32(8):717-733.
- Cotrina EY, Pinto M, Bosch L, Vila M, Blasi D, Quintana J, Centeno NB, Arsequell G, Planas A, Valencia G. Modulation of the Fibrillogenesis Inhibition Properties of Two Transthyretin Ligands by Halogenation. *J Med Chem* 2013;56(22):9110-9121.

Ongoing Research Project 2013

- Deciphering the molecular mechanism of Antipsychotic Drug Action
 - > Fondo de Investigación Sanitaria. ISCIII
 - > Principal researcher: Selent, Jana

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PROGRAMME

Neurosciences

The programme is made up of the following research groups:

Addiction

Marta Torrens

Anxiety, Affective Disorders and Schizophrenia

Antoni Bulbena

Bioanalysis and Analytical Services

Jordi Segura

Childhood and Environment

Oriol Vall

Human Pharmacology and Clinical Neurosciences

Rafael de la Torre

Neurofunctionality of brain and language

Jordi Peña Casanova

Neuroimaging of mental disorders

Oscar Vilarroya

Noxas and Children

Antonio Mur

Perioperative Medicine

Lluís Gallart

Physiopathology and Pain Management

Margarita Puig

The programme associated research groups are:

Behavioral Neurobiology

Olga Valverde

Genes and Diseases

Mara Dierssen

Genetics

Luis Alberto Pérez Jurado

Neuropharmacology

Rafael Maldonado



Rafael de la Torre
Programme Director

Most of the research groups are recognised by the Agency for the Management of University and Research Grants (AGAUR) of the Catalan Autonomous Government and belong to the network of technology transfer centres of excellence, TECNIO.

The mission of the Neurosciences Programme is to support clinical, basic and translational research, which ultimately should give us a better understanding of mental and neurodegenerative illnesses. Research in the Neuroscience Programme is approached from a multidisciplinary and transversal perspective, from neurobiology to experimental studies and neuroimaging. Postgraduate training of young talents in this area of knowledge is also a priority of the Neurosciences Programme. The Programme is made up of fourteen basic and clinical research groups and it also has a Research Support Group whose mission is to provide support on the planning and implementation of research studies, help in data analysis and the dissemination of results.

Research

The main research of the Neuroscience Programme is the following:

- Clinical pharmacology of drugs and substance abuse (clinical studies and doses)
- Development of animal models of genetic diseases and neuropsychiatric disorders
- Neurobiology of addiction, pain, and intellectual disability
- New therapeutic approaches to improve cognitive performance and adaptive functionality in people with intellectual disabilities (e.g. Down syndrome, Fragile X)
- Genes, endophenotypes, and environmental factors associated to substance abuse, neuropsychiatric disorders, and intellectual disabilities
- The group is currently discussing the prioritization of the research mentioned in order to promote the process of transferring the knowledge generated by basic groups in clinical practice, and clinical observations to new hypotheses and strategies for basic research in the area of neuroscience.

- To strengthen those areas where we have all the mechanisms to be highly competitive, we are considering the prioritization of the following research, integrated and coordinated by a basic and clinical researcher:
 - Drug addiction (Marta Torrens / Magí Farré)
 - Food addiction and obesity (Rafael de la Torre / Mara Dierssen)
 - Genetic diseases that cause intellectual disability (Antonio Mur / Luis Pérez Jurado)
 - Epilepsy (Jordi Peña-Casanova/Òscar Vilarroya)
 - Pain (Margarita Puig / Lluís Gallart / Rafael Maldonado)
 - Psychiatry (Antonio Bulbena / Olga Valverde)
 - Biomarkers (Oriol Vall / Jordi Segura)

Objectives Achieved in 2013

► Most important objectives

The general objectives set by the management of the Neuroscience Programme during its formation remain the backbone of the decisions and annual objectives. These are:

- To promote and support excellence in neuroscience basic clinical research.
- To promote multidisciplinary and translational research.
- To ensure the promotion and training of programme group members in the areas of neuroscience, mental health and addictions.

► Specific Objectives 2013

- The inclusion of improvements in treatments and health services into ongoing projects, either medium or long term.
- To encourage collaboration between consolidated research groups, researchers and emerging groups by creating work teams where tasks are described by researchers with little experience in research. Basically, to promote the inclusion of clinics in the projects.
- To promote the application of neuroimaging techniques in the projects.
- To create and develop a scientific programme of neuroscience sessions that aims to inform about the projects and the main research areas of the principal investigators in the Neurosciences Programme and other

investigators in PRBB involved in the neuroscience area.

- To create a favourable environment for knowledge transfer. This has resulted in patents and licences and the creation of collaborative projects with the pharmaceutical and clinical diagnosis industry, as well as with the food industry. It has been successful in multicentre and translational research projects sponsored by the CIBER and RETIC and it has also been involved with other collaborating transfer activities promoted by ACCIO for the TECNIO centres.

Others

- IMIM researchers are top leaders in Neuroimaging and TDAH
Two projects led by researchers from the IMIM Neuroimaging group, coordinated by Òscar Vilarroya and with the participation of researchers from the UAB and Vall d'Hebron Hospital, have been cited in the document "Consensus report of the APA work group", as a worldwide reference in the field of Attention Deficit Disorder and Hyperactivity Disorder (ADHD). The "Consensus report" is published by the American Psychiatric

Association (APA), the world's largest psychiatric organization that sets global trends in the field of psychiatry.

- Marta Torrens leads the European project REDUCE

The study “Reducing hepatitis C sexual and drug taking risk behaviours among female drug users in Europe (REDUCE): translating evidence into practice”, aims to reduce the spread of infection by the hepatitis C virus among women drug users. The Directorate-General for Justice, Freedom and Security of the European Commission has funded this important project, coordinated by Dr. Marta Torrens, from the Neuropsychiatry and Addictions Institute, Neurosciences Programme at IMIM. It involves the participation of several countries: United Kingdom, Poland, Austria and Italy.

- Over 30 years of the Hospital del Mar Drugs Unit. 1981-2013

The evolution of our unit and its care model, and the contribution of specific research projects led by the institution, have resulted in the evolution of care for drug users and professionals over the last 30 years, and have helped achieve the consolidation of the current Drugs Unit of the Hospital del Mar.

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Addiction

RESEARCH GROUP





Coordinator

Marta Torrens Mèlich

Members

Mònica Astals Vizcaíno

Claudio Guillermo Castillo

Buenaventura

Maria Francina Fonseca Casals

Liliana Galindo Guarín

Roser Martínez Riera

Diana Martínez Sanvisens

Gerard Mateu Codina

Juan Ignacio Mestre Pintó

Paola Rossi

Judit Tirado Muñoz

This is a multidisciplinary team of health professionals (psychiatrists, psychologists, nurses, etc.) whose main objective is to study addictions from different perspectives in order to improve prevention and treatment. The group conducts research studies with the following main subjects: Clinical and therapeutic aspects of addictive disorders, psychiatric comorbidity in addictive disorders, new abused substances, and gender differences in addiction.

Main Publications 2013

- Vallecillo G, Mojá S, Roquer A, Martínez-Sanvisens D, Rossi P, Fonseca F, Muga R, Torrens M. Risk of QTc prolongation in a cohort of opioid-dependent HIV-infected patients on methadone maintenance therapy. *Clin Infect Dis* 2013;57(8):1189-1194.
- Pavón FJ, Araos P, Pastor A, Calado M, Pedraz M, Campos-Cloute R, Ruiz JJ, Serrano A, Blanco E, Rivera P, Suárez J, Romero M, Pujadas-Bastardes M, Vergara E, Gornemann I, Torrens M, de la Torre R, Rodríguez-de Fonseca F. Evaluation of plasma-free endocannabinoids and their congeners in abstinent cocaine addicts seeking outpatient treatment: impact of psychiatric co-morbidity. *Addict Biol* 2013;18(6):955-969.
- Pérez-Mañá C, Castells X, Torrens M, Capellà D, Farré M. Efficacy of psychostimulant drugs for amphetamine abuse or dependence. *Cochrane Database Syst Rev* 2013;9: CD009695.
- Torrens M, Fonseca F, Castillo C, Domingo-Salvany A. Methadone maintenance treatment in Spain: the success of a harm reduction approach. *B World Health Organ* 2013;91:136-141.
- Gual A, He Y, Torup L, Van den Brink W, Mann K, for the ESENSE 2 Study Group (...Torrens M,...). A randomised, double-blind, placebo-controlled, efficacy study of nalmefene, as-needed use, in patients with alcohol dependence. *Eur Neuropsychopharmacol* 2013;23(11):1432-1442.
- Peiró AM, Farré M, Roset PN, Carbó M, Pujadas-Bastardes M, Torrens M, Camí J, de la Torre R. Human pharmacology of 3,4-methylenedioxymethamphetamine (MDMA, ecstasy) after repeated doses taken 2 h apart. *Psychopharmacology (Berl)* 2013;225(4):883-893.
- Batalla A, Bhattacharyya S, Yücel M, Fusar-Poli P, Crippa JA, Nogué S, Torrens M, Pujol J, Farré M, Martín-Santos R. Structural and functional imaging studies in chronic cannabis users: a systematic review of adolescent and adult findings. *PLoS ONE* 2013;8(2):e55821.
- Rivas I, Sanvisens A, Bolao F, Fuster D, Tor J, Pujol R, Torrens M, Rey-Joly C, Muga R. Impact of medical comorbidity and risk of death in 680 patients with alcohol use disorders. *Alcohol Clin Exp Res* 2013;37(supl.1):e221-e227.
- Mestre J, Domingo-Salvany A, Martín-Santos R, Torrens M, The PsyCoBarcelona Group (...Fonseca F, Astals M, Díaz-Digón L, Mateu G, Herrero MJ, Cuenca A, Gilchrist G,...). Dual Diagnosis Screening Interview to Identify Psychiatric

Comorbidity in Substance Users: Development and Validation of a Brief Instrument. Eur Addict Res 2013;20(1): 41-48.

Ongoing Research Projects 2013

- Bases neurobiológicas de la depresión inducida por sustancias de abuso
 - > Fondo de Investigación Sanitaria. ISCIII
 - > Principal researcher: Torrens Mèlich, Marta
- Reducing hepatitis C sexual and drug taking risk behaviours among female drug users in Europe (REDUCE): translating evidence into practice
 - > European Community
 - > Principal researcher: Torrens Mèlich, Marta
- Bases neurobiológicas de la depresión inducida por sustancias de abuso: NEURODEP-2
 - > Fondo de Investigación Sanitaria. ISCIII
 - > Principal researcher: Torrens Mèlich, Marta
- Neurobiología de la depresión inducida por alcohol: NEURODEP-OH
 - > Ministerio de Sanidad y Política Social
 - > Principal researcher: Torrens Mèlich, Marta

Participation in Research Networks

- Red de Trastornos Adictivos
 - > Fondo de Investigación Sanitaria. Subprograma RETICS. RD06/0001/1009

- > Principal researcher: Torrens Melich, Marta
- Red de Trastornos Adictivos
 - > Fondo de Investigación Sanitaria. Subprograma RETICS. RD12/0028/0009.
 - > Principal researcher: Torrens Mèlich, Marta

Clinical Trial Signed in 2013

- Phase II studies: 1 (2013/5185)

Others

- Marta Torrens. Member of Honour. Spanish Society of Dual Pathology, during the Third International Congress on Dual Disorders. Barcelona, October 2013.
- Marta Torrens. Invited speaker at the European Monitoring Centre for Drugs and Drug Addiction (EMCDDA) at the 13th Annual Expert Meeting 2012 on “The Treatment Demand Indicator” (TDI), The use of treatment data to inform about coverage and needs. Contribution from Spain. Lisbon 23/09/2013.
- Marta Torrens. Expert participant in the development of the Plan de Acción Sobre Drogas España (Drugs Action Plan Spain) 2013-2016, within the National Drugs Strategy of the Ministry of Health, Social Services and Equality of the Government of Spain.

Anxiety, Affective Disorders and Schizophrenia

RESEARCH GROUP



Coordinator

Antonio Bulbena Vilarrasa

Members

Noemí Casanova Alba
Jordi Coletas Juanico
Belén Díaz Múgica
María Paz Flores Martínez

Esperanza González Fernández
Ángeles Malagón Amor
Anna Mané Santacana
Luis Miguel Martín López
Anna Merino Torres

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A stack of seven light-colored cubes, each featuring a large black capital letter, spelling out "MENTAL".

Guillem Pailhez Vindual
Salvador Ros Montalbán
María Inmaculada Ruiz Ripoll
Purificación Salgado Serrano
María José Tribó Boixareu



The group is made up of different researchers, all of them involved in clinical work either in hospital or primary care. Although the backbone of the group is the original description (and derivatives) of the association between anxiety and joint hypermobility syndrome (JHS), current lines of research include bipolar illness, schizophrenia and clinical psychopharmacology.

Main Publications 2013

- Martín-Subero M, Berk L, Dodd S, Kulkami J, de Castella A, Fitzgerald PB, Berk M. To a broader concept of remission: Rating the health-related quality of life in bipolar disorder. *J Affect Disorders* 2013;150(2):673-676.
- Baeza-Velasco C, Gely-Nargeot MC, Pailhez G, Bulbena A. Joint hypermobility and sport: a review of advantages and disadvantages. *Curr Sport Med Rep* 2013;12(5):291-295.
- Fullana MA, Vilagut G, Mataix-Cols D, Duran-Adroher N, Bruffaerts R, Bunting B, Caldas de Almeida JM, Florescu S, de Girolamo G, de Graaf R, Haro JM, Kovess-Masfety V, Alonso J. Is ADHD in childhood associated with lifetime hoarding symptoms? An epidemiological study. *Depress Anxiety* 2013;30(8):741-748.
- Alonso P, Orbegozo A, Pujol J, López-Solà C, Fullana MA, Segalàs C, Real E, Subirà M, Martínez-Zalacaín I, Menchón JM, Harrison BJ, Cardoner N, Soriano-Mas C. Neural Correlates Of Obsessive-Compulsive Related Dysfunctional Beliefs. *Prog Neuro-Psychopharmacol Biol Psychiatr* 2013;47C:25-32.
- Burón E, Bulbena A. Olfaction in Affective and Anxiety Disorders: A Review of the Literature. *Psychopathology* 2013;46(2):63-74.

Ongoing Research Projects 2013

- Determinantes clínicos y neurobiológicos de segundos episodios de esquizofrenia. Estudio longitudinal de primeros episodios psicóticos
 - > Fondo de Investigación Sanitaria. ISCIII
 - > Principal researcher: Bulbena Vilarrasa, Antonio
- El recuerdo de la extinción del miedo como biomarcador y predictor de respuesta terapéutica en los trastornos de ansiedad: Estudio mediante resonancia magnética funcional
 - > Fondo de Investigación Sanitaria. ISCIII
 - > Principal researcher: Fullana Rivas, Miguel Ángel
- Enfermedad somática y colágeno en los trastornos de ansiedad: un estudio caso-control
 - > Fondo de Investigación Sanitaria. ISCIII
 - > Principal researcher: Pailhez Vindual, Guillem

Group's Recognition

- SGR recognizing groups: Unitat de Recerca en Psiquiatria. 2009 SGR 25
 - > Principal researcher: Bulbena Vilarrasa, Antonio

Clinical Trial Signed in 2013

- Phase III studies: 1 (2013/5040)

Bioanalysis and Analytical Services

RESEARCH GROUP



Coordinator

Jordi Segura Noguera

Members

Georgina Balcells Aribau
Viviana Belalcázar Guerrero
Rosa Leonor Bergés Casas
Jaume Bosch Colom
Belén Cano Avalos
Lara Cobler Moncunill
Mercedes de Gispert Talavera

Andreu Fabregat Rossell
Pedro Emilio Ferro Gallego
Immaculada Figuera Figuera
Lorena Garrostas Carreño
Cristina Gómez Castellà
Marta Gómez Gijón
Preeti Gupta
Noemí Haro Villaverde



Patricia Maribel Herrera
Guaman
Aristotelis Kotronoulas
Sonia Leal Xalma
Josep Marcos del Águila
Xavier Matabosch Geronès
Núria Monfort Mercader
Maribel Navarro Muñoz

Montserrat Núñez Maroto
Gerbert Olivé Vázquez
José Antonio Pascual Esteban
Raúl Pérez Ortúño
Óscar Pozo Mendoza
Rosalía Ramírez Llanelis
Alicia Redón Peyró
Núria Renau Cuxart

Gemma Reverter Branchat
María Pilar Sáez Hernández
Ramón Safont Gutiérrez
Jèssica Vall Montero
Rosa Ventura Alemany
Meritxell Ventura García
Mariola Vera González
Marta Vicen Morales



The group has its main scientific objective in the research and development of analytical protocols under strict quality control regulations that may facilitate the detection, and enhance the understanding, of the pharmacokinetics/pharmacology/metabolism of drugs present in biological fluids. Target compounds include new pharmaceuticals, as well as drugs prone to being exposed to or abused by individuals, also including people related with sport. The research group is fully equipped to conduct studies on both high- and low-molecular-weight compounds using chemical and biological methods, being accredited by the ISO (standard 17025) and the World Anti-Doping Agency. The Group is part of a joint IMIM-UPF research entity recognized by the Autonomous Government of Catalonia.

Main Publications 2013

- Figueiredo AC, de Sanctis D, Gutiérrez-Gallego R, Cereija TB, Macedo-Ribeiro S, Fuentes-Prior P, Barbosa-Pereira PJ. Unique thrombin inhibition mechanism by anophelin, an anticoagulant from the malaria vector. *Proc Natl Acad Sci USA* 2013;109(52):E3649-E3658.
- Blanch C, Fernández E, Martínez-Sánchez JM, Ariza C, López MJ, Moncada A, Schiaffino A, Rajmil L, Saltó E, Pascual JA, Nebot M, the RESPIR-NET research group. Impact of a multi-level intervention to prevent secondhand smoke exposure in schoolchildren: A randomized cluster community trial. *Prev Med* 2013;57(5): 585-590.
- Bosch J, Luchini A, Pichini S, Tamburro D, Fredolini C, Liotta L, Petricoin E, Pacifici R, Facchiano F, Segura J, Garaci E, Gutiérrez-Gallego R. Analysis of urinary human growth hormone (hGH) using hydrogel nanoparticles and isoform differential immunoassays after short recombinant hGH treatment: Preliminary results. *J Pharm Biomed Anal* 2013;85:194-197.
- Pozo O, de Brabanter N, Fabregat A, Segura J, Ventura R, van Eenoo P, Deventer K. Current status and bioanalytical challenges in the detection of unknown anabolic androgenic steroids in doping control analysis. *Bioanalysis* 2013;5(21):2661-2677.
- Gómez C, Pozo O, Garrostas L, Segura J, Ventura R. A new sulphate metabolite as a long-term marker of metandienone misuse. *Steroids* 2013;78(12-13):1245-1253.
- Matabosch X, Pozo O, Monfort N, Pérez-Mañá C, Farré M, Marcos J, Segura J, Ventura R. Urinary profile of methylprednisolone and its metabolites after oral and topical administrations. *J Steroid Biochem & Mol Biol* 2013;138C:214-221.
- Fabregat A, Pozo O, Marcos J, Segura J, Ventura R. The use of LC-MS/MS for the open detection of steroid metabolites conjugated with glucuronic acid. *Anal Chem* 2013;85(10):5005-5014.
- Ventura R, Damasceno L, Ramírez-Llanelis R, Farré M, Bergés R, Segura J. Evaluation of the urinary threshold concentration of formoterol in sports drug testing. *Drug Test Anal* 2013;5(4):266-269.
- Wodke JAH, Puchalka J, Lluch-Senar M, Marcos J, Yus E, Godinho M, Gutiérrez-Gallego R, Martins-dos Santos VA, Serrano L, Klipp E, Maier T. Dissecting the energy metabolism in *Mycoplasma pneumoniae* through genome-scale metabolic modeling. *Mol Syst Biol* 2013;9:653.



- Matabosch X, Pozo O, Pérez-Mañá C, Farré M, Marcos J, Segura J, Ventura R. Discrimination of prohibited oral use from authorized inhaled treatment of budesonide in sports. *Ther Drug Monit* 2013;35(1):118-128.

Ongoing Research Projects 2013

- Detección y confirmación de dopaje por fármacos secretores de Hormona del Crecimiento (miméticos de Ghrelín)
 - > Ministerio de Ciencia e Innovación
 - > Principal researcher: Segura Noguera, Jordi
- Developments for improving compliance with blood testing, a fundamental but minimally implemented tool in doping control (EASY BLOOD)
 - > Ministerio de Economía y Competitividad
 - > Principal researcher: Segura Noguera, Jordi
- Rapid screening (and confirmatory) method for rEPO and NESP based on immuno-recognition of its exogenous N-glycolyl-neuraminic acid content
 - > World Anti-Doping Agency
 - > Principal researcher: Pascual Esteban, José Antonio
- Medida de la exposición a carcinógenos del humo ambiental de tabaco (HAT) y desarrollo de nuevos biomarcadores de exposición acumulada en adultos no fumadores expuestos al HAT

- > Fondo de Investigación Sanitaria. ISCIII
- > Principal researcher: Pascual Esteban, José Antonio
- Detection of the non-human N-glycolyl-neuraminic acid (Neu5Gc) using immunopurification and chipLC/MS/MS. Acronym: GLYCOCHIP
 - > World Anti-Doping Agency
 - > Principal researcher: Pascual Esteban, José Antonio
- Preparation and characterisation of new immunopurified urinary and plasmatic EPO standards. (REFEPOS)
 - > World Anti-Doping Agency
 - > Principal researcher: Pascual Esteban, José Antonio
- Detection of circulating anti-Neu5Gc antibodies as a proof of use of recombinant glycoproteins: rEPO and analogues
 - > World Anti-Doping Agency
 - > Principal researcher: Pascual Esteban, José Antonio
- Medida de metabolitos de nicotina y carcinógenos del tabaco en muestras biológicas de una cohorte (2004-2013) de fumadores y no fumadores
 - > Fondo de Investigación Sanitaria. ISCIII
 - > Principal researcher: Pascual Esteban, José Antonio
- Estrategias analíticas para la detección del abuso de glucocorticosteroides sintéticos en el deporte

- > Ministerio de Ciencia e Innovación
> Principal researcher: Ventura Alemany, Rosa
- New strategies to improve the detection of the misuse of anabolic androgenic steroids in sports: study of new phase II metabolites. DANASIN
 - > Ministerio de Economía y Competitividad
> Principal researcher: Ventura Alemany, Rosa
- Evaluation of sulfate conjugated metabolites to improve detection capabilities of the misuse of anabolic androgenic steroids
 - > World Anti-Doping Agency
> Principal researcher: Ventura Alemany, Rosa
- Characterisation by Surface Plasmon Resonance of Monoclonal Antibodies that address Growth Hormone isoforms
 - > World Anti-Doping Agency
> Principal researcher: Gutiérrez Gallego, Ricardo
- A holistic approach to (glyco) protein hormone doping analysis
 - > World Anti-Doping Agency
> Principal researcher: Gutiérrez Gallego, Ricardo
- Desarrollo de una plataforma universal de glicosondas para detectar, caracterizar e identificar proteínas de unión en sistemas biológicos complejos
 - > Ministerio de Ciencia e Innovación
> Principal researcher: Gutiérrez Gallego, Ricardo
- A fair competition for the Growth Hormone Secretagogue receptor
 - > World Anti-Doping Agency
> Principal researcher: Gutiérrez Gallego, Ricardo
- > World Anti-Doping Agency
> Principal researcher: Gutiérrez Gallego, Ricardo
- Establishment of steroid biomarkers by metabolomic approaches
 - > Fondo de Investigación Sanitaria. ISCIII
> Principal researcher: Pozo Mendoza, Óscar
- Abuso de esteroides anabolizantes androgénicos en el deporte: evaluación de nuevas herramientas analíticas para mejorar la capacidad de detección en el control antidopaje
 - > Ministerio de Ciencia e Innovación
> Principal researcher: Pozo Mendoza, Óscar
- Useful information about recently reported testosterone metabolites related with doping control analysis
 - > World Anti-Doping Agency
> Principal researcher: Pozo Mendoza, Óscar
- Synthesis of recently reported phase II metabolites for their inclusion in routine doping control analysis
 - > World Anti-Doping Agency
> Principal researcher: Pozo Mendoza, Óscar
- Test for blood transfusion (autologous / homologous) based on observed changes of erythrocyte membrane proteome
 - > World Anti-Doping Agency
> Principal researcher: Nikolovski, Zoran



Group's Recognition

- SGR recognizing groups: Grup de recerca en Bioanàlisi i Proteòmica. 2009 SGR 492
 > Principal researcher: Segura Noguera, Jordi

Others

► Training and education

- Rosa Ventura. Training at Noora Alsowaidi, Antidoping Laboratory Qatar, an European Master in Quality in Analytical Laboratories Student. Her training in ADL Barcelona was internal control of quality in analytical doping control procedure.
- Jaume Bosch and José Antonio Pascual. Training at Yesim Somay Selbes and Didem Oral Antidoping Laboratory Ankara, EPO and growth hormone procedures detection. March.
- Jordi Segura, José Antonio Pascual and Rosa Ventura. Training at Antidoping Laboratory Qatar: Dr. Muhammed Alsayrafi (General Manager), Dr. Costas Georgakopoulos (Technical Director of the laboratory), Amina Al Jaber, Dr. Fazilah Othman and Salah Hobbi (Technical Field Lab). June.

- José Antonio Pascual. Training stay on computer lab management system, IMLIMS, in the Anti-Doping Laboratory Qatar. July.
- Jaume Bosch. "Hormona de creixement i dopatge", Laboratori de Referència de Catalunya. March.
- Rosa Ventura and Jordi Segura. "Curso de Dopaje Deportivo", Máster Universitario en Análisis Forense - EHU-Euskal Herriko Unibertsitateko, Universidad del País Vasco, Bilbao. February.
- José Antonio Pascual. "El tractament mediàtic del dopatge", XIX Jornades de Comunicació Blanquerna. March.
- Rosa Ventura. "Máster en alto rendimiento deportivo", Control Antidopaje: Detección de sustancias y métodos prohibidos en el deporte, Madrid. September.
- José Antonio Pascual. "Curs Antidopatge per a entrenadors d'elit", CAR Sant Cugat. July and November.

► Sharing of knowledge

- Jordi Segura. Assistance as expert testimony to Juzgado de Donostia. January.
- Jordi Segura. Hearing by videoconference, Juicio oral de Operación Puerto, Juzgado de lo Penal de Barcelona. February.

- 15ns FINA World Swimming Championships, Barcelona, 19 July-4 August 2013. Laboratory was responsible for doping control analyzes. Jordi Segura actively participated as a member of the FINA Doping Control Review Board (DCRB).
- José Antonio Pascual. Hearing participations: Tennis Antidoping Tribunal Hearing (London, July and September), Board of Control for Cricket in India (BCCI) Antidoping Tribunal – Hearing (London, October), IPC, as Chairman of the Antidoping Committee of the International Paralympic Committee (8 hearings).
- Jordi Segura. Visit of the Moscow Antidoping Centre (April and September).
- José Antonio Pascual. Stay of two weeks at the University of Aarhus, Denmark as part of a collaborative research project with WADA (April-May).
- Jordi Segura. China Antidoping Agency, Beijing (June).
- Rosa Ventura. Drug Control Centre King's College London (October) José Antonio Pascual. Antidoping Laboratory Sports Medicine Institute, La Habana (December).

Childhood and Environment

RESEARCH GROUP



**Coordinator**

Oriol Vall Combelles

Members

Airam Álvarez Sánchez

Pau Aragonés Correderas

Óscar García-Algar

Javier Joya Cecilia

Maria Mercadal Hally

Juan Ramis Borque

Judith Salat Batlle

Gemma Valeta Juan

Gretzen Velezmoro Jáuregui

The group is dedicated to research related to childhood and its surroundings, from the foetus (mother's womb) to the young child (air, environment, school, etc.). The involvement in research projects for more than 15 years has had significant results as regards publications. The Group is currently working on projects related to commonly abused substances (alcohol, tobacco, drugs of abuse), including (1) prevalence of exposure and consumption studies (in pregnant women, neonates and children) especially the study of biomarkers in unconventional biological matrices, (2) follow-up of children exposed to substance abuse, especially prenatal exposure to alcohol, (3) biomarkers of damage in prenatally-exposed children, (4) animal models of the deleterious effects of prenatal exposure to alcohol.



Main Publications 2013

- Rzehak P, Wijga AH, Keil T, Eller E, Bindslev-Jensen C, Smit HA, Weyler J, Dom S, Sunyer J, Méndez M, Torrent M, Vall O, Bauer CP, Berdel D, Schaaf B, Chen CM, Bergström A, Fantini MP, Mommers M, Wahn U, Lau S, Heinrich J; GA²LEN-WP 1.5 Birth Cohorts. Body mass index trajectory classes and incident asthma in childhood: results from 8 European Birth Cohorts - a Global Allergy and Asthma European Network initiative. *J Allergy Clin Immunol* 2013;131(6):1528-36.
- Pérez-Yarza EG, Cabañas-González F, García-Algar O, Valverde-Molina J. Anales de Pediatría: ayer, hoy y mañana (Editorial). *An Pediatr (Barc)* 2013;79(5):277-278.
- García-Algar O, Mur A. Exposición a drogas de abuso en pediatría (Editorial). *An Pediatr (Barc)* 2013;79(2):65-67.
- García-Algar O, Vall O. Publicaciones científicas: presente y futuro (Editorial). *Arch Bronconeumol* 2013;49(12):503-504.
- Morini L, Marchei E, Tarani L, Trivelli M, Rapisardi G, Elicio MR, Ramis J, García-Algar O, Memo L, Pacifici R, Groppi A, Danesino P, Pichini S. Testing Ethylglucuronide in Maternal Hair and Nails for the Assessment of Fetal Exposure to Alcohol: Comparison With Meconium Testing. *Ther Drug Monit* 2013;35(3):402-407.
- Álvarez A, Mercadal M, García-Algar O. Utilización de anestésico local fuera de ficha técnica. *An Pediatr (Barc)* 2013;79(1):56-57.
- Papaseit E, García-Algar O, Farré M. Talidomida: una historia inacabada (Editorial). *An Pediatr (Barc)* 2013;78(5):283-287.
- Busquets RM, Caballero A, Velasco M, Lloreta J, García-Algar O. Discinesia ciliar primaria: criterios clínicos de indicación de estudio ultraestructural. *Arch Bronconeumol* 2013;49(3):99-104.
- Simó S, Fraile D, Sánchez A, García-Algar O. Dispensación de medicamentos sin prescripción médica en oficinas de farmacia. *An Pediatr (Barc)* 2013;79(1):10-14.
- Papaseit E, García-Algar O, Simó S, Pichini S, Farré M. Metilfenidato en el tratamiento del trastorno de déficit de atención con hiperactividad en pediatría: monitorización en matrices biológicas. *An Pediatr (Barc)* 2013;78(2):123.e1-123.e10.
- Papaseit E, Marchei E, Farré M, García-Algar O, Pacifici R, Pichini S. Concentrations of atomoxetine and its

metabolites in plasma and oral fluid from paediatric patients with attention deficit/hyperactivity disorder. *Drug Test Anal* 2013;5(6):446-452.

Ongoing Research Projects 2013

- Consumo materno de alcohol durante el embarazo: diagnóstico de la exposición prenatal, cribado neonatal y seguimiento postnatal (10/02593)
 - > Fondo de Investigación Sanitaria. ISCIII
 - > Principal researcher: García Algar, Óscar
- Análisis del consumo/abuso de alcohol y otras drogas en adolescentes: desarrollo de un modelo de detección precoz e intervención breve en los servicios de urgencias (2011-2103)
 - > Plan Nacional Sobre Drogas (PNSD)
 - > Principal researcher: Maria Falcon
 - > Collaborators: García Algar, Óscar; Vall Combelles, Oriol

Participation in Research Networks

- Red de salud materno-infantil y del desarrollo
 - > Fondo de Investigación Sanitaria. ISCIII. Subprograma RETICS. RD12/0026/003
 - > Principal researcher: García Algar, Óscar

- Red de salud materno-infantil y del desarrollo
 - > Fondo de Investigación Sanitaria. ISCIII. Subprograma RETICS. RD08/0072/0027
 - > Principal researcher: Vall Combelles, Oriol

Group's Recognition

- SGR recognizing groups: Unitat de Recerca Infància i Entorn. 2009 SGR 1388
 - > Principal researcher: Vall Combelles, Oriol

Human Pharmacology and Clinical Neurosciences

RESEARCH GROUP



Coordinator

Rafael de la Torre Fornell

Members

Laura Blanco Hinojo
Ester Civit Rovirosa
Aida María Cuenca Royo
Susana de Sola Llopis
Laura del Hoyo Soriano
Magí Farré Albaladejo
Laura Forcano Gamazo

Clara Gibert Roura
María Gimena Hernández
Pombo
Arnau Llobet Gómez
Carola Llonch Tebe
Cristina Llop Julià
Soraya Martín Sánchez
Julián Andrés Mateus
Rodríguez



Esher Menoyo Colomer
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Minguela
Josep Rodríguez Morató
Juan Francisco Rodríguez
Rodríguez
David Torrents Rodas
Laura Xicota Vila
Samanta Yubero Lahoz



This research group is integrated by a multidisciplinary group of scientists with different degrees and expertise, including clinical pharmacologists, pharmacists, chemists, psychologists and psychiatrists. Main research areas are:

- Clinical pharmacology of drugs subject to abuse: Evaluation of pharmacological and toxicological effects induced by cannabis drug abuse. Main past and ongoing studies are: Acute effects of drug abuse and Mid-to Long-term effects of drug abuse (neurotoxicity).
- Health benefits of micronutrients with antioxidant and anti-inflammatory activities from the Mediterranean diet: The biological activities of polyphenols and their metabolites from olive oil.
- Nutrition and Cognition: The interplay of nutrition and cognition in different disease conditions. We are developing pleiotropic drugs of dietary origin for the treatment of neural diseases of environmental (cocaine addiction) or genetic (Down syndrome) origin.

Main Publications 2013

- Kotronoulas A, Pizarro N, Serra A, Robledo P, Joglar J, Rubió L, Hernández A, Tormos C, Motilva MJ, Fitó M, Covas MI, Solà R, Farré M, Sáez G, de la Torre R. Dose-dependent metabolic disposition of hydroxytyrosol and formation of mercapturates in rats. *Pharmacol Res* 2013;77:47-56.
- Pavón FJ, Araos P, Pastor A, Calado M, Pedraz M, Campos-Cloute R, Ruiz JJ, Serrano A, Blanco E, Rivera P, Suárez J, Romero M, Pujadas-Bastardes M, Vergara E, Gornemann I, Torrens M, de la Torre R, Rodríguez-de Fonseca F. Evaluation of plasma-free endocannabinoids and their congeners in abstinent cocaine addicts seeking outpatient treatment: impact of psychiatric co-morbidity. *Addict Biol* 2013;18(6):955-969.
- Pérez-Mañá C, Castells X, Torrens M, Capellà D, Farré M. Efficacy of psychostimulant drugs for amphetamine abuse or dependence. *Cochrane Database Syst Rev* 2013;9:CD009695.
- Maldonado R, Robledo P, Barrendero F. Endocannabinoid system and drug addiction: new insights from mutant mice approaches. *Curr Opin Neurobiol* 2013;23(4):480-486.
- Verdejo-García A, Fagundo AB, Cuenca A, Rodríguez J, Cuyàs E, Langohr K, de Sola S, Civit E, Farré M, Peña-Casanova J, de la Torre R. COMT val158met and 5-HTTLPR genetic polymorphisms moderate executive control in cannabis users. *Neuropsychopharmacology* 2013;38(8):1598-1606.
- Fagundo AB, de la Torre R, Jiménez-Murcia S, Agüera Z, Pastor A, Casanueva FF, Granero R, Baños R, Botella C, del Pino-Gutiérrez A, Fernández JM, Fernández-García JC, Frühbeck G, Gómez-Ambrosi J, Menchón JM, Moragrega I, Rodríguez R, Tárrega S, Tinahones FJ, Fernández-Aranda F. Modulation of the Endocannabinoids N-Arachidonylethanolamine (AEA) and 2-Arachidonoylglycerol (2-AG) on Executive Functions in Humans. *PLoS ONE* 2013;8(6):e66387.
- Busquets A, Gomis-González M, Guegan T, Agustín-Pavón C, Pastor A, Mato S, Pérez-Samartín A, Matute C, de la Torre R, Dierssen M, Maldonado R, Ozaita A. Targeting the endocannabinoid system in the treatment of fragile X syndrome. *Nat Med* 2013;19(5):603-607.
- Viñals X, Maldonado R, Robledo P. Effects of repeated treatment with MDMA on working memory and behavioural flexibility in mice. *Addict Biol* 2013;18(2):263-273.



- Kuypers KP, de la Torre R, Farré M, Pujadas-Bastardes M, Ramaekers JG. Inhibition Of Mdma-Induced Increase In Cortisol Does Not Prevent Acute Impairment Of Verbal Memory. *Br J Pharmacol* 2013;168(3):607-617.
- Peiró AM, Farré M, Roset PN, Carbó M, Pujadas-Bastardes M, Torrens M, Camí J, de la Torre R. Human pharmacology of 3,4-methylenedioxymethamphetamine (MDMA, ecstasy) after repeated doses taken 2 h apart. *Psychopharmacology (Berl)* 2013;225(4):883-893.

Ongoing Research Projects 2013

- El hidroxitirosol como antioxidante de origen endógeno y natural: Modulación por la ingesta de alcohol
 - > Fondo de Investigación Sanitaria. ISCIII
 - > Principal researcher: Farré Albaladejo, Magí
- Farmacología humana y patrones de consumo de feniletilaminas alucinógenas: la 2-CB (nexus) como sustancia prototipo
 - > Ministerio de Sanidad y Política Social
 - > Principal researcher: Farré Albaladejo, Magí
- EGCG, a DYRK1A inhibitor as therapeutic tool for reversing cognitive deficits in Down Syndrome individuals
 - > Fondation Jérôme Lejeune
 - > Principal researcher: De la Torre Fornell, Rafael

- Implicación de las subunidades de tipo beta2 y alfa7 de los receptores nicotínicos de acetilcolina en los procesos adictivos de la nicotina
 - > Fondo de Investigación Sanitaria. ISCIII
 - > Principal researcher: Robledo Montoya, Patricia
- Tratamiento de la dependencia de cocaína con inhibidores de la aldehído deshidrogenasa (ALDH2) de origen natural
 - > Ministerio de Sanidad y Política Social
 - > Principal researcher: Farré Albaladejo, Magí
- Normalización de la función de Dyrk1A y de APP, para mejorar el rendimiento cognitivo y frenar la progresión de EA en pacientes SD: Epigallocatequina galato como herramienta terapéutica
 - > Fondo de Investigación Sanitaria. ISCIII
 - > Principal researcher: De la Torre Fornell, Rafael
- Potencial de abuso y farmacología humana de la mefedrona: una droga de diseño emergente
 - > Fondo de Investigación Sanitaria. ISCIII
 - > Principal researcher: Farré Albaladejo, Magí
- Normalization of Dyrk1A function as therapeutic approach to improve cognitive performance in Down syndrome mental retardation: Epigallocatechin gallate (EGCG) as therapeutic tool
 - > Fondation Jérôme Lejeune
 - > Principal researcher: De la Torre Fornell, Rafael

- Dose-response effect of alcohol ingestion on steroid profile (PROFETHYL)
 - > World Anti-Doping Agency
 - > Principal researcher: De la Torre Fornell, Rafael

Participation in Research Networks

- Ensayo clínico comparativo de la eficacia de un inhibidor natural de la Aldehído deshidrogenasa-2 (ALDH-2) frente a disulfiram y placebo en pacientes con dependencia de cocaína
 - > Fondo de Investigación Sanitaria. Caiber-Plataforma Española de Ensayos Clínicos. CAI11/01/0024
 - > Principal researcher: Farré Albaladejo, Magí

Group's Recognition

- SGR recognizing groups: Grup de Recerca Clínica en Farmacología i Epidemiologia de les Drogues d'Abús i Neurociències. 2009 SGR 718
 - > Principal researcher: De la Torre Fornell, Rafael

Clinical Trials Signed in 2013

- Nutrients studies: 1 (2013/5179)
- Observational studies: 1 (2013/5225)

Others

- The GRCFHIN has been awarded three times (2002, 2005 and 2009) the consolidated group distinction ("Grup Consolidat") awarded by the Government of Catalonia and has recently (2005) joined the Technological Innovation Network (TECNIO) of ACCiÓ (Catalan Governmental Agency for Competitiveness, Ministry of Employment, Industry and Energy).
- Our group is linked to the Spanish Research Networks on Addictive Disorders (RTA) and to the CIBER on the Physiopathology of Obesity and Nutrition (CIBEROBN), with the PI of this grant application being a CIBEROBN researcher.
- The group is also member of the Department of Experimental and Health Sciences (CEXS, <http://www.upf.edu/cexs>) of the Pompeu Fabra University (UPF, <http://www.upf.es>), which has established, as one of its targets, research in biomedicine in priority areas according to the Research, Development and Innovation Plans of the different administrations at the Catalan, Spanish and European level.

Neurofunctionality of Brain and Language

RESEARCH GROUP





Coordinator

Jordi Peña Casanova

Members

Marta Casals Coll

Gerardo Conesa Bertrán

Josep M. Espadaler Gamissans

Rosa M. Manero Borràs

Núria Massuet Pujadas

Víctor Manuel Puente Periz

Rodrigo Alberto Rocamora

Zúñiga

Gonzalo Sánchez Benavides

Gloria Villalba Martínez

The Neurofunctionality of Brain and Language Research Group focuses on the study of the relationships between the brain and cognition, behaviour, and emotional states, with special interest in language. These relationships are studied within the context of focal and diffuse brain pathology, particularly in neurodegenerative diseases, tumours, and epilepsy.

The unit has a multidisciplinary approach to neurofunctional theory and language in the study of patients scheduled to undergo neurosurgical procedures. This approach enables advanced neurosurgery to be carried out, with unquestionable benefits for the patient, given that during the surgical operation the cerebral zones related to cognitive functions can be differentiated and protected. The technology implemented in the operating theatre is used in conjunction with cognitive and neurophysiological studies.

Main Publications 2013

- Verdejo-García A, Fagundo AB, Cuenca A, Rodríguez J, Cuyàs E, Langohr K, de Sola S, Civit E, Farré M, Peña-Casanova J, de la Torre R. COMT val158met and 5-HTTLPR genetic polymorphisms moderate executive control in cannabis users. *Neuropsychopharmacology* 2013;38(8):1598-1606.
- Rubial-Álvarez S, de Sola S, Machado MC, Sintas E, Böhm P, Sánchez-Benavides G, Langohr K, Muñiz R, Peña-Casanova J. The Comparison of Cognitive and Functional Performance in Children and Alzheimer's Disease Supports the Retrogenesis Model. *J Alzheimers Dis* 2013;33(1):191-203.
- Rocamora R, Andrzejak RG, Jiménez-Conde J, Elger CE. Sleep modulation of epileptic activity in mesial and neocortical temporal lobe epilepsy: A study with depth and subdural electrodes. *Epilepsy Behav* 2013;28(2):185-190.
- Palomo R, Casals-Coll M, Sánchez-Benavides G, Quintana M, Manero RM, Rognoni M, Calvo L, Aranciva F, Tamayo F, Peña-Casanova J. Estudios normativos españoles en población adulta joven (proyecto NEURONORMA jóvenes): normas para las pruebas Rey-Osterrieth

Complex Figure (copia y memoria) y Free and Cued Selective Reminding Test. *Neurología (Barc)* 2013;28(4):226-235.

• Casals-Coll M, Sánchez-Benavides G, Quintana M, Manero RM, Rognoni M, Calvo L, Palomo R, Aranciva F, Tamayo F, Peña-Casanova J. Estudios normativos españoles en población adulta joven (proyecto NEURONORMA jóvenes): normas para los test de fluencia verbal. *Neurología (Barc)* 2013;28(1):33-40.

Clinical Trials Signed in 2013

- Phase II b studies: 1 (2012/4935)
- Phase III studies: 1 (2013/5330)
- Observational studies: 1 (2011/4931/I)

Neuroimaging of Mental Disorders

RESEARCH GROUP





Coordinator

Òscar Vilarroya Oliver

Members

Daniel Bergé Baquero

Romina Cortizo Vidal

Mireia Forns Nadal

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

Main Publications 2013

- Vilarroya O. The challenges of neural mind-reading paradigms. *Front Hum Neurosci* 2013;7:306.
- Vilarroya O, Hiltferty J. The Neuroimaging of Sacred Values. *Annals of the New York Academy of Sciences* 2013;1299:25-35.
- Vilarroya O, Tolsanas M, Bulbena, A, Pérez V, Tobeña A. Introduction to “Sociability, Responsibility, and Criminality: From Lab to Law.” *Annals of the New York Academy of Sciences*, 2013;1299:V-X.
- Ramos-Quiroga JA, Picado M, Mallorquí J, Vilarroya O, Palomar G, Richarte V, Vidal R, Casas M. Neuroanatomía del trastorno por déficit de atención/hiperactividad en el adulto: hallazgos de neuroimagen estructural y funcional. *Rev Neurol (Barc)* 2013;56(supl.1):s93-s106.

Ongoing Research Projects 2013

► Attention Deficit Hyperactivity Disorder and other impulsivity disorders

- Cerebral circuits of distress and motivation, joint laxity and poor response to methylphenidate in childhood ADHD.

- Structural and functional magnetic resonance neuroimaging of executive cognitive functions and motivation in Attention Deficit Hyperactivity Disorder in adults.
- Volume anomalies of the caudate nucleus in paediatric ADHD: Evaluation of structural magnetic resonance as a complementary diagnostic test. Schizophrenia and other psychotic disorders
- Personality endophenotypes in schizophrenia: A neuroimaging study.
- Neurofunctional changes in patients with depression related to temporal lobe epilepsy.

► Studies in the general population

- Cerebral and hormonal changes during pregnancy and maternity A structural and functional magnetic resonance study.

Noxas and Children

RESEARCH GROUP





Coordinator

Antonio Mur Sierra

Members

Gemma Aznar Laín

Mariona Bonet Alcaina

Josefa Díaz Ledo

Jordi García García

Michaela Linder Lucht

Maria Ángeles López Vilchez

Cristina Molera Busoms

Sandra Ortigosa Gómez

The group is composed of physicians from different specialties who research in their field: neurology, endocrinology, gastro-hepatology, neonatology and infectious disease. The most developed research is HIV infection in children, in all areas (vertical transmission, treatments, cognitive development, quality of life) and drug use in pregnant women and its neonatal and long-term repercussions in their children (social and crime problems, drug abuse tendency, psychiatric disorders)

Main Publications 2013

- Bailey H, Townsend CL, Cortina-Borja M, Thorne C, European Collaborative Study in EuroCoord (...Mur A, Payà A, López-Vilchez MA, Carreras R,...). Improvements in virological control among women conceiving on combination antiretroviral therapy in Western Europe. *AIDS* 2013;27(14):2312-2315.
- Aebi-Popp K, Mulcahy F, Glass TR, Rudin C, Martínez-de Tejada B, Bertisch B, Fehr J, Grawe C, Scheibner K, Rickenbach M, Hoesli I, Thorne C, for the European Collaborative Study in EuroCoord and the Swiss Mother & Child HIV Cohort Study (...Mur A, Payà A, López-Vilchez MA, Carreras R,...). Missed opportunities among HIV-positive women to control viral replication during pregnancy and to have a vaginal delivery. *J AIDS-Syndr Immun Def Synd* 2013;64(1):58-65.
- Aznar G, Dellatolas G, Eisermann M, Boddaert N, Chiron C, Bulteau C, Monteiro JP, An I, Pédespan M, Cancès C, Peudenier S, Barthez MA, Milh M, Dorfmuller G, Héron B, Nabbout R, Grevent D, Dulac O. Children often present with infantile spasms after herpetic encephalitis. *Epilepsia* 2013;54(9):1571-1576.
- Hernández E, Flores JA, Benaiges D, Sagarra E, Chillarón JJ, Payà A, Puig de Dou J, Goday A, López-Vilchez MA, Pedro-Botet J. Gestational diabetes in a multiethnic population of Spain: Clinical characteristics and perinatal outcomes. *Diabetes Res Clin Pract* 2013;100(2):215-221.
- Rodríguez-Revenga L, Vallespín E, Madrigal I, Palomares M, Mur A, García-Miñaur S, Santos F, Mori MA, Lapunzina P, Milà M, Nevado J. A parallel study of different array-CGH platforms in a set of Spanish patients with developmental delay and intellectual disability. *Gene* 2013;521(1):82-86.
- Navallas M, Díaz-Ledo J, Ares J, Sánchez-Buenavida A, López-Vilchez MA, Solano A, García-García J, Maiques JM, Mur A, Alier A. Distal humeral epiphysiolysis in the newborn: utility of sonography and differential diagnosis. *Clin Imag* 2013;37(1):180-184.
- López-Segura N, Aznar G, Nolla-Salas J, Mur A. Envenenamiento por talio en una adolescente. *Med Clin (Barc)* 2013;141(12):557-558.
- Mur A, Fortuny-Guasch C. Situación actual de la infección pediátrica por virus de la inmunodeficiencia humana

en España (Editorial). An Pediatr (Barc) 2013;79(3):133-135.

- García-Algar O, Mur A. Exposición a drogas de abuso en pediatría (Editorial). An Pediatr (Barc) 2013;79(2):65-67.

Ongoing Research Projects 2013

- Evolución del hijo de madre adicta a opiáceos más allá de la adolescencia: patologías, aspectos sociales, y estudio de la predisposición al consumo de sustancias de abuso
 - > Fondo de Investigación Sanitaria. ISCIII
 - > Principal researcher: Mur Sierra, Antonio

Perioperative Medicine

RESEARCH GROUP





Coordinator

Lluís Gallart Gallego

Members

Lluís Aguilera Cuchillo

Juan Carlos Álvarez García

Sílvia Bermejo Martínez

Elvira Bisbe Vives

Fernando Escolano Villén

Lluís Molto Garcia

Ana Pérez Granados

Uxía Rodríguez Rivas

Francesc Xavier Santiveri Papiol

Maria Teresa Silva Costa Gómez

Jordi Vallés Esteve

We are clinical anaesthesiologists who also perform clinical research. Our main topics are:

1. Respiratory aspects of anaesthesia, namely treatment of perioperative hypoxemia, effects of anaesthetics on respiratory function and postoperative pulmonary complications;
2. blood saving strategies, focused on avoiding blood transfusion;
3. neuroanaesthesia, mainly monitoring depth of anaesthesia and effects of anaesthetics during neuroanaesthesia;
4. clinical trials related to anaesthetic procedures.



Main Publications 2013

- Canet J, Sabaté S, Mazo V. on behalf of the ARISCAT group (Martí A, Gallart L, Vallès J, Castillo J, Paluzie G, Gomar C, Sanchis J). Effects of Intraoperative Colloid Administration on Outcome in a Population-Based General Surgical Cohort: A Propensity Score Analysis. *Minerva Anestesiol* 2013;79(8):891-905.
- Canet J, Gallart L. Predicting postoperative pulmonary complications in the general population. *Curr Opin Anesthesiol* 2013;26(2):107-115.
- Sadurní M, Beltrán de Heredia S, Dürsteler C, Pérez-Ramos A, Langohr K, Escolano F, Puig MM. Epidural vs. intravenous fentanyl during colorectal surgery using a double-blind, double-dummy design. *Acta Anaesthesiol Scand* 2013;57:1103-10.
- Mases A, Gallart L. Alternative methods for laryngeal mask airway size selection in paediatric patients. *Eur J Anaesthesiol* 2013;30:575-578.

Ongoing Research Projects 2013

- Efectos de la presión positiva continua (CPAP) intraoperatoria sobre la respuesta inflamatoria del pulmón con cáncer sometido a lobectomía. Ensayo clínico aleatorizado con grupo de control
 - > Fondo de Investigación Sanitaria. ISCIII
 - > Principal researcher: Gallart Gallego, Lluís

Physiopathology and Pain Management

RESEARCH GROUP





Neurosciences

Physiopathology and Pain Management



Coordinator

Margarita Puig Riera de Conias

Members

Enriqueta Barrera Álvarez

Christian Dürsteler Tatxe

Susana Fernández Galinski

Jaume García López

Anna Mases Fernández

Antonio Montes Pérez

Elizabeth Romero Alejo

Irene Serna Madrid

The group is formed by basic and clinical researchers, who share an interest in the physiopathology and the management of pain, both from a clinical and pre-clinical angle. The basic research is aimed at resolving problems identified in daily clinical practise in the perioperative period and in the Pain Unit, which for ethical reasons cannot be performed on humans. The group has an experimental laboratory where biological (animal), cellular and molecular research are carried out. The staff in the laboratory includes basic researchers (biologists, biochemists, veterinarians) and clinicians (anaesthesiologists) who work together, contributing different aspects of knowledge and experience to solve the problems under investigation.

Main Publications 2013

- Puig MM. Can We Prevent Acute Pain Becoming Chronic? *J Pain Palliat Care Pharmacother* 2013;27(3):284-285.
- Puig MM. Postoperative Latent Pain Sensitisation: Can we prevent acute pain to become chronic? *Minerva Anaesthesiologica* 2013;3(supp 1):49.
- Sadurní M, Beltrán de Heredia S, Dürsteler C, Pérez-Ramos A, Langhor K, Escolano F, Puig MM. Epidural versus intravenous fentanyl during colorectal surgery using a double-blind double-dummy design. *Acta Anaesth Scand* 2013;57:1103-10.
- Romero A, Romero-Alejo E, Vasconcelos N, Puig MM. Glial cell activation in the spinal cord and dorsal root ganglia induced by surgery in mice. *Eur J Pharmacol* 2013;702(1-3):126-134.
- Rotheaug J, Zaslansky R, Schwenkglenks M, Komann M, Allvin R, Backström R, Brill S, Buchholz I, Engel C, Fletcher D, Fodor L, Funk P, Gerbershagen HJ, Gordon DB, Konrad C, Kopf A, Leykin Y, Pogatzki-Zahn E, Puig MM, Rawal N, Taylor RS, Ullrich K, Volk T, Yahiaoui-Doktor M, Meissner W. Patients' Perception of Postoperative Pain Management:

Validation of the International Pain Outcomes (IPO) Questionnaire. *J Pain* 2013;14:1361-70.

- Taylor RS, Ullrich K, Regan S, Broussard C, Schwenkglenks M, Taylor RJ, Gordon DB, Zaslansky R, Meissner W, Rotheaug J, Langford R; PAIN-OUT investigators (MM Puig). The impact of early postoperative pain on health-related quality of life. *Pain Pract* 2013;13:515-23.
- Breivick H, Eisenberg E, O'Brien T, on behalf of OPENMinds (MM Puig). The individual and societal burden of chronic pain in Europe: the case for strategic prioritisation and action to improve knowledge and availability of appropriate care. *BMC Public Health* 2013;13:1229-1243.

Ongoing Research Projects 2013

- Sensibilización al dolor en el periodo postoperatorio: Implicación de la activación de la GLIA en la hiperalgesia inducida por opioides (HIO)
 - > Fondo de Investigación Sanitaria. ISCIII
 - > Principal researcher: Puig Riera de Conias, Margarita



Neurosciences

Physiopathology and Pain Management

- Postoperative Pain Outcomes in patients undergoing total knee replacement in 11 Hospitals of the EC

> Cátedra de Dolor UAB - Parc de Salut Mar -
Menarini

Principal researcher: Puig Riera de Conias,
Margarita

- LIIRA - Efficacy OfPregabalin In The Treatment Of Pancreatic Cancer Pain. A Randomized Controlled Double-Blind, Parallel Group Study

> PFIZER

> Principal researcher: Dürsteler Tatxe, Christian

- Prótesis de rodilla dolorosa. Relación entre la analgesia endógena y el dolor postquirúrgico persistente

> Fondo de Investigación Sanitaria. ISCIII

> Principal researcher: Dürsteler Tatxe, Christian

Clinical Trials Signed in 2013

- Phase III studies: 2 (2013/5035, 2012/4887)
- Observational studies: 2 (2012/4942, 2013/5099)

Behavioral Neurobiology

ASSOCIATED RESEARCH GROUP





Neurosciences

Behavioral Neurobiology



Coordinator

Olga Valverde Granados

Members

Marta González Sepúlveda

Irene Gracia Rubio

María Moscoso Castro

Anna Esteve Arenys

Jessica Ruiz Medina

Neus Toro Ortiz

Our group belongs to the Experimental and Health Sciences Department of Pompeu Fabra University and is located in the Barcelona Biomedical Research Park (PRBB, <http://www.prbb.org/eng/partoo/portada.aspx>). Our team is a member of the Addictive Disorders Network (Red de Trastornos Adictivos RTA-ISCI) (<http://redrta.es/index.php>) and has recently joined the Neuroscience Programme of IMIM (Hospital del Mar Medical Research Institute) (<http://www.imim.es/programesrecerca/neurociencies/>) for the translational research activity carried out.

Main Publications 2013

- Rodríguez-Arias M, Valverde O, Daza-Losada M, Blanco-Gandía MC, Aguilar MA, Miñarro J. Assessment of the abuse potential of MDMA in the conditioned place preference paradigm: Role of CB₁ receptors. *Prog Neuro-Psychopharmacol Biol Psychiatr* 2013;47:77-84.
- Valverde O, Rodríguez-Árias M. Modulation of 3,4-methylenedioxymethamphetamine effects by endocannabinoid system. *Curr Pharm Des.* 2013;19:7081-91.

Genes and Diseases

ASSOCIATED RESEARCH GROUP





Coordinator

Maria del Mar Dierssen Sotos

Members

Silvina Catuara
Davide d'Amico
Susana de Sola Llopis
Thomas Adrien Gener
María Martínez de Lagrán Cabredo
Débora Masini
Tiziana Pederzani
Mónica Joana Pinto dos Santos
Meritxell Pons Espinal

The genes and diseases research group is a CRG (Centre for Genomic Regulation) research group that is associated with IMIM. The overall goal of our research is to understand the role of putative candidate genes for human complex genetic diseases that affect cognitive systems, using genetically modified mouse models as our main experimental tool. The characterization of these models allows us to obtain better knowledge of the genetic substrates regulating the expression of complex behavioural traits and the pathogenesis of neuropsychiatric and neurological disorders.

Understanding the genetic and neural circuits disturbed in mental retardation and neuropsychiatric disorders is one of the significant challenges in ultimately treating them. Answers may emerge from systems neuroscience approaches that combine cognitive, imaging, and genetic analyses with the results from animal and cellular models. Our results have already led to one patent and a clinical assay (phase I).

More information at CRG:

http://www.crg.eu/en/mara_dierssen

Genetics

ASSOCIATED RESEARCH GROUP



Coordinator

Luis Alberto Pérez Jurado

Members

Cristina Borralleras Fumaña
María Victoria Campuzano Uceda
Marta Codina Solà
Ivon Cuscó Martí
Raquel Flores Peirats
Armand Gutiérrez Arumí

Aïda Homs Valmaseda

Andrés Medrano Muñoz

María Gabriela Palacios Verdú

Débora Pérez García

Judith Reina Castillón

Maria Segura Puidemon

Clara Serra Juhé

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More information at CEXS-UPF:
www.upf.edu/genetica/

The Research Group on Genetics is a UPF research group that is associated with the IMIM. It is currently a multidisciplinary team made up of medical doctors, biologists, biostatisticians, psychologists, information scientists and technicians. There are some clinical duties involving coordinating all the medical genetics activities and multidisciplinary clinics at the Hospital Vall d'Hebron since 2007 (previously at the Hospital del Mar). In addition to the PI, there are two senior investigators: Dr. del Campo, head of clinical research at the hospital, and Dr. Campuzano, coordinator of research in animal models.

The main goals of our research are several neurodevelopmental genetic disorders caused by genomic mutations, integrating clinical and basic molecular research with the use of murine models, along with translational research in medical genetics.

Main Publications 2013

- Makrythanasis P, van Bon BW, Steehouwer M, Rodríguez-Santiago B, Simpson M, Días P, Anderlid BM, Arts P, Bhat M, Augello B, Biamino E, Bongers EM, del Campo M, Cordeiro I, Cueto-González AM, Cuscó I, Deshpande C, Frysira E, Izatt L, Flores R, Galán E, Gener B, Gilissen C, Granneman SM, Hoyer J, Yntema HG, Kets CM, Koolen DA, Marcelis CL, Medeira A, Micale L, Mohammed S, de Munnik SA, Nordgren A, Psoni S, Reardon W, Revencu N, Roscioli T, Ruiterkamp-Versteeg M, Santos HG, Schoumans J, Schuurs-Hoeijmakers JH, Silengo MC, Toledo L, Vendrell T, van der Burgt I, van Lier B, Zweier C, Reymond A, Trembath R, Pérez-Jurado L, Dupont J, de Vries BB, Brunner HG, Veltman JA, Merla G, Antonarakis SE, Hoischen A. MLL2 mutation detection in 86 patients with Kabuki syndrome: a genotype-phenotype study. *Clin Genet* 2013;84(6):539-545.
- Santen GW, Aten E, Vulto-van Silfhout AT, Pottinger C, van Bon BW, van Minderhout IJ, Snowdowne R, van der Lans CA, Boogaard M, Linssen MM, Vijfhizen L, van der Wielen MJ, Vollebregt MJ, Breuning MH, Kriek M, van Haeringen A, den Dunnen JT, Hoischen A, Clayton-Smith J, de Vries BB, Hennekam RC, van Belzen MJ, the Coffin-Siris consortium (...Pérez-Jurado L,...). Coffin-Siris Syndrome and the BAF Complex: Genotype-Phenotype Study in 63 Patients. *Hum Mutat* 2013;34(11):1519-1528.
- Martos-Moreno GA, Campos C, Flores R, Yturriaga R, Pérez-Jurado L, Argente J. Quimerismo hemático en gemelos dicigóticos concebidos por fertilización in vitro. *An Pediatr (Barc)* 2013;79(4):248-252.
- Sailani MR, Makrythanasis P, Valsesia A, Santoni FA, Deutsch S, Popadin K, Borel C, Migliavacca E, Sharp AJ, Sail GD, Falconnet E, Rabionet R, Serra-Juhé C, Vicari S, Laux D, Grattau Y, Dembour G, Megarbane A, Touraine R, Stora S, Kitsiou S, Fryssira H, Chatzisebastou-loukidou C, Kanavakis E, Merla G, Bonnet D, Pérez-Jurado L, Estivill X, Delabar JM, Antonarakis SE. The complex SNP and CNV genetic architecture of the increased risk of congenital heart defects in Down syndrome. *Genome Res* 2013;23(9):1410-1421.
- Segura-Puidemon M, Borralleras C, Pérez-Jurado L, Campuzano V. TFII-I regulates target genes in the PI-3K and TGF-β signaling pathways through a novel DNA binding motif. *Gene* 2013;527(2):529-536.

Neuropharmacology

ASSOCIATED RESEARCH GROUP



Coordinator

Rafael Maldonado

Members

Simona Andreea Bura
Roberto Cabrera
Ortega
Laura Cutando Ruiz
Cristina Fernández
Avilés
África Flores de los
Heros
María Gomis González
Míriam Gutiérrez
Martos

Carmen La Porta
Marta Linares López
Samantha Mancino
Elena Martín García
Raquel Martín García
Neus Morgui Valls
Antonio Ortega Álvaro
Dulce Real Muñoz
Miquel Àngel Serra
Beltran
Xavier Viñals Álvarez

Elk Kossatz de Mello
Roger Negrete Buela
Rocío Saravia Santos
Itzel Montserrat
Lara Mayorga
Sami Kummer
Victoria Salgado
Mendialua
Francisco Porrón López



More information at CEXS-UPF:
<http://www.upf.edu/neurophar/en/>

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

The Laboratory of Neuropharmacology is interested in the neurochemical and neuroanatomical bases of addiction induced by opioids, cannabinoids, nicotine and psychostimulants.



Achievements 2013

Scientific Publications

Research Grants and Transfer of Results

Clinical Guidelines

Doctoral Theses

Core Facilities

Ethical Committees

Communication

Management

Governing Bodies



Scientific Publications

During 2013, IMIM scientific production has satisfactorily progressed both quantitatively and qualitatively as illustrated in the tables and figures provided in this section. All scientific publications are available on the website of IMIM (www.imim.es).

Number of national and international publications in the past 5 years

TYPE OF DOCUMENT	2009	2010	2011	2012	2013	TOTALS
INTERNATIONAL PUBLICATIONS						
Original articles	455	437	495	567	586	2,540
Reviews	55	50	65	70	78	318
Case notes and short articles	44	38	64	80	55	281
Books	0	0	1	1	1	3
Book chapters	17	5	13	4	16	55
Subtotal	571	530	638	722	736	3,197
SPANISH PUBLICATIONS						
Original articles	108	83	107	65	72	435
Reviews	60	51	44	37	28	220
Case notes and short articles	33	35	54	27	27	176
Books	11	9	8	4	1	33
Book chapters	50	56	43	4	6	159
Doctoral theses read	30	31	34	37	51	183
Subtotal	292	265	290	174	185	1,206
TOTAL PUBLICATIONS	863	795	928	896	920	4,403



Bibliometric data

- Total number of articles published in national and international journals: 846 (original articles, reviews and case notes, and short articles).
- Percentage of articles published in journals with an impact factor: 95% (803/846)
- Percentage of articles published in journals in the first quartile of their category according to JCR: 61% (495/803)

See all Cancer Programme publications:

http://www.imim.es/media/upload//arxius/memoria2013/publicaciones_cancer_2013.pdf

See all Neurosciences Programme publications:

http://www.imim.es/media/upload//arxius/memoria2013/publicaciones_neurociencies_2013.pdf

See all Biomedical Informatics Programme publications: http://www.imim.es/media/upload//arxius/memoria2013/publicaciones_infobio_2013.pdf

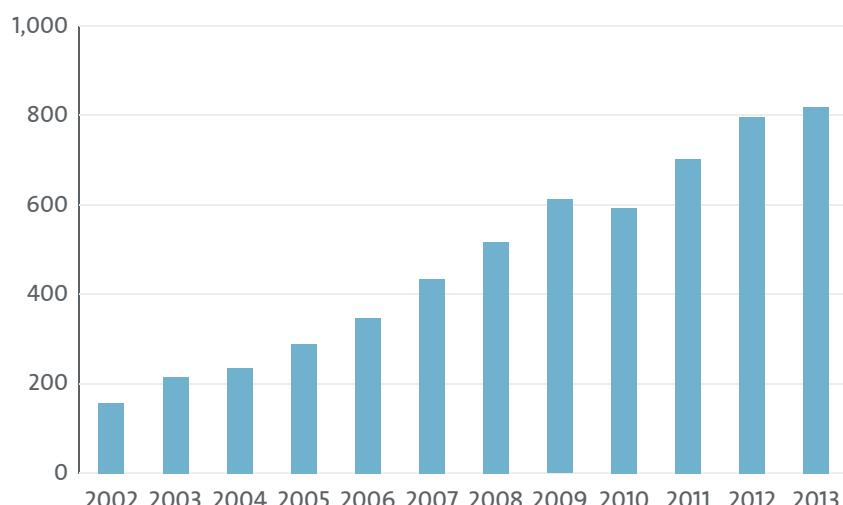
See all Epidemiology and Public Health Programme publications:

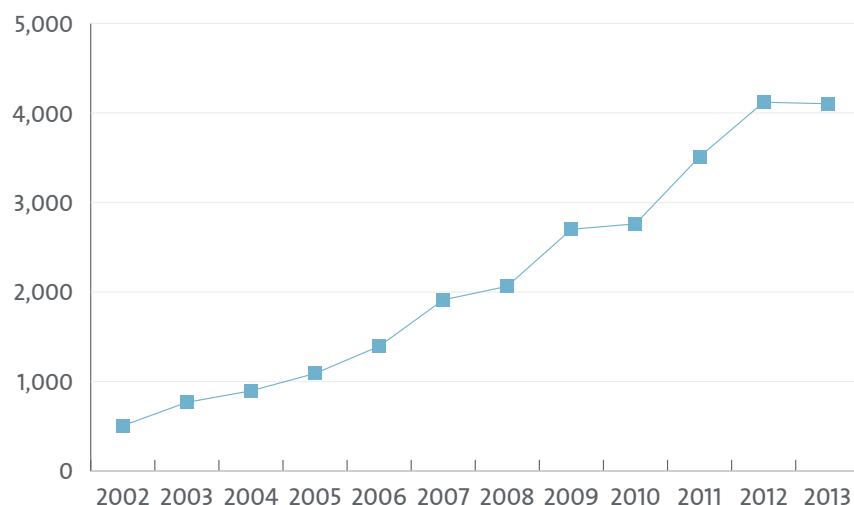
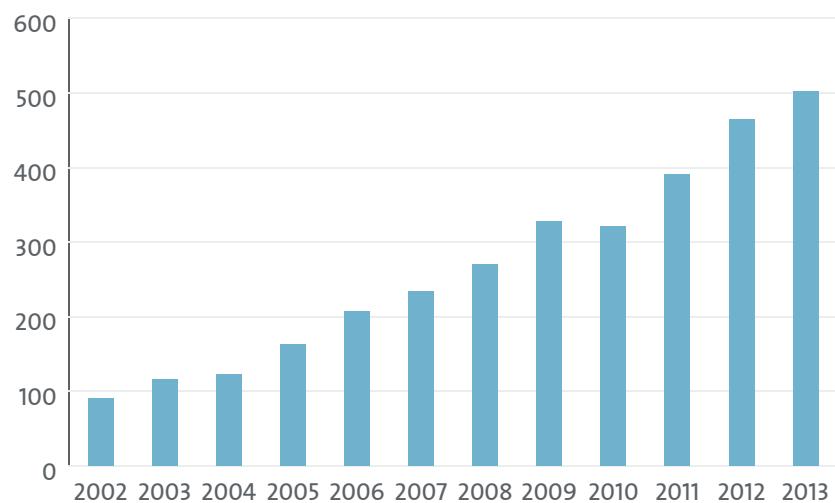
http://www.imim.es/media/upload//arxius/memoria2013/publicaciones_epi_2013.pdf

See all Research in Inflammatory and Cardiovascular Disorders Programme publications:

http://www.imim.es/media/upload//arxius/memoria2013/publicaciones_ricad_2013.pdf

Trend of number of articles published with an impact factor, from 2002 to 2013



Accumulated impact factor of articles published between 2002 and 2013**Number of articles published in the first quartile between 2002 and 2013**



Research Grants and Transfer of Results

During 2013, IMIM has submitted a total of 303 competitive research grant applications. Meanwhile, a total of 38 contracts for services or sponsorship with private companies, 148 agreements for clinical trials and 8 inter-institutional agreements have been signed.

► Grants for Projects

Out of the 47 grant applications submitted to the Carlos III Institute of Health (ISCIII), 24 received funding, representing a remarkable 51% success rate. The incorporation of the centre into the ISCIII Biobanks and Innovation Platforms has also been approved. The call for grant applications by the Ministry of Economy and Competitiveness (MINECO) has suffered a considerable delay in publication.

A total of seven projects have received grants from the Fundació la Marató de TV3 for cancer research - three individual and four coordinated (two from IMIM).

Regarding international projects, with the transition from FP7 to Horizon 2020, a new IMI (Innovative Medicines Initiative) project was awarded, coordinated by IMIM. There was no FP7 call for grant applications this year because the new framework programme, Horizon 2020, is due to commence. Many applications continue to be submitted to international calls for applications (41 in total).

► Personnel Grants

The 2012 MINECO calls for applications (Ramon y Cajal, Juan de la Cierva and technicians) were delayed and finally resolved in 2013. The appointment of three support technicians has been approved and the contract to incorporate a Ramon y Cajal researcher has been signed.

ISCIII calls for applications have not offered pre-doctoral nor support-technician grants this year. However, three post-residence (Rio Hortega), one post-doctoral (Sara Borrell) and two intensification grants have been awarded.

This year IMIM funded five grants supporting the involvement in research (50%) of clinical staff members from Hospital del Mar. Three additional grants were also awarded for training for research residents finishing in 2013 and three scholarships have been awarded for students of the UAB and UPF Joint Degree in Medicine. A call offering a new grant for one-year training of a hospital staff member in an international research centre has been issued.

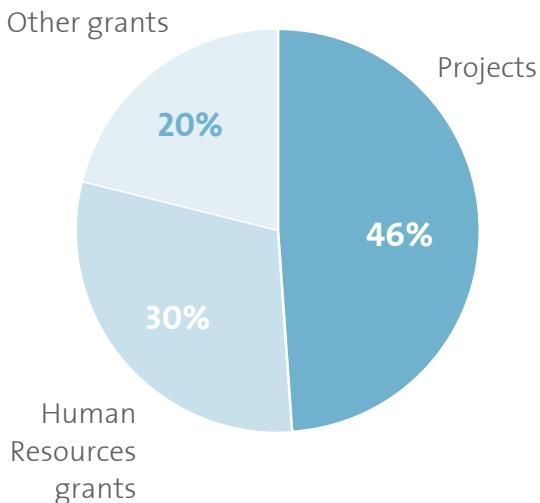
► Awards

A total of eight awards have been obtained, including the Betty Hay Award, to Dr. Sandra Peiró, which recognizes young women researchers, and the UAB Rio Hortega Award, to Dr. Sergio Serrano.

Transfer of Results

In 2013, three licence agreements were signed, including one for marketing antibodies and two for patents respectively related with a molecule with antioxidant activity (Neurosciences Programme) and with the detection of mutations as markers of the response to therapy for colon cancer (Cancer Programme).

Grants awarded in 2013 by area



See all grants:

http://www.imim.es/media/upload//arxius/memoria2013/ajuts_2013.pdf



Clinical Guidelines

As part of the transfer to clinical practice, IMIM researchers have taken part in the following clinical guides:

- Clinical practice guidelines in intracerebral haemorrhage. Sociedad Española de Neurología. Published in: Neurologia 2013;28:436-449. DOI: 10.1016/j.nrl.2011.03.010. Epub 2011 May 13.
- Propuesta de las patologías o las técnicas, tecnologías y procedimientos diagnósticos o terapéuticos para los que es necesario designar CSUR en el Sistema Nacional de Salud y de los criterios para la designación de los CSUR en el área de neurología, neurofisiología y neurocirugía. Dirección General de Ordenación Profesional, Cohesión del Sistema Nacional de Salud and Alta Inspección de Ministerio de Sanidad y Política Social.
- Guidelines and Quality Assurance for Acquired Cytogenetics European Cytogeneticists Association Permanent Working Group for Cytogenetics and Society. Published in: E.C.A. - European

Cytogeneticists Association Newsletter no. 31 January 2013.

- Consensus on the regional lymph nodes irradiation in breast cancer. Federación de Sociedades Españolas de Oncología (FESEO). Grupo de Oncología Radioterápica de Mama. Published in: Clin Transl Oncol 2013 Oct;15(10):766-73. DOI 10.1007/s12094-013-1027-z.
- Revised response criteria for polycythemia vera and essential thrombocythemia: a ELN and IWG-MRT consensus project. European LeukemiaNet (ELN) Consortium and International Working Group-Myeloproliferative Neoplasms Research and Treatment (IWG-MRT). Published in: Blood 2013;121:4778-4781.
- Guidelines and Quality Assurance for Acquired Disorders. A common European framework for quality assessment for banded chromosome studies and molecular cytogenetic investigations of acquired abnormalities ECA PWG for Cytogenetics and Society. ECA Newsletter 2013;31:7-21.

- Guías españolas de diagnóstico y tratamiento de los síndromes mielodisplásicos y la leucemia mielomonocítica crónica. Grupo Español de Síndromes Mielodisplásicos. Sociedad Española de Hematología y Hemoterapia. Published in: Ed. Marketing Farmacéutico e Investigación Clínica, September 2013.



Doctoral Theses

- Margalef P. Identification and characterization of an oncogenic form of IKK α in colorectal cancer. Pompeu Fabra University. Directors: Espinosa L, Bigas A. Date of defense: 20/12/2013.
- Piñol S. Niveles de arsénico en niños inmigrantes procedentes de países cuyas aguas pueden estar contaminadas por arsénico en comparación con niños autóctonos. Autonomous University of Barcelona. Directors: García-Algar O, Vall O. Date of defense: 20/12/2013.
- Gimeno E. Valor pronóstico del péptido natriurético B (NT-proBNP) y utilidad de las antraciclinas liposomales en linfoma no Hodgkin. Autonomous University of Barcelona. Director: Salar A. Date of defense: 19/12/2013.
- Vilardell J. Validació d'una entrevista estructurada sobre el bon i mal ús de l'arma de foc en un col·lectiu de policies locals de Catalunya. Autonomous University of Barcelona. Directors: Bulbena A, Cobo E. Date of defense: 16/12/2013.
- Ferrández-Pulido C. Penile squamous cell carcinoma: Study of clinicopathological and molecular factors implicated in its pathogenesis and prognosis. Autonomous University of Barcelona. Directors: García-Patos V, Toll A, de Torres I. Date of defense: 13/12/2013.
- Monfort Faure J. Estudi de la implicació dels petits proteoglicans rics en leucina i les metal-loproteases en els mecanismes patològics de l'artrosi. Director: Juan Pedro-Botet Montoya. Autonomous University of Barcelona. Date of defense: December 2013.
- Álvarez-González MA. Curso clínico de la cirrosis descompensada. Autonomous University of Barcelona. Directors: Planas R, Solà R. Date of defense: 10/12/2013.
- Solé-Sedeño JM. Utilidad del genotipado del virus del papiloma humano con el método cobas 4800 en las lesiones intraepiteliales escamosas de bajo grado (LSIL). Autonomous University of Barcelona. Directors: Alameda F, Mancebo G, Carreras R. Date of defense: 03/12/2013.

- Sánchez-Niubó A. Development of statistical methodology to study the incidence of drug use. University of Barcelona. Directors: Domingo-Salvany A, Fortiana J. Date of defense: 29/11/2013.
- Cortada J. Práctica avanzada de enfermería en el control de la estimulación ovárica en comparación con el control médico. Autonomous University of Barcelona. Directors: Checa MA, Carreras R. Date of defense: 28/11/2013.
- Yubero-Lahoz S. MDMA pharmacology in humans and serotonergic effects. Pompeu Fabra University. Director: de la Torre R. Date of defense: 18/11/2013.
- Farrés J. Towards specific functions of Poly(ADP-ribose) polymerase-2 in the DNA damage response in hematopoietic cells. University of Barcelona. Director: Yélamos J. Date of defense: 14/10/2013.
- Salido M. Caracterització genètica del limfoma esplènic de la zona marginal. Autonomous University of Barcelona. Director: Solé F. Date of defense: 10/10/2013.
- Santamaría X. Derivación de células productoras de insulina a partir de células madre endometriales y uso terapéutico en modelo murino de diabetes *mellitus*. Autonomous University of Barcelona. Directors: Taylor HS, Carreras R, Checa MA. Date of defense: 30/09/2013.
- Benaiges D. Efectes metabòlics de la cirurgia bariàtrica: comparació del Bypass Gàstric en Y de Roux Laparoscòpic i la Gastrectomia Tubular Laparoscòpica. Autonomous University of Barcelona. Directors: Goday A, Chillarón JJ. Date of defense: 30/09/2013.
- García-García M. Estudi de cèl·lules t reguladores en limfomes malt gàstrics: influència en la resposta al tractament i en l'evolució. Autonomous University of Barcelona. Directors: Serrano S, Salar A. Date of defense: 30/09/2013.
- Miquel J. Factors determinants de la percepció de qualitat de vida a la patologia de l'espatlla. Autonomous University of Barcelona. Directors: Cáceres-Palou E, Torrens C. Date of defense: 30/09/2013.
- Picado M. Neurofunctional Markers of Reward and Timing Processing in Adult Attention Deficit and Hyperactivity Disorder: an fMRI Study. Autonomous University of Barcelona. Directors: Vilarroya O, Ramos-Quiroga JA. Date of defense: 23/09/2013.
- Jalencas X. Chemoisosterism and its impact on drug polypharmacology. Pompeu Fabra University. Director: Mestres J. Date of defense: 17/09/2013.
- Künemann K. Expression and role of Cyclin O in colorectal cancer. Pompeu Fabra



University. Director: Gil-Gómez G. Date of defense: 13/09/2013.

- Cobler L. Signalling pathways activated by inflammatory cytokines can regulate genes involved in gastric carcinogenesis. Pompeu Fabra University. Director: de Bolós C. Date of defense: 09/09/2013.

- D'Altri T. Understanding the molecular mechanisms involved in Notch1 induced leukemia. Pompeu Fabra University. Directors: Bigas A, Espinosa L. Date of defense: 26/07/2013.

- Torrents-Rodas D. Individual differences in the acquisition and generalization of fear: Testing the effects of the BDNF-val66met polymorphism and trait anxiety. Autonomous University of Barcelona. Directors: Torrubia R, Fullana MA. Date of defense: 25/07/2013.

- Laurie S. Mutation, duplication, and selection in mammalian genomes. Pompeu Fabra University. Director: Albà MM. Date of defense: 25/07/2013.

- Tinoco D. Fear conditioning to socially relevant stimuli in social anxiety. Autonomous University of Barcelona. Directors: Fullana MA, Torrubia R. Date of defense: 13/07/2013.

- Cerutti A. Regulation of B cell responses by the innate immune system. Pompeu Fabra

University. Director: López-Botet M. Date of defense: 19/07/2013.

- Ruiz Almazán, I. Dèficit de consciència de trastorn i perfil de memòria en pacients psicòtics. Autonomous University of Barcelona. Director: Ruiz Ripoll I. Date of defense: 12/07/13.

- Güerri-Fernández R. In vivo microindentation for the assessment of bone material properties. Autonomous University of Barcelona. Directors: Díez-Pérez A, Nogués X. Date of defense: 04/07/2013.

- Prat Aparicio, A. Phenotypic and Molecular Characterization of the Intinsic Molecular Subtypes of Breast Cancer. Autonomous University of Barcelona. Director: Albanell J. Date of defense: 04/07/2013.

- Domingo L. Reptes en l'avaluació del cribatge poblacional del càncer de mama: L'efecte sobre la població no cribrada, la influència de la via diagnòstica en les característiques dels tumors i l'impacte de la prova d'imaxe en els resultats. Autonomous University of Barcelona. Director: Sala M. Date of defense: 01/07/2013

- Raczkowska M. Glial cell activation in the spinal cord in mice. Effects of multimodal analgesia. Pompeu Fabra University. Director: Margarita Puig. Date of defense: June 2013.

- Mateu Jiménez, J. New therapeutic targets in lung cancer: Inhibition of MAPK, NF- κ B, proteasome, and oxidative stress pathways in a murine model. University of Barcelona (UB)-Pompeu Fabra University. Director: Esther Barreiro. Date of defense: 28/06/2013
- Cañadas I. MET and Epithelial to Mesenchymal Transition as novel targets in Small Cell Lung Cancer. Pompeu Fabra University. Directors: Albanell J, Arriola E. Fecha Lectura: 25/06/2013.
- Rodríguez D. Effects of training in patients with Chronic Obstructive Pulmonary Disease: a Systems approach. University of Barcelona (UB). Directors: Roca J, Barreiro E. Date of defense: 18/06/2013.
- Dorcaratto D. Transección parenquimatosa pancreática mediante dispositivo asistido por radiofrecuencia en un modelo porcino de pancreatectomía distal laparoscópica. Autonomous University of Barcelona. Directors: Grande L, Burdío F. Date of defense: 30/05/2013.
- Prieto-Butillé MR. Estudio de la extensión de la tiroidectomía para el tratamiento del bocio multinodular asimétrico. Autonomous University of Barcelona. Directors: Sitges-Serra A, Sancho JJ. Date of defense: 30/05/2013.
- Cosentino M. Radical cystectomy and urinary diversion: is there a role for bowel in the future? Autonomous University of Barcelona. Director: Gelabert-Mas A. Date of defense: 30/05/2013.
- García-Serra J. Exposición fetal a drogas de abuso durante el embarazo en la isla de Eivissa. Autonomous University of Barcelona. Directors: Vall O, García-Algar O, Fríguls B. Date of defense: 24/05/2013.
- Viñas-Castells R. Ubiquitin ligases involved in the regulation of Snail1. Pompeu Fabra University. Directors: Díaz VM, García de Herreros A. Date of defense: 24/05/2013.
- Papadopoulou E. Dietary exposure to persistent organic pollutants during pregnancy and child health. Pompeu Fabra University. Directors: Kogevinas M, Chatzi L. Date of defense: 21/05/2013.
- Alonso S. Infección peritoneal postoperatoria y recurrencia del cáncer colorrectal: Estudio de las respuestas inflamatoria y angiogénica como mecanismos responsables de esta asociación. Autonomous University of Barcelona. Directors: Pera M, Grande L. Date of defense: 21/05/2013.
- Radó-Trilla N. Low-complexity regions in proteins as a source of evolutionary innovation. Pompeu Fabra University.



Director: Albà MM. Date of defense: 03/05/2013.

- Casas L. Microbial exposures, cleaning products and child health. Pompeu Fabra University. Directors: Sunyer J, Zock JP. Date of defense: 30/04/2013
- Garcia C. Tendencias en la mortalidad de un primer infarto agudo de miocardio. Análisis en función del electrocardiograma, las técnicas de revascularización y el género. Autonomous University of Barcelona. Directors: Elosua R, Molina L. Date of defense: 25/04/2013.
- Maestre-González Y. Prevalencia de la incontinencia fecal en un sector de la ciudad de Barcelona y análisis de su impacto en la calidad de vida y la salud mental. Autonomous University of Barcelona. Directors: Grande L, Parés D. Date of defense: 08/03/2013.
- Márquez E. Influencia de la insulina sobre el enzima convertidor de angiotensina 2 (ECA2) en la nefropatía diabética experimental. Autonomous University of Barcelona. Directors: Pascual J, Soler MJ, Riera M. Date of defense: 22/03/2013.
- Garin O. Measuring health related quality of life in heart failure. Pompeu Fabra University. Director: Ferrer M. Date of defense: 15/03/2013.

- Montoliu S. Historia natural de la ascitis e incidencia y pronóstico de los diferentes tipos de insuficiencia renal funcional en una cohorte de pacientes cirróticos hospitalizados con ascitis. Autonomous University of Barcelona. Directors: Planas R, Solà R. Date of defense: 24/01/2013.
- Ortigosa-Gómez S. Matrices biológicas y biomarcadores de exposición fetal a drogas de abuso durante el tercer trimestre de la gestación. Autonomous University of Barcelona. Directors: García-Algar O, Fríguls B. Date of defense: 22/01/2013.
- Gras Miralles, B. Physiological GI determinants of Satiation in Human Obesity. Impact of Bariatric Surgery. Pompeu Fabra University. Director: Delgado Aros S.
- Haya Hidalgo, JR. Neurogenic Bowel Dysfunction in subjects with brain or spinal cord injury. Pompeu Fabra University. Director: Delgado Aros S.



Core Facilities



Leonor Alloza Gay

Marta Bódalo Torruella

Montserrat Hidalgo Salgado

Sergi Mojal Garcia

Piedad Navarro Moya

Lara Nonell Mazelón

Eulàlia Puigdecanet Riubugent

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Xavier Palazón Vilarrasa



The Scientific and Technical Services (SCT) are a variety of services with the objective of providing researchers with both scientific support and the infrastructure necessary for the various aspects of their research. The highly qualified SCT staff maintain and support the infrastructure available and provide the researchers and users with the technical assistance and the advice needed for the optimal utilization of these resources.

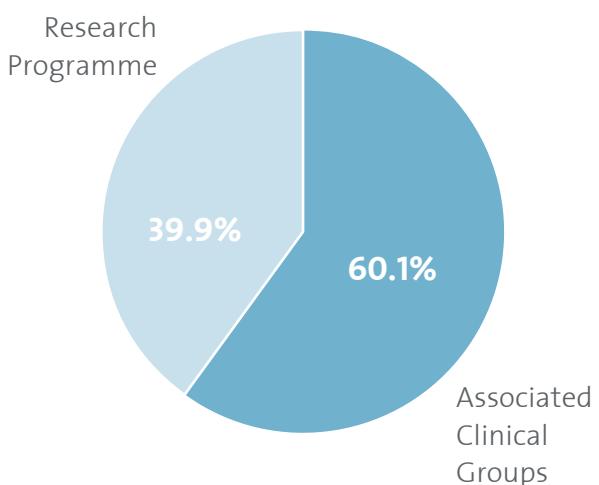
The management in charge of the Scientific and Technical Services is responsible for the overall coordination and organization of these Services. However, each service has a specific responsible person in order to guarantee its optimization and good functioning.

The services offered are based on:

- Scientific consulting
- Providing spaces for experimental activities
- Making high-technology equipment available for biomedical research

Besides using its own Scientific and Technical Services (SCT), IMIM researchers can also have access to those belonging to the CRG (www.crg.eu/en/content/scientific-services/core-facilities) and

Consultations 2013



the UPF (www.upf.edu/cexs/resources/cfacilities.html), located in the same building of the PRBB. These SCT add to and complement the services already available, covering fields such as Genomics, Proteomics, Cytometry and Microscopy.

Services are organized under three main areas:

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

Internal Services

▶ Consulting Service on Methodology for Biomedical Research

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

The services offered are:

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

There were a total of 792 consultations in 2013, of which 40.66% corresponded to associated clinical groups and 59.34% corresponded to research programmes.

CONSULTATIONS	NUMBER	PERCENTAGE
Research Programme	316	39.9
Associated Clinical Groups	476	60.1
Total	792	100.0

Consultations by research programme

CONSULTATIONS	FREQUENCY	PERCENTAGE
Research Programme on Cancer	165	52.2
Research Programme on Inflammatory and Cardiovascular Disorders	81	25.6
Research Programme on Neurosciences	70	22.2
Total	316	100.0



► Consulting Service on Biomedical Publishing

The Consulting Service on Biomedical Publishing includes the correction and editing of documents, preparation of different kinds of articles, journal selection, correspondence with the journal editors, responses to reviewers and translation of documents to English.

In 2013, a total of 99 consultations were carried out in research groups at Parc de Salut Mar.

► Freezers and Cryopreservation

This service is dedicated to the maintenance and supervision of the centralized large freezer area as well as the area where the liquid nitrogen tanks are located.

Activity

- Monitoring of the process of supplying liquid nitrogen to the tanks
- Monitoring of the process of refilling the nitrogen tanks
- Process of supplying liquid nitrogen to portable containers
- The Service monitors proper freezer operation with a system of alarms

connected to the Maintenance Service of IMIM.

- The Service assigns space for use in the large freezers
- Temperature control of all refrigeration units and issuing of reports
- Storage and distribution of dry ice
- Technical support

Equipment

- 45 -80°C ultra-low temperature freezers
- 4 temperature-controlled rooms (Temp and O₂ in one room)
- 3 -20°C chambers
- 4 4°C chambers
- 6 combined refrigerator/freezers (double sensor)
- 2 -20°C freezers

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

Every week, the temperature records are sent to the different research groups that use the equipment.

In 2013, a total of 10 new requests for cryopreservation space were processed.

► Cell Culture Service

Preparation of culture media

There is a service for users to prepare cell culture media for them on demand.

In 2013, a total of 93 applications for the mycoplasma test were received and a total of 1055 culture media were prepared for researchers.

Cell line maintenance service

The bank has more than 140 tumour and normal cell lines, kept frozen in liquid nitrogen.

The service includes maintenance of the bank of cell lines, replacement of stocks and distribution of frozen vials to users who have requested them.

Requests to the cell line bank in 2013:

ORIGIN OF USERS	ORDERS	
	NR. REQUESTS	PERCENTAGE
IMIM	115	73%
Centres PRBB (non-IMIM)	20	13%
External Centres (non-PRBB)	23	14%
TOTAL	158	100%

Projects funded

2013-2015: Support Agreement for research in the SNS. FIS/ISCIII-Fondo de Investigación Sanitaria (Healthcare Research Fund). ISCIII. CA12/00338

► Sterilization and Cleaning

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

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

Common Areas and Laboratories

► Histology

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

Equipment

- Leika Crysostat Microtome
- Paraffin microtome
- Leika optical microscope
- Selecta oven up to 200°C



- Leika paraffin dispenser
- Myr paraffin-block dispenser
- Cooling and heating plates
- Battery for hematoxylin–eosin staining
- Heating baths
- Refrigerator

► Microscopy

The Microscopy Area consists of two different area:

Microscopy Room

- Fluorescence Microscopy, equipped with a system for recording digital images
- 2 Dual-view optical microscopes
- 2 Fluorescence microscopes

Transmission Electron Microscopy

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

- Preparation of samples for their study with the electron microscope
- Observation and study of samples with the electron microscope

- Electronic micrographs (analogue and digital photography reprints) taken from the samples
- Interpretation of the results obtained from the examination using the electron microscope and interpretation of the electron micrographs obtained from the study samples

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

► Radioactive Facilities

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

It consists of a laboratory equipped with the necessary tools and equipment to carry

out radioactive experimental procedures and supplied with the protective gear necessary for the safe handling and storage of radioactive isotopes.

► Culture Rooms and P2

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

Facilities

- 4 conventional culture rooms, with a total of 15 biosafety booths, 14 CO₂ incubators at 37°C, 1 hypoxia incubator and 1 incubator at 32°C
- A level-2 biosafety room (BSL2) approved by the Department of Agriculture, Food and Rural Action (Government of Catalonia), with 2 biosafety booths and 2 CO₂ incubators.
- Equipment: 1 inverted microscope in each room, 4 systems for capturing images from the microscope, 2 inverted fluorescence microscopes.

► Telephone Survey Unit

The Telephone Survey Unit provides management, organization and adaptation of a space that has all the

requirements for carrying out telephone surveys by the different research groups.

The unit has two boxes (A and B), where the telephone surveys can be carried out after the space has been booked.

Internal and External Services

► Microarray Analysis Service

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

Arrays of human, mouse and other species are available.

Applications

- Biomarker discovery
- Gene/miRNA expression profile studies



- Alternative splicing
- miRNA detection
- Cytogenetics, CNVs and SNPs studies analysis (Open Array, ABI7900HT, LightCycler480)
- Sanger sequencing and Fragment analysis (ABI 3730xl and ABI 3130xl)
- DNA, cDNA and RNA quantification and quality assessment (Agilent Bioanalyzer, Picogreen)
- Robotic procedures for DNA normalization and PCR or sequence clean-up (Beckman Biomek FX and Biomek NX)

Equipment

- AffymetrixGeneChip® System: Research platform (GCS3000) and diagnostics platform (GCS3000DX v.2)
- GeneChip® Oven 645
- GeneChip® Fluidics Station 450
- GeneChip® Scanner 3000 7G
- Bioanalyzer 2100 (Agilent Technologies)
- Nanodrop Spectrophotometer ND-1000 (Nanodrop Technologies)

Activity

The Microarray Analysis Service is subscribed to the European microarray quality control programme, organized by the CEQA (Cytogenic European Quality Assessment). A total of 563 arrays were processed in 2013 - a 6% increase over those processed in 2012.

GENOMICS	158
EXPRESSION	352
miRNA	53
TOTAL	563

The services carried out correspond to the following centres:

CENTRES	PROJECTS	PERCENTAGE
IMIM	28	48.3 %
PRBB	12	20.7 %
External Centres (no PRBB)	18	31.0 %
TOTAL	58	100 %

Publications

- Espinet B, Ferrer A, Bellosillo B, Nonell L, Salar A, Fernández-Rodríguez C, Puigdecanet E, Gimeno J, García-García M, Vela MC, Luño E, Collado R, Navarro JT, de la Banda E, Abrisqueta P, Arenillas L, Serrano C, Lloreta J, Miñana B, Cerutti A, Florensa L, Orfao A, Sanz F, Solé F, Domínguez-Solà D, Serrano S. Distinction between asymptomatic monoclonal B-cell lymphocytosis with cyclin D1 overexpression and mantle cell lymphoma: from molecular profiling to flow cytometry. *Clin Cancer Res.* 2013 Dec 18. [Epub ahead of print]
- Puiggròs A, Puigdecanet E, Salido M, Ferrer A, Abella E, Gimeno E, Nonell L, Herranz MJ, Galván AB, Rodríguez-Rivera M, Melero C, Navarro R, Pairet S, Bellosillo B, Serrano S, Florensa L, Solé F, Espinet B. Genomic arrays in chronic lymphocytic leukemia routine clinical practise: are we ready to substitute conventional cytogenetics and FISH techniques? *Leuk Lymphoma* 2013;54:986-995 (IF: 2,58).
- Castañer O, Corella D, Covas MI, Sorlí JV, Subirana I, Flores-Mateo G, Nonell L, Bulló M, de la Torre R, Portolés O, Fitó M; Montserrat

Fitó for the PREDIMED study investigators. *In vivo transcriptomic profile after a Mediterranean diet in high-cardiovascular risk patients: a randomized controlled trial.* *Am J Clin Nutr.* 2013 Sep;98(3):845-53.

- Prat-Vidal C, Gálvez-Montón C, Nonell L, Puigdecanet E, Astier L, Solé F, Bayés-Genis A. Identification of temporal and region-specific myocardial gene expression patterns in response to infarction in Swine. *PLoS ONE* 2013;8:e54785 (IF: 4,092).
- Rojo F, Domingo L, Sala M, Zazo S, Chamizo C, Menéndez S, Arpí O, Corominas JM, Bragado R, Servitja S, Tusquets I, Nonell L, Macià F, Martínez J, Rovira A, Albanell J, Castells X. Gene expression profiling in true interval breast cancer reveals overactivation of the mTOR signaling pathway. *Cancer Epidemiol Biomarkers Prev.* 2014 Feb;23(2):288-99.

Projects Funded

2013-2015: Contract research support in the SNS. FIS/ISCIII-Fondo de Investigación Sanitaria. ISCIII. CA12/00354.



► BIOBANC MARBiobanc

The biobank of the Parc de Salut Mar (MARBiobanc) is a public, not-for-profit facility which stores various collections of biological samples available to the whole scientific community. It is organized as a technical unit with regards to quality, order and destination.

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

The Biobank Service is certified by AENOR to ISO 9001:2008.

Available human biospecimen collections

- Cryopreserved tumor bank
- Leftover diagnostic tissues
- Hematological malignancies
- Cerebral infarction
- Lung diseases (Lung Biobank Platform)
- Influenza A (H1N1)
- DNA from oncological diseases
- DNA from cardiovascular diseases

Activity

PARAMETER	NUMBER	VARIATIONS COMPARED TO 2012
Requests received	50	+25%
Samples transferred	2563	+63%

New collections held: Five new collections of the research line are being curated by the Biobank area.

The Biobank subscribes to the European quality control programme, organized by the IBBL (Integrated Biobank of Luxembourg).

Projects funded

- Instituto de Salud Carlos III/ FEDER (RD9/0076/00036 and PT13/0010/0005)
- Xarxa de bancs de tumors (Network of Tumor Banks-XBTC) sponsored by Pla Director d'Oncologia de Catalunya (Master Plan for Oncology of Catalonia).

Other Services

► Animal Facility (PRBB)

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

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

- The aquatic animal area (zebrafish and *Xenopus*).
- The specific pathogen germ free (SPF) barrier zone for rodents, with modern auto-ventilated microisolators and three support laboratories.
- A transgenesis area with large laboratories (250 m²) for the production of genetically modified mice.

- The experimental area with laboratories, surgery rooms and an irradiator.
- The quarantine area with its own access changing rooms and embryonic transfer re-derivation laboratory
- A conventional animal facility, located at an adjacent building, which is connected via a tunnel with the PRBB, and has a surface area of 1,300 m², mainly for studies with animal models in neuropharmacology and immunology.

The current number of Animal Facility users is 378.

The Ethic Committee of Animal Experimentation CEEA of the PRBB (IACUC-Institutional Animal Care and Use Committee) has more than 200 different procedures approved. Its main objective is the legally required evaluation of all experimental procedures involving animals, taking into account, when possible, alternative methods to the use of animals.

The EAEC (IACUC) evaluated 81 experimental procedures in 2013.

► Clinical Research Unit (IMIM)

The Clinical Research Unit has 12 beds and capacity to run different studies at the same time. The equipment is especially



suitable for phase I clinical trials in drug development, for bioequivalence studies or for nutritional interventions. The studies are performed in accordance with Good Clinical Practice (GCP) standards. It is accredited by the Government of Catalonia.

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

Available services

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

D Health-Related Quality of Life Questionnaires

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

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

The library currently holds information on over 500 questionnaires and is updated periodically.

BiblioPRO is a CIBER in epidemiology and public health Research and Knowledge Transfer Support Action, launched, directed coordinated by the Health Services Research Unit of the IMIM, with IMIM Foundation support.

D Quality Control Programme for the Analysis of Drugs of Abuse in Urine

The Quality Control Programme for the Analysis of Drugs of Abuse in urine (PCQ) has been ongoing uninterruptedly since 1986. It is an external quality control

programme with a highly emphasized educational component.

The Coordinating Laboratory is the Analytical Services Laboratory for the Neurosciences Programme's Bioanalysis and Analytical Services Research Group at the IMIM in Barcelona. Since November of 2000, the Coordinating Laboratory has been recognized as an Assay laboratory accredited by ENAC (National Accreditations Agency) following the accrediting criteria stated in Regulation EN 45001 and ISO Guide 25. Since March of 2002, the Laboratory has been accredited as an Assay Laboratory according to ISO 17025 for the analysis of drugs of abuse and medications in biological fluids, including the use of eight quantitative procedures for the analysis of drugs of abuse in urine. The PCQ works under the requirements of the ISO 43 Guide (Proficiency testing by interlaboratory comparisons).

Laboratories participating in the PCQ are grouped into two categories depending on the type of analyses they perform (screening qualitative analyses and specific identification of substances and quantitative analyses) and thus the type of results they provide.

Laboratories conducting screening analyses for groups of substances in control urine samples. In general, they use immunological analytical methods.

Laboratories conducting, in addition to the screening analyses, identification and in some instances quantification of substances present in control urine samples.

This distinction between laboratories based on the type of analyses they conduct is similar to that made between purely clinical and medical-legal laboratories; these two types of laboratories have different requirements with regard to the quality of the results they must provide. Thus two modalities of participation in the PCQ are offered so that participating laboratories may choose the option that best meets their individual needs.



Ethical Committees

Clinical Research Ethical Committee

The Clinical Research Ethical Committees (CEICs) are independent Committees made up of researchers and research promoters (such as pharmaceutical companies and other institutions). The Committees' aim is to ensure that any methodological, ethical or legal aspect of a research project that may imply any physical or psychological risk to human subjects is corrected (RD number 223/2004 dated February 6, 2004 and Order October 24, 2006).

The Clinical Research Ethical Committee of the Parc de Salut Mar (CEIC-Parc de Salut Mar) was created and accredited on November 11, 1993 by the General Management of Health Resources of the Autonomous Government of Catalonia, in accordance with the "Ordinance dated October 26, 1992". Subsequently we were reaccredited via the Order dated October 24, 2006.

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

Administrative Council of Parc de Salut Mar, are as follows:

- To evaluate the suitability of study protocols with regard to the objectives of studies, their scientific efficiency and the justification of the foreseeable risks weighed against the expected benefits for research subjects and society (risk-benefit ratio).
- To evaluate the suitability of the research team with regards to its experience and capacity to carry out the study.
- Clinical care requirements and commitments previously made to other research protocols are taken into consideration.
- To evaluate written study information to be given to participating research subjects (or to their legal representatives); to evaluate the procedure by which such information will be given and the type of consent to be obtained.
- To check the compensation and treatment being offered to research subjects in case of injury or death

List of studies evaluated in 2013, classified by type

Clinical trials with drugs	116
Clinical trials with nutrients	2
Healthcare product	3
Post-authorization study	22
Observational study	25
Research project	266
TOTAL	434

resulting from the study and to verify liability insurance to cover the funding agency, researchers, collaborators and the individual responsible at the center where the research is to be carried out.

- To be aware of and to evaluate the compensation to the study researchers and compensation to the subjects for their participation in the study.
- To monitor studies from the time of their inception and to follow them up until completion of the final report.

Committee for Research Integrity

The Committee for Research Integrity (CIR) is a body constituted freely and voluntarily by the researchers of PRBB centres:

- Hospital del Mar Medical Research Institute (IMIM)
- Department of Health and Experimental Sciences of the Pompeu Fabra University (CEXS-UPF)
- Centre for Genomic Regulation (CRG)
- Centre for Research in Environmental Epidemiology (CREAL)



- Centre of Regenerative Medicine in Barcelona (CMRB)

Acts independently and at the complete service of researchers and the scientific community with the unique interest of giving support to the quality of research and contributing to its integrity.

Its functions are:

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

discussion to our institutions and, consequently, to update the Code of Good Scientific Practice as needed.

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

Ethical Committee for Animal Research

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



Communication

Press

In 2013, a total of 860 news items were recorded in the media referring to IMIM.

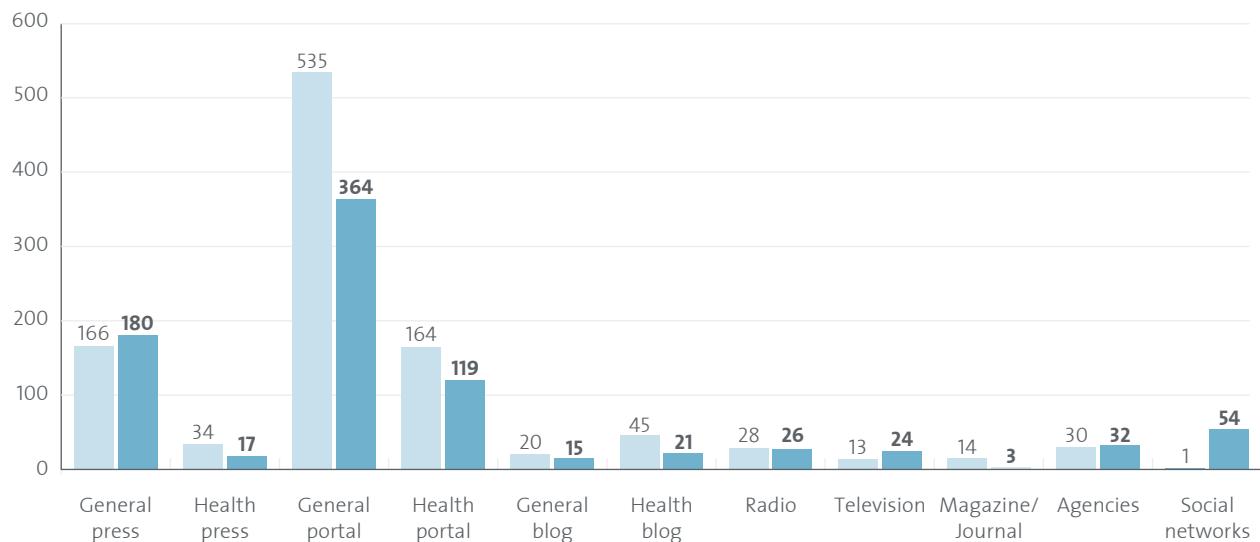
Of all the appearances in the press, 94.3% were related to the press releases issued by the communication department and only 5.7% were due to demand not directly linked to any information issued by the

institution. This percentage is increasing year after year and this indicates the proactivity of the institution with regard to the media.

The figure below shows the distribution of the news by type of media; there has been a slight increase in articles in the general press and an increase of retweets of news generated by IMIM via the social networks.

Distribution of the news by type of media, 2012-2013

2012
2013





Achievements 2013

Communication

Stem Cells

La Vanguardia - La Vanguardia (Català) - 21 oct. 2013 - Page #24

Una patent contra el càncer

L'

Health

Stem Cells

Updated: Sept. 16, 2012

Stem cells are how we all begin: undifferentiated cells that go on to develop into any of the more than 200 types of cell the adult human body holds.

Few quarrel with predictions of the awesome potential that stem cell research holds. One day, scientists say, stem cells may be used to replace or repair damaged cells, and have the potential to drastically change the treatment of conditions like cancer, Alzheimer's and Parkinson's disease and even paralysis.

But the divisions over how to conduct that research have been deep and bitter, and have most recently played out in the courts. Most research has been conducted on embryonic stem cell lines — cultures of cells derived from four- or five-day-old embryos, or fertilized eggs. Opponents of embryonic stem cell research, which often uses embryos discarded by fertility clinics, want it to be severely restricted or banned outright as inhumane.

The most important legislation relating to stem cell research is known as the Dickey-Wicker amendment, which first became law in 1996, and has been renewed by Congress every year since. It specifically bars the use of tax dollars to create human embryos — a practice that is routine in private fertility clinics — or for research in which embryos are destroyed, discarded or knowingly subjected to risk of injury.

For a time, the ban stood in the way of taxpayer-financed embryonic stem cell research, because embryos are destroyed when stem cells are extracted from them. But in August 2001, in a careful compromise, President George W. Bush opened the door a tiny crack, by ordering that tax dollars could be used for studies on a small number of lines, or colonies, of stem cells already extracted from embryos — so long as researchers did not destroy the extraction themselves.

Congress continued to be inundated with calls from people suffering from diseases for which stem cell research might be the only hope, and from equally vehement opponents. In 2006, the Republican-controlled Congress passed a bill to expand research. In response, Mr. Bush issued the first veto of his presidency. In 2007, Congress, now in Democratic hands, passed a similar bill by a larger margin, but still not by enough to override Mr. Bush's veto.

In March 2009, President Obama issued an executive order rescinding the limits set by Mr. Bush and making clear that the government supported stem-cell research.

In August 2010, Chief Judge Royce C. Lamberth of Federal District Court blocked Mr. Obama's executive order, saying it violated a ban on federal money being used to destroy embryos.

In May 2011, a federal appeals panel voted 2 to 1 to overturn Judge Lamberth's ruling. The appeals court said that because the law is written in the present tense, "it does not extend to past actions," meaning that research on existing lines of stem cells could continue. The ruling, which is just the latest in what is bound to be a lengthy legal battle,

La multinacional salines Biocartes compra el Hospital del Mar als drets d'un test genètic per millorar el tractament dels tumors cerebrals

Retorna a Fukushima

Q

Quan es pateix de sospira original i adquisida, la interacció amb els bacteris està anegada

ARTICLE IMAGE

Mediterranean Diet Cuts Heart Attacks, Strokes

Curso Inglés Home English

Mediterranean Diet Cuts Heart Attacks, Strokes

ARTICLE IMAGE

Recent • By Topic • Archives

ABC CATALUNYA

El alzhéimer avanza de forma inversa al alzhéimer

La investigación abre la puerta a nuevos tratamientos para paliar los efectos de la enfermedad

ABC

Jordi Peña-Castorra, en jefe de Sección de Neurología de la Conducta y las Dementias del Hospital del Mar de Barcelona

Investigadores del Hospital del Mar de Barcelona y del Institut Hospital del Mar d'Investigacions Médiques sevillanos de Alzheimer procede de forma inversa al patrón que siguen los niños para adquirir conocimientos

El estudio, publicado en la revista "Journal of Alzheimer's Disease", expone sus autoras que el desarrollo cognitivo inverso, con una destrucción lenta y con un cambio modificador de su estructura, procede de la retrogradidad, que implica una retrogradidad inversa en las pautaciones de edad cognitiva, funcional y morfológica, que sugiere el nivel de desarrollo "opuesto" al doctor Jordi Peña-Castorra, jefe de sección de Neurología de la Conducta y las Dementias del Hospital del Mar y investigador principal del artículo.

El aprendizaje de los adultos, a lo largo de todos los rangos de edad ha mostrado un desarrollo progresivo gradual tanto en el dominio funcional como en lo cognitivo", afirma Peña-Castorra.

Tanto la retrogradidad como el desarrollo cognitivo inverso a los patrones habituales de adquisición ontogenética. Sin embargo, "nuestros resultados refuerzan la relación con un área concreta del cerebro, el neocorteza", apunta el doctor Jordi Peña-Castorra.

El alzhéimer es la enfermedad neurodegenerativa más frecuente en todo el mundo con cerca de 40 millones de afectados. La retrogradidad inversa es la pérdida de simplicidad, el deterioro cognitivo y la pérdida de memoria causados por los efectos de estas distorsiones y nemesis optimizar la eficacia de los tratamientos que tratan la enfermedad.

EL PUNT AVUI+

SALUT

Avenç contra el segon càncer de pell més comú

■ Una investigació amb participació catalana obre una nova via de diagnosi



L'investigador Lluís Espinosa, al centre de la imatge, amb altres membres del seu equip de l'IMIM ■ EP

Redacció

BARCELONA

Una investigació internacional però amb força presència catalana ha identificat una proteïna que resulta clau per desenvolupar el carcinoma escatòs, el segon càncer de pell més comú. Aquesta descoberta, publicada a la revista *Cancer Cell*, obre una nova manera de diagnosticar la malaltia i, en el futur, permetrà detectar diàtes terapèutiques per tractar-la.

Els investigadors de l'Institut Hospital del Mar d'Investigacions (IMIM) han descobert que la proteïna desapareix del nucli. És a dir que durant el procés tumoral l'IkBα migra des del nucli i s'acumula a la superfície de les cèl·les.

La desaparició d'aquest possible biomarcador de mal pronòstic suposa un canvi de paradigmà dins d'aquesta malaltia, que es diagnostica 250.000 vegades l'any. ■



A total of 28 press releases were sent out between January and November, the same number as in the same period of 2012, generating a total of 796 mentions in the press. The press releases are ordered by descending date and with the number of impacts generated by each one.

Press Releases 2013

► Cancer Research Programme

- IMIM researchers describe a new function for two molecules involved in metastasis
- New advances in the diagnosis of lung cancer
- Important advances in the fight against skin cancer
- The AICR, one of the largest charitable cancer research associations in the world, funds two IMIM projects
- One of the key circuits deciphered in the regulation of the genes involved in the production of blood stem cells
- Oncologists at Hospital del Mar identify a new factor affecting the prognosis of bladder cancer

► Epidemiology and Public Health Research Programme

- Mental disorders limit our daily activity more than physical disorders
- The trend of new consumers of cannabis and cocaine in Spain shows signs of stabilizing
- Mental disorders cause greater stigma in families than physical problems
- BiblioPRO: first virtual library specializing in instruments in Spanish for assessing quality of life linked to health
- Mental disorders are responsible for 17% of disabilities worldwide

► Biomedical Informatics Research Programme

- Catalan universities and research centres agree to create Bioinformatics Barcelona (BiB), a platform for promoting training, research and technology transfer in bioinformatics

► Neurosciences Research Programme

- A new statistical model predicts the impact of smoking on childhood asthma
- New treatment identified for fragile X syndrome, the most common hereditary cause of mental disability
- New fashions, new drugs

- Alzheimer and children, an inverse evolutionary pattern

► **Inflammatory and Cardiovascular Disorders Research Programme**

- A study associates lower mortality in people undergoing surgery for hip resurfacing prosthesis than in those undergoing total hip replacement
- Intestinal mucous has anti-inflammatory functions
- An increase in heart disease expected in the next 35 years
- A step forward in the treatment of chronic urticaria
- The Hospital del Mar project, Telemedicine in Heart Failure, the only healthcare experience in the country selected for the mobile phone congress
- The Mediterranean diet can reduce the risk of heart attack and stroke by 30%
- The implementation of the anti-smoking law has reduced the number of acute myocardial infarctions by 11%
- Mortality in women due to myocardial infarction falls by 30%
- Cardiologists at Hospital del Mar show that administering iron improves heart failure treatment

- Treating anaemia in heart patients before surgery improves survival rates
- Experts warn of the dangers of dietary supplements for weight loss

Also of note is the continuity of the initiative begun in 2012 to prepare releases exclusively for distribution on the institution's website and the social networks. Topics are chosen that are of scientific and/or institutional importance but that would not have much repercussion as a press release sent to the media, thereby providing a new communication resource. This year, a total of 19 web releases were posted.

See all the press releases of the year 2013:
<http://www.imim.cat/media/upload//arxius/memoria2013/Notespremsa2013.pdf>

Website

In 2013, the website received 158,373 visits with 415,066 page views (an average of 2.6 pages per visit). There has been a 10.5% increase in new visitors. If we study the origin of visitors by country, we find that most users come from Spain, followed by Mexico, United States, United Kingdom,

Colombia, and Argentina, following the trend of previous years, but with an increase in visits from English-speaking countries.

<http://www.imim.es>

Intranet

The IMIM intranet was renovated in 2013. The new version has an updated look and feel, but the content has also been reordered and revised from top to bottom. A total of 245 news items were published, mainly involving institutional information regarding IMIM, PSMAR and PRBB, with 106 news items, 43 Inforeserca articles and 35 agenda items.

Inforeserca

Inforeserca is a weekly publication prepared by the IMIM Research Service, which lists the titles of all the grants published in the last week, with the possibility of accessing details about each one.

It also offers updated information about guides, legislation and any other information of interest that appears and may be useful when requesting projects or grants.

During 2013 we have published 43 Inforeserca.

www.imim.es/info-recerca/



IMIMA't

IMIMA't is a science outreach blog that was started in 2008. From January to October this year, there has been a total of 6,188 visits with 9,776 page views and 52 posts have been published in Spanish and Catalan.



Science Outreach Events

Open Day

This sixth edition involved the collaboration of 226 volunteers and more than 4,000 people were able to enjoy activities and workshops, guided visits of the laboratories, scientific talks, activities for children and a scientific coffee evening. More than 2,200 people entered the building to take the guided tour of more than 25 laboratories and scientific-

technical services, around 750 people attended the 14 scientific talks scheduled throughout the day, and some 350 took part in the scientific coffee evening.



Get Inspired, Get Excited), Barcelona's Ciutadella Park was filled for yet another year with activities, workshops, itineraries and scientific demonstrations. IMIM took part in this festival with two activities: a workshop and a workshop/lecture.



► ACCES Project

Following the ACCÉS Project, a schedule of visits to bring science to senior secondary-school students, in 2013, we were visited by nine schools from Catalonia. Escola IPSE (Barcelona), Escola Petit Estel- la nova (Terrassa), Col·legi Claret (Barcelona), IES Frederic Mompou (Barcelona), IES Ribera Baixa (El Prat), IES Celestí Bellera (Granollers), Immaculada Concepció (Barcelona), IES Francesc Macià (Barcelona) and INS Leonardo da Vinci (Barcelona).

► Science and Technology Fair

With the slogan "Explora, Descobreix, Inspira't, Emociona't" (Explore, Discover,

► “Pa amb tomàquet per al cos” (Tomato Bread for the Body) lecture

As part of the 2013 Science Week, a lecture was organized on the Mediterranean diet in the PRBB Charles Darwin room. The lecture, which was attended by 80 people, was given by Álvaro Hernáez, a pre-doctoral researcher of the IMIM Research Group on Cardiovascular Risk and Nutrition, and was very well received.

PA AMB TOMÀQUET PER AL COS

Conferència en el marc de la Setmana de la Ciència 2013





Management

Management Structure

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

Manager

Andreu Fort Robert

Director of Management

Balbina Ugena Villalobos

Management Secretary

Pilar Sánchez Macías

Purchasing

Concepción León Pérez (head of service),
Laura Erruz Peregrina, Laia Orpinell Ros,
Robert Riba Sallas

Accounts

Marta Mestres Mestres (head of service),
Ana Godall Peralta, Rosa Gras López, Marta
Rabal de Andrés

Communication/Reception

Rosa Manaut Dueñas (head of service),
Marta Calsina Freixas (communication),
M. Carmen de la Bella Toledano

(reception), Mercedes Montserrat Bayo
Romero (reception), Ana María Pérez Ruiz
(reception)

Quality

Xavier Palazón Vilarrasa (head of service)

Research

Marta López Otero (head of service), Carol
Barnwell, Teresa Macià Ubeda, Sergio
Sanz Ruiz, Meritxell Torres Paisal, Carme
Sánchez Galiano

Human Resources

Balbina Ugena Villalobos (head of service),
Anna Maria Adell Vallhonesta, Laia Rabal
de Andrés, Diana Sebastián Guillart,
Meritxell Tejeda Barragán, Sandra Vial
Mora

IT Resources

Joan Marc Carbó Arnau (head of service),
Ricard Albert Cabrera, Iván Martínez
Campos, Joan Vericat Barquet, Ruben Vidal
Almerge

General Services

Patxi Fernández Navarro (head of service)





Budget

The external income obtained by IMIM in 2013 fell in comparison with the previous year, as a result of the current economic situation. The number of national projects receiving grants was maintained, although overall funding was lower than in 2012. For European projects, the reduced activity appears related to the transition between FP7 and Horizon 2020. Regarding external funding, some agreements with industry have not been renewed, though the effect has been partially compensated by the increase in clinical trials.

TOTAL EXTERNAL FUNDING	2013		2012	
COMPETITIVE GRANTS	6,775.95	50.0%	8,844.17	52.9%
European Commission	838.89	6.2%	1,658.36	9.9%
Other International Grants	249.51	1.8%	715.45	4.3%
National	5,687.55	42.0%	6,470.36	38.7%
OTHER EXTERNAL FUNDING	6,767.96	50.0%	7,873.85	47.1%
Research Services	4,805.37	35.5%	5,755.75	34.4%
Other services	1,000.39	7.4%	959.17	5.7%
Charity	962.20	7.1%	1,158.93	6.9%
TOTAL	13,543.91	100.0%	16,718.02	100.0%

Human Resources

On 31 December 2013, IMIM had 727 people belonging to the different institutions forming the Institute, distributed as shown.

Distribution of IMIM personnel by functions (31 December 2013)

PROGRAMME	RESEARCHER	PRE-DOCTORAL	TECHNICIAN	SUPPORT	TOTAL
Cancer	81	22	31	3	137
Epidemiology and Public Health	33	18	17	12	80
Biomedical Informatics	17	9	12	4	42
Neurosciences	95	44	59	13	211
Inflammatory and Cardiovascular Disorders	112	37	53	8	210
Management	-	-	3	34	37
Scientific and Technical Services	1	-	8	1	10
TOTAL	339	130	183	75	727

Governing Bodies

Board of Trustees

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

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Boi Ruiz Garcia

First Vice-president

Minister of Economy and Knowledge. Government of Catalonia
Andreu Mas Colell

Second Vice-president

Vice-president of the Governing Council. Consorci Parc de Salut Mar de Barcelona
Cristina Iniesta Blasco

Third Vice-president

Rector of the Autonomous University of Barcelona.
Ferran Sancho Pifarré

Fourth Vice-president

Rector of the Pompeu Fabra University.
Jaume Casals Pons

Ex-officio member

General Director for Research Ministry of Economy and Knowledge. Government of Catalonia
Josep Maria Martorell Rodon

Members

Appointed by the Ministry of Health. Government of Catalonia:
Carles Constante Beitia; Carles Miquel Collell;
Gabriel Capellá Munar.

Executive Committee

Appointed by the Ministry of Economy and Knowledge.

Government of Catalonia:

Antoni Castellà Clavé, Iolanda Font de Rubinat García, Lluís Rovira Pato.

Appointed by Consorci Parc de Salut Mar de Barcelona:

Felip Bory Ros, Olga Pané Mena, Aureli Rubio Alcolea, Narcís Pérez de Puig (Secretary)

Appointed by the Autonomous University of Barcelona:

Lluís Tort Bardolete

Appointed by the Pompeu Fabra University:

Francesc Posas Garriga

Appointed by the Fundació Centre de Regulació Genòmica:

Antoni Castellà Clavé

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Catalan Health Institute (ICS). Ministry of Health.

Government of Catalonia:

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Appointed by the Ministry of Economy and Knowledge:

Lluís Rovira Pato

Appointed by the Autonomous University of Barcelona:

Lluís Tort Bardolete

Appointed by the Pompeu Fabra University:

Francesc Posas Garriga

Appointed by the Barcelona Mar Health Park Consortium:

Olga Pané Mena

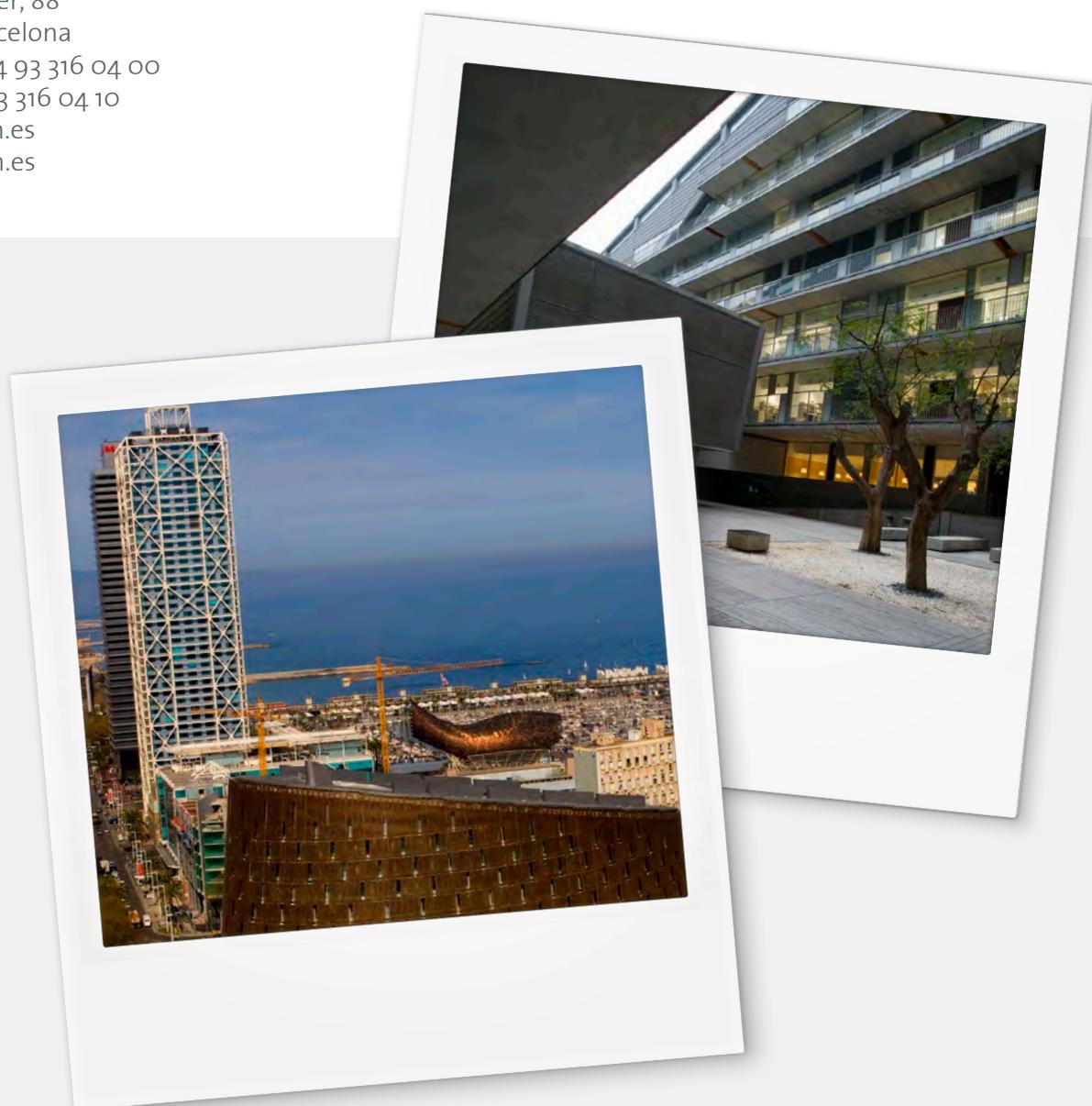
Narcís Pérez de Puig (Secretary)

IMIM

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CRG
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Regulation

CMR[B]
Centra de Medicina Personalizada de Barcelona
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Centre of Personalized Medicine of Barcelona



Parc
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