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  Hospital de la Santa Creu i Sant Pau
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  Josep M. Torcal i Casanovas

Summary

04 Presentation. Foreword
06 Introduction
  06 Who We Are
  07 Strategic Objectives
  08 IIB Sant Pau Entities
  10 IIB Sant Pau Scientific Structure
  16 Organization Chart
  18 Financial Data
  20 Scientific Outcomes
  30 Research Support Services
44 Research
  44 Area 1. Cardiovascular Diseases
  64 Area 2. Genetic, Metabolic and Inflammatory Diseases
  94 Area 3. Haematological and Oncological Diseases
  114 Area 4. Neurological, Mental Disorders and Ageing
  146 Area 5. Urology and Experimental Surgery
  156 Area T1. Epidemiology, Public Health and Healthcare Services
  180 Area T2. Molecular, Genomic, Cellular and Kinetic-Dynamic Bases for Diseases and their Treatment
  190 Associated Groups
Central to the biomedical research model based on centres of excellence and accredited institutes are cooperation efforts between major teaching/research hospitals, universities and other related healthcare organizations. Biomedical research institutes seek to concentrate resources in order to be more efficient and competitive in ultimately gearing biomedical research towards care and public health needs. It was with this ambitious yet pressing aim in mind that the Sant Pau Biomedical Research Institute (IIB Sant Pau) was first created. This report demonstrates how, in its second year as an accredited institute, IIB Sant Pau has managed to successfully compete for public and private research resources and to sustain its scientific growth.

Nevertheless, an organization’s capacity to ensure its continuity and relative autonomy depends critically on the economic health of all the agents involved. We should not become discouraged by the current economic difficulties, however. The HSCSP Research Institute -the managing body of IIB Sant Pau- successfully balanced its books for four years, although the fall in regular revenues and the lack of expected growth in structured financial support from its main trustees have led to notable difficulties in achieving budgetary equilibrium in the last year.

The current scenario -with constraints on R+D+I investment by the public sector and the pharmaceutical industry and with financial difficulties affecting the research capacity of hospitals- forces us to be more objective and explicit in how we use resources. It also forces us to adopt a more rigorously analytical perspective on the recruitment and retention of research talent and on the competitiveness, growth and viability of our biomedical research models. Now more than ever we need to defend the crucial role of hospital-centred research and the active commitment of accredited hospitals as the main guarantees of an inclusive healthcare model that balances care, teaching and research. In light of these reflections, we will endeavour to move forward in our aim of becoming a national and international biomedical research landmark, while continuing to provide opportunities for talented healthcare professionals and to encourage researchers in promoting innovative scientific advances focused on the health and healthcare needs of society.

Jaume Kulisevsky
IIB Sant Pau Manager
Who We Are

The Sant Pau Biomedical Research Institute (IIB Sant Pau) conducts research into basic, clinical and epidemiological medicine and healthcare services. Ten entities cooperate to perform high-level research into new techniques and processes aimed at improving the quality of life of patients. Stakeholders include the following:

- Hospital de la Santa Creu i Sant Pau Healthcare Management Foundation
- Hospital de la Santa Creu i Sant Pau Private Foundation
- Hospital de la Santa Creu i Sant Pau Research Institute
- Autonomous University of Barcelona - Ageing Institute
- Catalan Institute of Cardiovascular Sciences
- Puigvert Foundation
- Blood and Tissue Bank
- Iberoamerican Cochrane Centre
- Barcelona-Sardenya Primary Health Care Centre
- Public Health Agency of Barcelona

IIB Sant Pau was founded in 2009 as an association of healthcare entities carrying out their own research. Throughout 2010, IIB Sant Pau became consolidated as a research centre, while continuing to implement an accreditation process as a Healthcare Research Institute with the Spanish Ministry of Science and Innovation. This accreditation was finally obtained in early 2011. The institutions participating in IIB Sant Pau, which together form a natural alliance for historical and geographical proximity reasons, jointly implement research activities and cooperate in other scientific areas. The cooperation between these institutes represents a qualitative leap in terms of fostering translational research projects that bridge the gap between basic and clinical research.

The knowledge developed in this kind of research is channelled to society by the application of discoveries to clinical practice and to healing patients. The most tangible benefits are the application of technology to health and the scientific communication of new knowledge. This research infrastructure also generates employment and spotlights Catalonia's contributions to biomedical research. The success as a research centre ultimately translates to patient health.
IIB Sant Pau Entities

Hospital de la Santa Creu i Sant Pau Healthcare Management Foundation
The Hospital de la Santa Creu i Sant Pau Healthcare Management Foundation (HSCSP Healthcare Management Foundation) is a high-technology specialist care hospital performing patient care, teaching and research activities in the clinical, epidemiological and healthcare services fields. It offers accredited specialist and undergraduate health science training courses.

Hospital de la Santa Creu i Sant Pau Research Institute
The Hospital de la Santa Creu i Sant Pau Research Institute (HSCSP RI) promotes, manages and communicates biomedical research conducted in the HSCSP. It raises and manages funds and other resources for health science research in the basic, clinical, epidemiological and healthcare service fields.

Hospital de la Santa Creu i Sant Pau Private Foundation
The Hospital de la Santa Creu i Sant Pau Private Foundation (HSCSP Private Foundation), which owns the HSCSP, is responsible for building, improving and maintaining buildings and premises used for medical care and associated and complementary activities.

Autonomous University of Barcelona (UAB) - Ageing Institute
The UAB, a leading university renowned for quality and innovation in research, coordinates an influential scientific and technological centre, called Esfera UAB, responsible for promoting new business projects. The UAB also projects its productive activity in such a way as to disseminate new knowledge in society.

The Ageing Institute, attached to this university, is a non-profit foundation governed by a board of trustees formed by the UAB, the UAB Foundation and the Agrupació Mútua del Comerç i de la Indústria. Its mission is to improve knowledge of different aspects related to ageing with the aim of enhancing the quality of life of older people and promoting actions that contribute to adapting society and people to the challenges of demographic change.

Catalan Institute of Cardiovascular Sciences (ICCC)
The ICCC performs basic and clinical research into cardiovascular and heart diseases. The fact that it competes successfully at the international level enables it to avail of the infrastructure necessary to transfer basic research to the development of therapies and diagnostic methods, ultimately improving medical care for patients.

Puigvert Foundation
The Puigvert Foundation has the aim of deepening medical knowledge and perfecting medical techniques in the field of research and treatment of urinary and male reproductive system disorders and diseases. More specifically, it performs urology, nephrology and andrology research, focusing particularly on medical care, teaching, training and studies.

Iberoamerican Cochrane Centre
This independent, not-for-profit organization has as its main aim the promotion of medical practice based on the best available scientific evidence. To this end, it ensures that valid, useful, up-to-date and thoroughly reviewed information is made available for clinical and healthcare decision making.

Barcelona-Sardenya Primary Care Centre
Part of the public healthcare system, this teaching and care centre provides primary care services in its catchment area of Barcelona and has a research unit which performs clinical trials and epidemiology studies.

Public Health Agency of Barcelona
This autonomous body, created by the Barcelona Health Consortium, has as its main mission to analyse and monitor the health of the population of Barcelona with a view to improving health and preventing risk. It is also responsible for epidemiological surveillance and the provision of medical care to substance abusers. It has an excellent track record in the public health and applied research fields.

Blood and Tissue Bank
The Blood and Tissue Bank is a public healthcare body which carries out patient care, teaching and research activities in the blood transfusion and tissue bank fields.
IIB Sant Pau has seven research areas that can be divided into two research lines: vertical, transversal and associated groups.

The vertical line has five main areas:
- Cardiovascular Diseases
- Genetic, Metabolic and Inflammatory Diseases
- Haematological and Oncological Diseases
- Neurological and Mental Disorders
- Urology and Experimental Surgery

The transversal line consists of two areas:
- Epidemiology, Public Health and Healthcare Services
- Molecular, Genomic, Cellular and Kinetic-Dynamic Bases for Diseases and their Treatment

Activities in the transversal line complement and support research in the vertical line.
Vertical Areas of Research

Cardiovascular Diseases
The incorporation of new technologies that facilitate molecular profiling and gene regulation has led to innovative research into heart disease. The great diversity of the groups in this area gives research varied perspectives, whether in developing or testing the effectiveness of new biomarkers (as in the investigation of the metabolic and genetic bases of diseases) or improving the range of results and possible applications in short-term therapies.

Genetic, Metabolic and Inflammatory Diseases
Identifying the genes and mutations responsible for genetic diseases is an essential component of knowledge and understanding of the physiological bases of metabolic pathways and also in the development of new forms of treatment for common diseases affecting large proportions of the population, such as diabetes and obesity, known but with a hereditary diseases, infectious diseases (AIDS, tuberculosis, etc) and rare diseases (not well know but with a devastating impact on those affected).

Haematological and Oncological Diseases
A broad range of research is conducted in this area, particularly in head-and-neck, breast, ovary, colorectal and haematological cancers, among others. Research in covers a wide range of fields, with disciplines that include nanomedicine, new anticancer agents and predictive molecular markers. Initiatives of specific relevance include the GAIT (Genetic Analysis of Idiopathic Thrombophilia) project, a world pioneer in the identification of genes influencing the risk of thromboembolic disease, and research into antitumour immunotherapy in animals and humans.

Neurological, Mental Disorders and Ageing
This area covers research in a broad range of disciplines. Besides the study of ageing and the most common neurodegenerative disorders such as Alzheimer and Parkinson, neurological research is also focused on stroke, neuroimmunology and neuromuscular diseases. Research into cognitive, affective, psychotic and personality disorders ranges from identification and evaluation of new therapeutic targets to neurogenesis and the effects of deep-brain stimulation. Research in this field has the support of the Drug Research Centre, which assesses the effectiveness of new drugs and therapies in humans.

Urology and Experimental Surgery
IIB Sant Pau promotes experimental surgery in the knowledge that this area has a promising future both as an independent research line and as a complement to general surgery. This interdisciplinary approach provides valuable new insights and encouraging techniques and procedures of great clinical relevance. Current areas of interest include the development of minimally invasive techniques and the application of deep-brain stimulation in different pathologies. In the fields of andrology, urology and nephrology research, the Puigvert Foundation is a leading centre in Spain.

Associated Groups
This area includes HSCSP Research Institute groups that do not form part of IIB Sant Pau because they have not, as yet, been accredited by the External Scientific Committee.

Transversal Areas of Research

Epidemiology, Public Health and Healthcare Services
Research in these fields aims to determine the magnitude and distribution and identify the determinants of public health problems in order to evaluate the effectiveness and efficiency of public interventions and prevention practices. This area also aims to reduce patient risk and make healthcare safer by promoting evidence-based medical practice and ensuring the use of conscious, explicit and rational decision making concerning patient care.

Molecular, Genomic, Cellular and Kinetic-Dynamic Bases for Diseases and their Treatment
This area focuses on the structure of proteins associated with neurodegenerative diseases and inflammatory processes and on factors linked to the innate immune system. Research is also conducted in the area of osteoporosis, age-related macular degeneration and coagulation-cascade factors closely linked to cardiovascular disease and haemophilia. Such studies are vital to the understanding of diseases of the heart, blood and nervous systems and to advances in the fields of cancer and epidemiology.
### Income Statement year ending 31 December 2012

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<tr>
<td>OVERALL PROFIT/LOSS</td>
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</table>
Outcomes for IIB Sant Pau’s scientific activities are summarized in the following pages as follows:

- **Publications with an Impact Factor (IF):** This figure shows IIB Sant Pau publications over the years with an impact factor, one of the most important indicators used to identify the relevance of a science journal in its field and to give an approximate idea of the quality of the publications of researchers.

- **Publications by Thematic Area:** This figure reflects the relative importance of each of the thematic areas covered by IIB Sant Pau.

- **Publications by Quartile:** This figure depicts IIB Sant Pau publications by quartiles that reflect the importance of the scientific journal. The journals in a specific category are listed in descending order according to their impact factor and the list is divided into four equal quartiles. Thus, journals in the top quartile (Q1) are the most important journals in their category.

- **Research Resources and Training:** These tables show the list of institutions providing support to IIB Sant Pau and sharing its vision of research.

- **Doctoral Theses:** This table reflects the potential of up-and-coming IIB Sant Pau staff members and their ability to generate new ideas and drive new projects.

- **Patents:** This table shows the patents requested by IIB Sant Pau researchers between 2009 (foundation year) and 2012.

- **Technology Transfer Agreements:** This table reflects agreements signed between 2009 (foundation year) and 2012.
Publications with an Impact Factor

Production status

Indexed publications

Publications by Thematic Area and Quartile

Publications

- 2005: 285
- 2006: 275
- 2007: 250
- 2008: 367
- 2009: 461
- 2010: 514
- 2011: 534
- 2012: 664

Total IF

- 2005: 1,040.62
- 2006: 1,001.03
- 2007: 975.36
- 2008: 1,722.76
- 2009: 2,448.88
- 2010: 2,298.44
- 2011: 3,269.47

Mean IF

- 2005: 3.65
- 2006: 3.64
- 2007: 3.9
- 2008: 4.69
- 2009: 4.68
- 2010: 4.78
- 2011: 4.30
- 2012: 4.92

Indexed publications

- A1: 101
- A2: 136
- A3: 87
- A4: 105
- A5: 33
- T1: 149
- T2: 14
- AG: 118

Mean IF

- A1: 6.415
- A2: 5.298
- A3: 5.693
- A4: 4.539
- A5: 2.957
- T1: 4.103
- T2: 5.143
- AG: 4.461

Thematic Areas:
- A1: Cardiovascular Diseases
- A2: Genetic, Metabolic and Inflammatory Diseases
- A3: Haematological and Oncological Diseases
- A4: Neurological, Mental Disorders and Ageing
- A5: Urology, Nephrology and Experimental Surgery
- T1: Epidemiology, Public Health and Healthcare Services
- T2: Molecular, Genomic, Cellular and Kinetic-Dynamic Bases for Diseases and their Treatment
- AG: Associated Groups
### Research Resources

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<th>Centre</th>
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<th>Active 2012</th>
<th>Granted 2011</th>
<th>Granted 2012</th>
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Source: Hospital de la Santa Creu i Sant Pau Research Institute

### Research Training

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Source: Hospital de la Santa Creu i Sant Pau Research Institute
Doctoral Theses

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<td>Anna Guadall</td>
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<td>Multi-organ Damage</td>
<td>HSCSP</td>
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<td>Healthcare Inequalities</td>
<td>ASPB</td>
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## Patents

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<td>Lipids and Cardiovascular Pathology / Molecular and Therapeutic Pathologies of Ischaemic and Atherothrombotic Diseases</td>
<td>Vicenta Llorente-Cortés, Lina Badimon</td>
<td>CSIC-ICCC</td>
<td>LRP1 as a key receptor for cholesteryl ester transfer from very low density lipoproteins to ischaemic myocardium</td>
<td>PCT/ES2012/070483</td>
<td>2011</td>
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<td>Oncogenesis and Antitumour Drugs</td>
<td>Ramon Mangues, Isolda Casanova, Ma Virtudes Céspedes, Esther Vazquez, Ugutz Unzueta, Neus Ferrer, Antonio P Villaverde</td>
<td>HSCSP RI, UAB, CIBERBBN</td>
<td>Methods and reagents for efficient and targeted delivery of therapeutic molecules to CXCR4 cells</td>
<td>PCT/EP2012/050513</td>
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<td>Nephrology</td>
<td>Jordi Bover</td>
<td>Puigvert Foundation, Biomedical Research Foundation of the Hospital General Universitario Gregorio Marañón, University of Alcalá</td>
<td>Method for diagnosing kidney failure</td>
<td>ES 2397461</td>
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<td>Andrology</td>
<td>Lluís Bassas</td>
<td>Puigvert Foundation, IDIBELL</td>
<td>In vitro method for predicting semen fecundity</td>
<td>EP 2532757</td>
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<td>Molecular and Therapeutic Pathologies of Ischaemic and Atherothrombotic Diseases, Biomarkers for Disease Status</td>
<td>Lina Badimon, Judit Cubedo, Teresa Padró</td>
<td>CSIC-ICCC</td>
<td>APO J isoforms as biomarkers of tissue lesions</td>
<td>ES 2364169</td>
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<td>Regulation of Cardiac Rhythm and Contraction</td>
<td>Raúl Benítez, Enrique Álvarez, Leif Hove</td>
<td>CSIC-ICCC, UPC</td>
<td>Method for detecting local intracellular calcium release events</td>
<td>PCT/ES2010/000102</td>
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<td>Oncogenesis and Antitumour Drugs</td>
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<td>HSCSP RI, Fundació Bosch i Gimpera Foundation</td>
<td>Antitumour 1,2-diphenylpyrrole compounds and their preparation</td>
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### Technology Transfer Agreements

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<td>Transactel Therapeutics</td>
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The main objective of the research support services, which are divided into two blocks, is the sharing and pooling of resources as an effective way to optimize funds and boost research.

**Research Support Services**

These provide facilities and equipment that are exclusively available to any specific research group but are shared among groups at all institutions within IIB Sant Pau.

**IIB Sant Pau has 13 services:**
- Clinical Trial Documentation Management
- Research Institute Management
- Tumour Bank
- Quality and Information Systems Unit
- Radioactivity Unit
- Centre for Drug Research (CIM Sant Pau)
- Central Clinical Research and Clinical Trials Unit (UCICEC Sant Pau)
- Animal Housing
- Transfer and Innovation Unit
- Author Editing
- Communications Coordination Team
- Clinical Research Ethics Committee
- Clinical Research Ethics Committee Secretariat

**Scientific and Technical Service Platforms**

The main aim of these support services is to manage, allocate and optimize the top-level research resources available to IIB Sant Pau. They provide researchers with support and scientific and technical assessment and advise on the most appropriate methods to prepare samples and to plan optimal work flows for each objective.

**IIB Sant Pau has 5 platforms:**
- Genomics and Transcriptomics Platform
- Functional and Cellular Analysis Platform
- Microscopy and Immunohistochemistry Platform
- Innovation Platform i2Health Sant Pau
- Biobank

The platforms also have access to equipment available for general use to complement their functioning.
Research Support Services

Clinical Trial Documentation Management

Functions:
- Manage and supervise all documentation associated with active clinical trials in the experimental phase and destruction of documentation for terminated clinical trials located in the external archive.
- Oversee and manage the documentation for Centre for Drug Research (CIM) completed studies.
- Maintain and update the clinical workstations database and manage clinical studies.
- Ship of biological samples to central laboratory services.
- Clinical trial monitoring meeting rooms.
- Documentation filing area.
- Cold room.

Research Institute Management

Functions:
- Management of HSCSP Research Institute and IIB Sant Pau finances: manage accounts and fiscal matters; design, administer and control budget-related issues; manage and monitor financial and material resources.
- Management of public body funding requirements: fulfil obligations imposed by government and official regional and state entities; ensure compliance with current fiscal, financial, labour and legal regulations and with HSCSP Research Institute–IIB Sant Pau management policies.
- Administration and management of activities, providing management support for research groups in different areas; project management, human resources, procurement, invoicing, control and monitoring of projects, general administration, management of services (courses, travel and continuous professional development).
- Design, elaboration, development and maintenance of information systems for management area units, both for HSCSP Research Institute–IIB Sant Pau and research groups.
- Manage restricted access by clinical trial monitors to the clinical workstation.
- Supervise data processing and management.
- Coordinate researchers and monitors, draw up agendas for meetings and monitor studies.
- Provide logistical support to the cold area and the clinical materials store associated with clinical trials in the experimental phase.
- Manage IIB Sant Pau research groups: creation, dissolution and changes in composition.
- Manage new laboratory works performed under the contingency plan.
- Implement the functional plan for the new research building.
- Support management of the IIB Sant Pau Internal Scientific Committee, External Scientific Committee, Executive Committee and Delegate Committee.
- Implement policies for the dissemination of research among the general public and especially among secondary pupils and health science university students.
- Lead the quality assurance programme at CIM Sant Pau and in clinical trials where the HSCSP Research Institute acts as sponsor.
- Oversee auditing for protocols, databases, experimental phases, facilities, processes and final reports for clinical trials.
- Oversee supplier audits.
- Establish mechanisms to assess quality and good scientific practices in IIB Sant Pau.
- Information systems:
  - Design mechanisms and implement tools for the collection and organization of data and information to feed decision making.
  - Manage and transform information and data to contribute to the fulfillment of objectives and strategies.
  - Respond to external requests for data and information (statistical surveys, SIRECs, etc).
  - Implement policies to improve information systems.
  - Develop new indicators of use for the intranet.

Coordinator:
Jordi Virgili
jvirgili@santpau.cat
Staff:
Susana Daniel
Catalina Pérez

Quality and Information Systems Unit

Functions:
- General:
  - Support management with strategic projects (accreditation, CERCA evaluation, biobank legalization, evaluation of research groups, etc).
  - Manage IIB Sant Pau research groups: creation, dissolution and changes in composition.
  - Manage new laboratory works performed under the contingency plan.
  - Implement the functional plan for the new research building.
  - Support management with strategic projects (accreditation, CERCA evaluation, biobank legalization, evaluation of research groups, etc).
  - Manage IIB Sant Pau research groups: creation, dissolution and changes in composition.
  - Manage new laboratory works performed under the contingency plan.
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  - Support management with strategic projects (accreditation, CERCA evaluation, biobank legalization, evaluation of research groups, etc).
  - Manage IIB Sant Pau research groups: creation, dissolution and changes in composition.
  - Manage new laboratory works performed under the contingency plan.
  - Implement the functional plan for the new research building.
  - Manage the HSCSP Research Institute Biosafety Committee.
  - Participate in the Animal Experimentation Ethics Committee.
  - Participate in the UCICEC Sant Pau Technical Committee.
  - Represent the HSCSP Research Institute before external organizations.
- Quality:
  - Implement policies to improve quality under GLP, GCP, GMP and ISO 9001 standards.
Research Support Services

Radioactivity Unit

Functions:

- The Radioactivity Unit provides groups with specific research laboratories in which to work with radioactive isotopes in liquid form. These areas are fully equipped and adapted for the handling of radioactive material and apply optimum measures for the safety and radioprotection of staff and the environment.
- This area has been authorized by the nuclear safety authority and its staff supervise compliance with the corresponding laws, guidelines and regulations.

Facilities:

The Radioactivity Unit has the following facilities:

- 1 room for radioactive material storage.
- 7 equipped laboratories, one of them refrigerated.
- 1 room for gamma- and beta- counters.
- 1 room for radioactive waste storage.
- 1 room for controlled disposal of radioactive waste.
- Radioactive liquid waste containers for controlled radioactive waste disposal.

- Services include support for:
  - In vitro labelling of proteins, lipoproteins and liposomes.
  - Cellular proliferation and toxicity.
  - Nucleic acid labelling.
  - Immunoassay techniques.
  - Determination of enzymatic activities using radiolabelled substrates.
  - Analysis and separation of labelled molecules.
  - Cellular cholesterol efflux.
  - Metabolism in vivo.

- Shielding accessories for radiation safety (table top shields, shielded containers, protective equipment, etc)
- Portable radiation and environmental contamination detectors.
- 1 ventilated rack for in vivo studies.
- 2 chemical safety cabinets for gas extraction.
- 1 vertical laminar air flow cabinet for cell cultures.
- 1 CO2 incubator for cell cultures.

Tumour Bank

Functions:

- Create and maintain a collection of healthy and diseased tissue samples in optimal conditions for use in research projects that may include morphology, phenotype and molecular analyses and which may also be used in diagnosis.
- Guarantee the quality of stored material by means of morphology analyses of samples, assuring anatomical and pathological correlation with definitive diagnoses for tissues.
- Supply material to research groups on a non-profit basis (investigators may apply for samples as long as their project complies with current regulations and is scientifically, technically and ethically viable).

Equipment:

- 4 fast-freeze apparatus (isopentane bath, stored at -50°C).
- Storage and cryopreservation systems: 2 freezers -80°C and 1 deposit for liquid nitrogen.
- 1 cryostat.
- 1 manual tissue arrayer.

Centre for Drug Research (CIM Sant Pau)

Functions:

- Perform clinical drug trials and/or clinical research in compliance with methodological, ethical and legal requirements in the context of international GCP guidelines concerning:
  - Clinical trials that are not of therapeutic interest for participants (phase I, special populations, psychopathological research, biomarkers, proof of concept).
  - Clinical trials in neuropsychopharmacology.
  - Clinical trials in initial developmental phases.

Facilities:

- Three separate work areas have been designated for the trials:
  - Healthcare:
    - Admission zone.
    - 24 beds distributed in 4 units: trials in healthy volunteers and patients.
    - 2 individual rooms for CNS studies.
    - Ambulatory zone.
    - 4 consulting rooms for complementary testing, mainly related to CNS.
    - 3 cubicles to evaluate psychomotor performance.
  - Research in initial developmental phases.
  - Clinical trials in neuropsychopharmacology.
  - Clinical trials in initial developmental phases.

Logistical support:

- Rest area for clinical trial participants with bathrooms and kitchen.
- Areas for the preparation, centrifugation and separation of biological samples.
- Cold room.
- Archives.
- Management, administration and data processing.
- Offices.
- Area for monitors.
- IT equipment for clinical trial activities of a non-experimental nature.

Communications Coordination Team

Functions:

- Coordinate IIB Sant Pau communications.
- Prepare IIB Sant Pau annual reports and other communication materials.
- Establish standards concerning graphics and linguistic style to ensure visual uniformity in all IIB Sant Pau communications.
Central Clinical Research and Clinical Trials Unit (UCICEC Sant Pau)

Functions:
Comprehensive methodological, regulatory, administrative, financial and practical support to researchers developing independent research projects (not supported by the pharmaceutical industry).

Knowledge Management:
- One-stop information and advice for independent research group projects.
- Communications point for researchers and technical units.
- Notification of adverse events.
- Knowledge management:
  - Project dimensionality and viability studies.
  - Project needs analyses.
  - Documentation preparation advice: protocol, informed consent, final report.
  - Identification of spinoff projects.
  - Exploitation of research results.
  - Publication planning.
  - Training needs analyses.

Methodological and statistical support unit:
- Study design.
- Data collection.
- Data processing.
- Statistical reports.
- Electronic CRF validation and management.
- Documentation and reports.

Documentation, archiving, monitoring and follow-up unit:
- Document drafting: EUDRA/requests / follow-up.
- Monitoring.
- Initial, monitoring and final reports.
- Processing of applications, amendments and clarifications regarding clinical trials, post-authorization studies and other studies: Spanish Medicines and Health Products Agency (AEMPS), clinical research ethics committees, health authorities, etc.
- Custody of the sponsor’s master file.
- Other communications to ethics committees, the Catalan government and the AEMPS.

Finance and administration unit:
- Management of clinical trial contracts with participating centres when the HSCSP Research Institute is the sponsor.
- Management of collaboration agreements regarding funding with laboratories/compa- nies.
- Management of clinical trial-related contracts (ROIs, E-CRFs, statistics, rights transfers, etc).
- Management of clinical trial-related client and supplier invoices.
- Management of clinical trial insurance policies for HSCSP Research Institute as sponsor.
- Preparation of financial reports for the submission of studies to ethics committees.
- Payment of AEMPS clinical research fees.
- Collaboration with HSCSP Research Institute Projects Unit to financially evaluate grants in the presentation phase.

Animal Housing

Functions:
- Produce different small rodent strains in-house for research and teaching purposes.
- Manage the purchase and transportation of animals from domestic and international breeding and supply centres.
- Receive and house incoming animals and deliver them to users once quarantine and health requirements are met.
- House and maintain experimental animals while ensuring their welfare.
- Regularly check rodent health status.
- Perform twice-yearly health checks.
- Clean and sterilize of materials and maintain the pathogen-free area.
- Feed animals according to experimental studies: Spanish Medicines and Health Products Agency (AEMPS).
- Provide support for animal surgery, anaesthesia and euthanasia.
- Supply laboratory materials and collect samples.

Facilities:
- Standard area:
  > Mice rooms (2), total capacity 2400.
  > Rat room, capacity 200.
  > Quarantine room.
  > Washroom.
  > Clean storage room.
  > Standard storeroom.
  > Surgery.
  > CO2 euthanasia equipment.
  > Treatment room.
  > Office.
  > Shower.
  > WC.
- Pathogen-free area:
  > Autoclave and washing area.
  > Animal housing and changing area.
  > Work area.
  > Store.
  > Pre-changing room.
  > Changing room.
  > Airshower.

Coordinator:
M. Antonia Rubio
anrubia@santpau.cat

Staff:
Animal welfare advisor: M. Antonia Rubio
Veterinary surgeon: Eder Fredy Mateus
Animal care workers: Margarita Domingo, Luis Garcia

Pathogen-free area:
- Autoclave and washing area.
- Animal housing and changing area.
- Work area.
- Store.
- Pre-changing room.
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Coordinator:
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  > Pre-changing room.
  > Changing room.
  > Airshower.
Transfer and Innovation Unit

Functions:
> Promote an innovation culture and education.
> Develop a framework for innovation management.
> Evaluate technological opportunities originating with IIB Sant Pau staff, detect inventions and assess their protection, transfer and commercialization.
> Manage the intellectual property of the institution.
> Establish links with the business sector.
> Assist researchers in developing projects with companies.
> Manage competitive official innovation announcements.
> Manage competitive European official research announcements.
> Develop technological platforms.

Clinical Research Ethics Committee

The Clinical Research Ethics Committee (CEIC) of the HSCSP Healthcare Management Foundation is an independent body that, according to the laws that accredit it, has the mission to ensure the protection of rights, safety and welfare of the subjects involved in a trial and provide public assurance of that protection, protection by reviewing the protocol, the suitability of the researchers, facilities, equipment and methods to be used in obtaining and documenting the informed consent of the subjects.

Its specific functions are:
> Evaluate the methodological, ethical and legal aspects of:
  - Clinical trials with drugs and health products.
  - Observational studies.
  - Pharmacogenetic and pharmacogenomic studies.
  - Studies evaluating surgical or psychological treatments.
  - Studies involving invasive procedures or the use of health data or biological samples.
> Establish the informed consent of the subjects.
> Evaluate the relevant amendments in projects approved by the CEIC.
> Monitor of clinical drug trials and clinical research with medical devices.

Clinical Research Ethics Committee Secretariat

The Clinical Research Ethics Committee is an independent agency whose mission is to protect the rights, safety and wellbeing of persons participating in HSCSP research projects which may entail physical or psychological harm. The Secretariat of the Clinical Research Ethics Committee evaluates the methodological, ethical and legal aspects as well as any other relevant information regarding all research projects listed in the minutes of the Committee’s meetings. It also advises researchers in the HSCSP and the HSCSP Research Institute regarding the preparation and presentation of clinical research projects.

Functions:
> Receive, log and validate documentation for clinical research projects submitted to the Committee for evaluation.
> Arrange and call Committee meetings, inform members of the agenda and provide them with copies of protocol summaries and patient informed consent and information sheets.
> Prepare and submit reports to the Committee containing a methodological, ethical and legal description and analysis (and any other relevant information) of the research projects listed in agendas.
> Act as a reference point in communications with and between researchers, sponsors, medical administrators and managers and healthcare authorities regarding all aspects of the activities of the Committee and of the research projects evaluated by the Committee.
> Assist in the preparation and delivery of presentations, lectures, speeches, etc in English for meetings, conferences and similar events.

Author Editing

Functions:
> Review and edit research papers, abstracts, posters, presentations and other scientific documents written in English.
> Assist in the preparation and delivery of presentations, lectures, speeches, etc in English for meetings, conferences and similar events.
Scientific and Technical Service Platforms

Genomics and Transcriptomics Platform

**GENOMICS LABORATORY**

**Functions:**
- Next-generation sequencing: full transcriptome genotyping, RNA-Seq, Ampli-Seq, ChIP-Seq, amplicon sequencing and sequencing and identification of microorganisms.
- Capillary sequencing: mutational analysis, microorganism identification and validation of cell lines.
- Analysis of fragments: microsatellite instability, loss of heterozygosity studies in pathological conditions, mutation detection and genotyping, quantification of gene copy numbers, methylation studies and studies of polymorphisms associated with disease states.

**Equipment:**
- Ion Torrent Personal Genome Machine.
- Ion OneTouch (TM) System.
- 3130xl Genetic Analyzer capillary electrophoresis sequencer.
- Affymetrix array platform (upgrade 7G).
- Real-time quantitative PCR ABI 7900HT (384-well plates and TLDA).
- Bioanalyzer 2100

**COORDINATOR:**
- Elena Serrano
- eserrano@santpau.cat

**TECHNICAL STAFF:**
- Genomics Laboratory: Eva Companys
  - eocompanya@santpau.cat
- Transcriptomics Laboratory: Elena Serrano
  - eserrano@santpau.cat

**TRANSRIPTOMICS LABORATORY**

**Functions:**
- Hybridization and analysis of Affymetrix microarrays:
  - RNA and micro-RNA expression profiles in normal conditions and in diseases and treatment.
  - Loss of heterozygosity, copy number analysis and genome-wide mutation detection.
  - Genome-wide linkage and association studies.
- Real-time quantitative PCR (gene expression, allelic discrimination).
- Nucleic acid quality assessment.
- Quantification of nucleic acids (Bioanalyzer, Nanodrop).

**Equipment:**
- Affymetrix array platform (upgrade 7G).
- Real time quantitative PCR ABI 7900HT (384-well plates and TLDA).

**COORDINATOR:**
- Elena Serrano
- eserrano@santpau.cat

**TECHNICAL STAFF:**
- Flow Cytometry Laboratory: Marta Soler
  - msolerC@santpau.cat
- Cell Culture Laboratory: Rosa Antón
  - RAntón@santpau.cat

**FUNCTIONAL AND CELLULAR ANALYSIS PLATFORM**

**FLOW CYTOMETRY LABORATORY**

**Functions:**
- Conventional cytometry in homogenous (cell line) or heterogeneous (biological fluid) samples:
  - Detection of the presence of proteins and determination of cell populations (cell markers).
  - Studies of signalling cascades (cell cycle, cell proliferation, apoptosis, intracellular calcium determination).
  - Quantification of transfection efficiency.
  - Phenotype changes and relative and absolute presence.
  - Production of mediators.
  - Detection of minority populations.
- Cell separator (separation of cell populations in sterile conditions):
  - Microarrays.
  - Western blot.
  - Cell cultures.
  - RT-PCR.

**Equipment:**
- FACSCalibur (BD) conventional flow cytometry.
- MACSQuant (Milteny Biotech) conventional flow cytometry.
- FACSAria (BD) flow cytometry cell sorter.

**CELL CULTURE LABORATORY**

**Functions:**
- To make adequate facilities and equipment available to researchers working with cell cultures in a BSL2 laboratory.

**Equipment:**
- 4 CO2 incubators.
- 2 hypoxia incubators (2-21% O2).
- 2 IA biosafety cabinets (BSL2).
- 2 hypoxia cabinets (BSL1).
- Culture baths.
- Olympus inverted microscope with high-resolution colour camera.
- Refrigerated centrifuge.
- Fridge 4°C and freezer -20°C.
- Thermo-desinfector and autoclave.
Scientific and Technical Service Platforms

Microscopy and Immunohistochemistry Platform

**IMMUNOHISTOCHEMISTRY LABORATORY**

**Functions:**
- Tissue processing.
- Microtome paraffin-block cutting and OCT.
- Block cutting with microtome/cryostat.
- Automatic immunostaining (simple and dual).
- Staining (Giemsa, haematoxylin-eosin, trichromic, PAS, Oil Red, etc).
- Preparation of tissue arrays.
- Image acquisition and analysis using high-resolution colour microscopy and specialist software.

**Equipment:**
- Tissue processor (Sakura).
- Paraffin bath (Sakura).
- Microtome (Microm).
- Cryostat (Leica).
- Immune autostainer A548 (Dako).
- Autostainer (Sakura).
- Semiautomatic tissue arrayer.

**MICROSCOPY LABORATORY**

**Functions:**
- Confocal microscopy in live and fixed cells:
  - Immunofluorescence of 2 to 5 fluorochromes.
  - Reconstruction of 3D and 4D images.
  - Colocalization studies.
- Inter- and intra-interactions (FRET and FLIM).
- Molecular diffusion times (FCS).
- Conventional fluorescence microscopy (immunofluorescence with 1 or 2 fluorochromes, FISH) in live and fixed cells.
- Confocal multispectral Leica SP5 AOBS with high-resolution scanning system and high-speed tandem scanning, FLIM/FCS modules and time-lapse incubation system.
- Zeiss digital time-lapse microscope.

**INNOVATION PLATFORM i2HEALTH SANT PAU**

**Functions:**
- Promote the development of the information and communication technologies in the health sector.
- Support researchers and healthcare staff undertaking e-health projects.

**Biobank**

**Functions:**
- Obtain, process and store human biological samples in accordance with international standards, maintaining sample traceability and security in accordance with legal requirements.
- Facilitate collaboration projects by putting investigators in touch and making biological human sample cession possible.
- Supply (non-profit) human biological samples to research groups, in accordance with legal regulations.

**Equipment:**
- Revolution 4200 microarray scanner (Vidar).
- Image Station 4000MM Pro (Kodak) gel documentation: luminescence, fluorescence, absorption.
- Precision weighing balances (Sartorius).
- Bioanalyzer 2100 (Agilent).
- Nanodrop 2000 (Thermo).
- Infinite 200 (Tecan) microplate reader: spectrophotometer, fluorometer, luminometer.

**Grants:**

**Equipment for General Use**

**IMAGE ANALYSIS LABORATORY**

**Equipment:**
- Revolution 4200 microarray scanner (Vidar).
- Image Station 4000MM Pro (Kodak) gel documentation: luminescence, fluorescence, absorption.

**OTHER EQUIPMENT**

**Equipment:**
- Precision weighing balances (Sartorius).
- Bioanalyzer 2100 (Agilent).
- Nanodrop 2000 (Thermo).
- Infinite 200 (Tecan) microplate reader: spectrophotometer, fluorometer, luminometer.

**Grants:**
## Areas of Research - Index

<table>
<thead>
<tr>
<th>Area</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>46</td>
<td>Cardiovascular Diseases</td>
<td></td>
</tr>
<tr>
<td>76</td>
<td>Genetic, Metabolic and Inflammatory Diseases</td>
<td></td>
</tr>
<tr>
<td>110</td>
<td>Haematological and Oncological Diseases</td>
<td></td>
</tr>
<tr>
<td>130</td>
<td>Neurological, Mental Disorders and Ageing</td>
<td></td>
</tr>
<tr>
<td>162</td>
<td>Uronephrology and Experimental Surgery</td>
<td></td>
</tr>
<tr>
<td>172</td>
<td>Epidemiology, Public Health and Healthcare Services</td>
<td></td>
</tr>
<tr>
<td>198</td>
<td>Molecular, Genomic, Cellular and Kinetic-Dynamic Bases for Diseases and their Treatment</td>
<td></td>
</tr>
<tr>
<td>208</td>
<td>Associated Groups</td>
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</tbody>
</table>
AREA 1

Cardiovascular Diseases

48 Clinical and Translational Cardiology
54 Thrombosis and Haemostasis
56 Cardiovascular Biochemistry
58 Angiology, Vascular Biology and Inflammation
60 Molecular Pathology and Therapeutics of Ischaemic and Atherothrombotic Diseases
64 Inflammation and Vascular Remodelling
66 Biomarkers for Disease Status
68 Lipids and Cardiovascular Pathology
70 Cell Therapy
72 Atherosclerosis and Vascular Biology
74 Regulation of Cardiac Rhythm and Contraction
Clinical and Translational Cardiology

**Main Lines of Research**
- Describe cardiac repolarization (T wave) in the isolated perfused human heart (Langendorff).
- Develop new drugs to treat atrial fibrillation based on involvement of atrial receptors for adenosine.
- Set up basic research lines related to cardiac physiology in experimental models.
- Develop new diagnostic techniques for myocardial infarction based on myocardial electrical impedance measurements.
- Non-invasive multidetector CT coronary angiography: consolidate use in clinical practice by improving viewing and quantification tools that confirm its diagnostic value for cardiac disease.
- Cardiac magnetic resonance imaging.

**Challenges**
- Cardiac electrophysiology and arrhythmias.
- Heart failure.
- Ischaemic heart disease.
- New diagnostic techniques.
- New imaging techniques.
- Non-invasive multidetector CT coronary angiography.
- Cardiac magnetic resonance imaging.

**Active Grants**
- Cinca J. Electrophysiological and molecular characterization of cardiac repolarization in the isolated human heart. La Marató TV3 Foundation. March 2009-December 2012.

**Collaborations with other IIB**
- Sant Pau Groups
  - Lipids and Cardiovascular Pathology.

**External Collaborations**
- Rafael Vázquez. Hospital Universitario Virgen de Valme, Seville, Spain / Hospital Puerta del Mar, Cadiz, Spain.
- Josep Brugada. Hospital Clinic, Barcelona, Spain.
- Josep Ma Verdú. ICS, Spain.
- Bernardo Wörner. Hospital Universitari Arnau de Vilanova, Lleida, Spain.
- Alfredo Bardají. Hospital Universitari Joan XXII, Tarragona, Spain.
- José Ramón González. Hospital Clinic Universitario, Santiago de Compostela, Spain.
- Arturo Fernández-Cruz. Hospital Clinic San Carlos, Madrid, Spain.
- Julián Pérez-Villarroya. Cardiovascular Institute Hospital Clinic San Carlos, Madrid, Spain.
- Juan Francisco Delgado. Hospital Doce de Octubre, Madrid, Spain.
- Mariano Valdivieso. Hospital Universitario Virgen de la Arrixaca, Murcia, Spain.
- Francisco Javier Chero. Hospital Clinic Universitario, Valencia, Spain.
- Concepción Vicente Llorente. CSIC-ICC, Barcelona, Spain.
- Francisco Javier Rosell. UPC-Barcelona Tech, Barcelona, Spain.
- José Miguel Rivero. Hospital La Fe, Valencia, Spain.
- Oscar Aramburu. Hospital Universitario Virgen Macarena, Seville, Spain.
- Covadonga García. Hospital Guadarrama, Madrid, Spain.
- Diego Miguel Gimenez. Hospital Mora- les Meseguer, Murcia, Spain.
- Andrés Grau. Hospital Son Dureta, Palma de Mallorca, Spain.

**Scientific Production**

**ISI Web of Knowledge Indexed Publications with an IF**

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<tr>
<th>Title</th>
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<tr>
<td>Bueno-Gajosa C., Mieramy E., Lete R. Anomalous origin of right corona- ary artery from the left coronary sinus: Sudden death and successful surgical reimplantation. European Heart Jour- nal</td>
<td>2.514</td>
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**Scientific Report 2012**

- Sant Pau Biomedical Research Institute


### Clinical and Translational Cardiology

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#### Scientific Production

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#### Letters

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#### Scopus Indexed Publications

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#### Other Publications

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Thrombosis and Haemostasis

Main Lines of Research

- Investigation of the genetic basis of venous and arterial thrombosis: GAIT-1 and GAIT-2 projects.
- Investigation of new antithrombotic drugs: thrombin inhibitors, molecules against activated factor X, low molecular weight heparin with oral activity, among others.
- Biomarkers of prothrombotic states in patients under 55 years with venous thromboembolic disease, acute ischaemic stroke, or acute myocardial infarction.
- Study the QTL detected in GAIT-1 families in relation to phenotypes of haemostasis with thrombosis risk (resistance to activated protein C, factor VII, homocysteine, factor XII and others).
- Replicate the QTL related to thrombosis in GAIT-1 families by means of the linkage analysis using the new GAIT-2 families.
- Genome-wide association study (GWAS) of the phenotypes included in GAIT-1 families by means of the linkage analysis using the new GAIT-2 families.
- Study the QTL detected in GAIT-1 families in relation to thrombosis in GAIT-1 families by means of the linkage analysis using the new GAIT-2 families.
- Design new epidemiological projects on the risk of venous thromboembolism, including the MIRT0 (Modelling Individual Thrombosis Risk in Oncology) project, with the goal of establishing an individual risk score for venous thromboembolism (RETOV sub project) and for ischaemic stroke (SINQ sub-project) in patients with cancer.
- Continue collaboration with the RCV Spanish cardiovascular patient network and with other European groups, mainly with the goal of applying the GAIT project findings to cohorts of patients with venous and arterial thrombosis in Spain and other European countries.
- EDUCANT clinical trial (start date March 2013) to evaluate effectiveness of an educational programme for patients taking antithrombotic therapy (aspirin and/or clopidogrel) in reducing severe complications.

Active Grants


Collaborations with other IIB Sant Pau Groups

- Angiology, Vascular Biology and Inflammation.
- Genomics of Complex Diseases.
- Haematological Diagnosis.

Scientific Collaborations

- *TIF: 115.683 **MIF: 8.263

Publications with an IF


IF: 6.338


IF: 14.086


IF: 0.957


IF: 3.706


IF: 3.133


IF: 2.064


IF: 0.894


IF: 1.132


IF: 1.322


IF: 8.06


IF: 6.694


IF: 23.917


IF: 19.06


IF: 3.73
Cardiovascular Biochemistry

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HSCSP RI
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HSCSP RI
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HSCSP RI
Montse Pérez
HSCSP RI
José Luis Sánchez Q
HSCSP RI

Technicians
Rosa Bonet
HSCSP RI
Agustina Castelví
HSCSP RI
Julia Freixa
HSCSP RI

Main Lines of Research
- Mechanisms of atherogenicity in low density lipoproteins (LDL).
- Electronegative LDL interaction with cells from atheromatous lesions.
- Vulnerability markers in atheromatous plaque: electronegative LDL, myeloperoxidase, phospholipase.
- New markers of cardiovascular risk in diabetes: phospholipidases, HDL function, electronegative LDL.

Challenges
- Demonstrate that electronegative LDL is a marker of vulnerable atheromatous plaque.
- Determine the intracellular mechanisms involved in the inflammatory response induced by LDL(-) and its components of the particle that entail atherogenicity.
- Develop novel molecular strategies to inhibit the aggregation and binding to arterial wall proteoglycans of LDL.
- Find new markers of cardiovascular risk in diseases such as diabetes, HIV or cardiac failure.

Active Grants

Collaborations
- Collaborations with other IIB Sant Pau Groups
  - Metabolic Bases of Cardiovascular Risk.
  - Endocrinology, Diabetes and Nutrition.
  - Angiology, Vascular Biology and Inflammation.
  - Clinical and Translational Cardiology.

ISI Web of Knowledge Indexed Publications with an IF
03. Apple F.S., Collinson PO., JIF: 3.209
04. Atasay M., Collinson PO., IF: 3.209
05. Gayeschi J., Collinson PO., JIF: 3.209
06. Gayeschi J., Collinson PO., JIF: 3.209
07. Gayeschi J., Collinson PO., JIF: 3.209
08. Gayeschi J., Collinson PO., JIF: 3.209
09. Gayeschi J., Collinson PO., JIF: 3.209

Scientific Production

Other Publications
- Letter
Angiology, Vascular Biology and Inflammation

Cancer research:
- Intense peritumoural inflammatory response as a therapeutic strategy in solid tumours.
- Role of inflammatory mediators in head and neck squamous carcinoma, and in regulating gene expression in tumour repression.

Cardiovascular research:
- Inflammatory mechanisms involved in vascular disorders.
- Genetic basis of vascular pathologies: atherosclerosis, aortic aneurism and chronic venous insufficiency.
- New, more effective targets. Research into pharmacologic targets for NSAIDs of cardiovascular interest.

Main Lines of Research

Challenges
- Increase cooperation between clinicians and experimental researchers in order to enhance the translation level of our research by setting up training programmes for clinical physicians.
- Increase the number of researchers with PhDs in the group.
- Increase funding resources by establishing collaborations with the industry sector.
- Improve research quality in terms of the standard evaluation index.

Active Grants

Scientific Production

ISI Web of Knowledge Indexed Publications with an IF


Collaborations with Other IIB Sant Pau Groups
- Ear, Nose and Throat Cancer
- Inflammation and Vascular Remodelling
- Genomics of Complex Diseases
- Thrombosis and Haemostasis
- Nephrology
- Multi-organ Damage
- Cardiovascular Diseases

Collaborations

Scientific Report 2012
Molecular Pathology and Therapeutic of Ischaemic and Atherothrombotic Diseases

**Main Lines of Research**

- Physiopathological role of LRP family proteins in chronic diseases.
- Identification and characterization of transcription factors and genetic targets. Role of HDL and LDL.

**Challenges**

- Use nuclear magnetic resonance to answer questions arising from myocardial perfusion.
- Broaden the experimental focus to include transgenic animal models with/without perfusion.
- Identified by post-genomic technologies.
- Maintain present scientific networks and establish new multidisciplinary collaborations.
- Increase international funding for the extension of new and established platforms in order to implement proposed activities.

**Scientific Awards**

- IV FENIF Award for Technological Innovation in Healthcare (November 2012).
- SETH-FETH Award for Best Published Article on Thrombosis and Haemostasis in 2011 (October 2012).
- Honorary Membership of the Spanish Hypertension Society (March 2012).

**Publications with an IF**

- HDL Cerebrovascular Diseases.
- Clinical and Translational Cardiology.
- Cerebrovascular Diseases.
- Cardiovascular Research.

**Collaborations**

- **ISI Web of Knowledge Indexed Publications with an IF**

Molecular Pathology and Therapeutic of Ischaemic and Atherothrombotic Diseases

**ISI Web of Knowledge Indexed Publications without an IF**


**ISI Web of Knowledge Indexed Publications with an IF**


**ISI Web of Knowledge Indexed Publications without an IF**


**ISI Web of Knowledge Indexed Publications with an IF**

Inflammation and Vascular Remodelling

Coordinator
Cristina Rodríguez iccc
rodriguezcsicsiccc.org

Researchers
Anna Guastafi Ricipa
Estefania Segalés ICCC

Collaborators
Ma del Mar Orriols ICCC

Main Lines of Research
- Inflammation and vascular remodelling: regulation of vascular homeostasis by extracellular matrix components and modifying enzymes.
- Molecular and cellular mechanisms in atherosclerosis: identification of new therapeutic targets.
- Epigenetics in cardiovascular diseases.

Challenges
- Identify new therapeutic targets, progression markers, and biomarkers in atherosclerosis and AAA.
- Establish genetically modified animal models that could become useful disease models in atherosclerosis and AAA.
- Expand and consolidate the scientific staff.
- Increase regular funding through national and international calls.

Active Grants

Awards

Scientific Production

Collaborations with other IIB Sant Pau Groups
- Angiology, Vascular Biology and Inflammation.
- Atherosclerosis and Vascular Biology.
- Regulation of Cardiac Rhythm and Contraction.

External Collaborations
- Kan K. Mukeh. Case Western Reserve University School of Medicine, Cleveland, Ohio, USA.
- Mark Sevier. Manchester Metropolitan University, UK.
- Vicente Andrés. National Cardiovascular Research Centre, Spain.

Collaborations
- Jesús Osada. CIBEROB, University of Zaragoza, Spain.
- Mercedes Salcales. Autonomous University of Madrid, Spain.
- Victoria Cachofo. Complutense University of Madrid, Spain.
- Francisco Sánchez. Hospital de la Princesa, Madrid, Spain.

Active Grants

Awards
Biomarkers for Disease Status

Identification of new biomarkers of atherothrombosis and ischaemic heart disease with potential use in diagnosis and prognosis, performing studies in cell cultures, animal models of cardiovascular disease and human samples of patients with coronary heart disease risk factors.

Advance research aiming to identify and characterize new biomarkers of vascular injury, atherothrombotic disease and/or ischaemic, coronary and cerebrovascular syndrome using post-genomic techniques.

Generate new information on potential soluble biomarkers (in serum, plasma and in microparticles circulating in blood, as well as in blood and/or vascular cells, using proteomic techniques based on liquid chromatography and bidimensional electrophoresis, antibody array systems and mass spectrometry (MALDI-TOF/TOF).

Characterize molecular and functional mechanisms for selected biomarkers in cardiovascular pathology (biology of systems).

Prepare data to update the BIOBANK for the SAFE-T European project.

SETH-FETH Award for Best Published Article on Thrombosis and Haemostasis in 2011.

Challenges

Collaborations with other IIB Sant Pau Groups

- Molecular and Therapeutic Pathologies of Ischaemic and Atherothrombotic Disease.
- Clinical and Translational Cardiology.
- Endocrinology, Diabetes and Nutrition.
- Pharmacological Research in Humans.
- Pharmacology of Antithrombotics.

Active Grants


Active Production

- Padró T. Development of new methodologies and emerging technologies to provide evidence of foods with health properties for the reduction of the risk of chronic pathologies from middle age (HENUFOOD). Spanish Ministry of Economy and Competitiveness/CENIT. May 2010-December 2013.

Other Publications

ISI Web of Knowledge Indexed Publications without an IF


*TOTAL Impact Factor **Mean Impact Factor - PUBLISHED ON PAPER IN 2012

ISI Web of Knowledge Indexed Publications with an IF

07. Aldeno C, Pena E, Badimon L. Tissue factor agonist signaling triggers microvesSEL formation. Journal of Thrombos-
### Lipids and Cardiovascular Pathology

#### Main Lines of Research
- Molecular mechanisms involved in the modulation of LRP1 by cardiovascular risk factors.
- Impact of LRP1 on vascular and myocardial cholesterol accumulation.
- Impact of lipoproteins and angiotensin II on LRP1-intracellular signal pathways.
- Alterations in LRP1 expression and LRP1-intracellular signal pathways in hypoxia/ischaemia in vitro and in vivo models.
- LRP1 and breast cancer.
- LRP1 and inflammation.

#### Challenges
- Develop transgenic mice with tissue-specific LRP1 modulation to proceed to in-depth analysis of LRP1-dependent mechanisms.
- Maintain and amplify relationship with IIB-Sant Pau groups to gain translation in this research area.

#### Active Grants
- Llorente V. Intracellular signal pathways involved in the modulation of low density lipoprotein receptor-related protein (LRP1) expression by hypercholesterolemia and hypertension. Consequences for vascular cell and cardiomyocyte activity. Implications in cardiovascular pathophysiology. La Marató de TV3 Foundation. 2008-2012.
- Llorente V. Identification of pathological molecular mechanisms involved in heart failure and their contribution to the pathogenesis of this syndrome. Carlos III Health Institute Grant. 2008-2012.

#### Collaborations with other IIB Sant Pau Groups
- Clinical and Translational Cardiology.
- Breast Cancer.
- Clinical Oncology.
- Cardiovascular Biochemistry.
- Inflammatory Diseases.

#### Coordinator
Vicenta Llorente-Cortes
ICCC
cllorente@csic-iccc.org

#### Researchers
José Castellano
REDINSCOR
Roi Cal
La Marató de TV3 Foundation
Elena Revuelta
AGAUR

#### Technicians
Laura Nasarre
REDINSCOR

#### Collaborations
- Clinical and Translational Cardiology.
- Breast Cancer.
- Clinical Oncology.
- Cardiovascular Biochemistry.
- Inflammatory Diseases.

#### Publications
**ISI Web of Knowledge Indexed Publications with an IF**
02. Llorente-Cortes V., Barbarigo V., Badimon L. Low density lipoprotein receptor-related protein 1 modulates the proliferation and migration of human hepatic stellate cells. Journal of Cellular Physiology; 227(10):3528-3533. IF: 4.218
03. Aledo R., Alonso R., Mata P., Llorente-Cortes V., Padro T., Badimon L. LRP1 gene polymorphisms are associated with premature risk of cardiovascular disease in patients with familial hypercholesterolemia (Los polimorfismos del gen LRP1 se asocian al riesgo prematuro de enfermedad cardiovascular en pacientes con hipercolesterolemia familiar). Revista Espanola de Cardiologia; 65(9):807-812. IF: 3.204

#### Collaborations with other IIB Sant Pau Groups
- Clinical and Translational Cardiology.
- Breast Cancer.
- Clinical Oncology.
- Cardiovascular Biochemistry.
- Inflammatory Diseases.

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- Llorente V. Intracellular signal pathways involved in the modulation of low density lipoprotein receptor-related protein (LRP1) expression by hypercholesterolemia and hypertension. Consequences for vascular cell and cardiomyocyte activity. Implications in cardiovascular pathophysiology. La Marató de TV3 Foundation. 2008-2012.
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#### Challenges
- Develop transgenic mice with tissue-specific LRP1 modulation to proceed to in-depth analysis of LRP1-dependent mechanisms.
- Maintain and amplify relationship with IIB-Sant Pau groups to gain translation in this research area.
- Maintain and strengthen international collaborations to set up future applications for European funding.
- Establish collaborations with companies with the aim of developing new products useful for prognosis and diagnosis.

#### Main Lines of Research
- Molecular mechanisms involved in the modulation of LRP1 by cardiovascular risk factors.
- Impact of LRP1 on vascular and myocardial cholesterol accumulation.
- Impact of lipoproteins and angiotensin II on LRP1-intracellular signal pathways.
- Alterations in LRP1 expression and LRP1-intracellular signal pathways in hypoxia/ischaemia in vitro and in vivo models.
- LRP1 and breast cancer.
- LRP1 and inflammation.

#### Collaborations with other IIB Sant Pau Groups
- Clinical and Translational Cardiology.
- Breast Cancer.
- Clinical Oncology.
- Cardiovascular Biochemistry.
- Inflammatory Diseases.

#### Coordinator
Vicenta Llorente-Cortes
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#### Researchers
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Roi Cal
La Marató de TV3 Foundation
Elena Revuelta
AGAUR

#### Technicians
Laura Nasarre
REDINSCOR

#### Collaborations
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#### Collaborations with other IIB Sant Pau Groups
- Clinical and Translational Cardiology.
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- Maintain and strengthen international collaborations to set up future applications for European funding.
- Establish collaborations with companies with the aim of developing new products useful for prognosis and diagnosis.
Cell Therapy

Coordinator
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Researchers
Elisabeth Aguilar
Olga Fernández
María Álava Krasennikova
Juli Rodríguez
Nuria Rubio

Main Lines of Research
- Tissue engineering.
- Tumour cell therapy.
- Interaction between tumour and therapeutic cells.
- Monitoring Tumour Therapy.

Challenges
- Promote biomaterial development to reach the market place.
- Develop biomaterials for delivery of cell-based tumour therapy.
- Develop clinical trials of cell-based antiglioma therapies.

Active Grants
- Blanco J. Highly porous bioactive scaffolds controlling angiogenesis for tissue engineering. ANGIOSCAFF. European Union Grant. 2009-2012.
- Blanco J. Development of a dual agent for cell therapy and MRI contrast of vehicle cells. Spanish Ministry of Economy and Competitiveness Grant. 2010-2013.
- Blanco J. Cardiac Insufficiency and Cardiac Regeneration. Grants to support research groups in Catalonia. AGAUR Grant. 2009-2013.
- Blanco J. Grants to support research groups in Catalonia. 7th Research Framework Programme European Union Grant. 2012.

Collaborations with other IIB Sant Pau Groups
- Neurosurgery.
- Cardiology.
- Cardiology Cellular Physiology Group, ICCC, Barcelona, Spain.
- Dr. Angel Raya. CNR, Barcelona, Spain.
- Prof. Miguel Buato. Chromatin and Gene Expression Group, CRG, Barcelona, Spain.
- Prof. Jons Hilborn. Department of Materials Chemistry, University of Upsala, Sweden.
- Prof. Jeffrey A. Hubbell. Institute of Bioengineering, Ecole Polytechnique Fédérale de Lausanne, Switzerland.
- Prof. Ralph Müller. Institute for Biomechanics, Zurich, Switzerland.

ISI Web of Knowledge Indexed Publications with an IF
co J., Fernández P.L., Thomson T.Ma Epi-
thelial-mesenchymal transition can sup-
press major attributes of human epithelial tumor-initiating cells. Journal of Clinical Investigation; 122(5):1849- 
1868. IF: 12.812

02 Alieva Ma, Bago J.R., Aguilar E., Sol-
er-Botija C., Vila O.F., Molet J., Gambhir S.S., Rubio N., Blanco J. Glioblastoma 
therapy with cytotoxic mesenchymal 
stromal cells optimized by biolumines-
cence imaging of tumor and therapeu-
tic cell response. PLoS ONE; 7(4).

IF: 3.73

03 Roura S., Bago J.R., Soler-Botija C., Pujal J.Ma, Galvez-Monton C., Prat-Vidal C., 
Lucía-Valdés A., Blanco J., Bayes-Genis A. Human Umbilical Cord 
Blood-Derived Mesenchymal Stem Cells Promote Vascular Growth In Vivo. PLoS 
ONE; 7(11).

IF: 3.73

*TIF: 20.272 **MIF: 6.757

Scientific Production
03 Roura S., Bago J., Soler-Botija C., Pujal J.Ma, Galvez-Monton C., Prat-Vidal C., 
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tic cell response. PLoS ONE; 7(4).

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Other Publications
Atherosclerosis and Vascular Biology

Coordinator
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CSIC

Researchers
Judith Alonso
CSIC
Beatriz Ferrán
CSIC
Ingrid Martí
ECC
Marc Orriols
ECC
Ricardo Rodríguez
ECC

Main Lines of Research

- Identification and characterization of master genes involved in the onset, development and complication of ischemic heart disease (IHD) and abdominal aortic aneurysm (AAA).
- Mechanisms involving nuclear receptors in atherosclerosis and restenosis, the major limitation to percutaneous coronary intervention and stenting.
- Cardioprotective mechanisms mediated by nuclear receptors.

Challenges

- Develop new (genetically modified) animal models for atherosclerosis, restenosis and AAA.
- Incorporate new PhD and postdoctoral students as well as staff investigators to preserve the core group and implement new technical expertise and experimental approaches.

Active Grants


Collaborations

Collaborations with other IIB Sant Pau Groups

- Angiology, Vascular Biology and Inflammation.
- Inflammation and Vascular Remodelling.
- Regulation of Cardiac Rhythm and Contraction.

External Collaborations

- Jan J. Mukej. Case Western Reserve University School of Medicine, Cleveland, Ohio, USA.
- Mark Steven. Manchester Metropolitan University, UK.
- Vicente Andráes. National Cardiovascular Research Centre, Spain.
- José Manuel Redondo. National Cardiovascular Research Centre, Spain.

Awards

- Best Communication Award. 6th Meeting on Vascular Physiopathology Research (SIH-LELHA), Madrid, Spain.

Scientific Production

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Collaborations

Collaborations with other IIB Sant Pau Groups

- Angiology, Vascular Biology and Inflammation.
- Inflammation and Vascular Remodelling.
- Regulation of Cardiac Rhythm and Contraction.

External Collaborations

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Scientific Production

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Regulation of Cardiac Rhythm and Contraction

Coordinator
Leif Hove-Madsen
lhove@csic-iccc.org

Researchers
Nuria Caboello
Cristina Espinosa
Adela Herrera

Technicians

Grant Holders
Carmen Tarifa

Main Lines of Research

- Receptor-mediated changes in intracellular calcium handling in atrial fibrillation.
- Contribution of genetic variants to electrical remodelling and arrhythmogenesis.
- Effects of development and ageing on calcium handling in cardiac myocytes.
- Functional effects of lipid accumulation in cardiomyocytes.

Challenges

- The main goal is to consolidate the group as a reference in research into calcium handling in atrial fibrillation and to establish it within other lines of research by including emerging technology and fields of research. Specifically we aim to:
  - Develop computational tools and models to improve the analysis and understanding of intracellular calcium handling in cardiac myocytes.
  - Incorporate emerging technology such as stretching and measurements of force in single cardiomyocytes.
- Consolidate current national and international collaborations and establish new strategic collaborations within emerging fields of research such as the use of super-resolution fluorescence imaging (STORM, STED techniques), the detection and role of reactive oxygen species in diseased cardiomyocytes and the role of telomere length in cardiac senescence and regeneration.
- Achieve international funding for incorporation of scientific expertise and participation in multidisciplinary international research projects.

Active Grants


Scientific Report 2012

Sant Pau Biomedical Research Institute

Coordinators
Leif Hove-Madsen
lhove@csic-iccc.org

Researchers
Nuria Caboello
Cristina Espinosa
Adela Herrera

Technicians

Grant Holders
Carmen Tarifa

Main Lines of Research

- Receptor-mediated changes in intracellular calcium handling in atrial fibrillation.
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Active Grants

AREA 2

Genetic, Metabolic and Inflammatory Diseases

78 Genetic Diseases
82 Metabolic Bases of Cardiovascular Risk
84 Inflammatory Diseases
86 Endocrinology, Diabetes and Nutrition
90 Pituitary Gland Disorders
92 Digestive Diseases
96 Microbiology and Infectious Diseases
104 Multi-organ Damage
Genetic Diseases

### Main Lines of Research

- Monogenic muscular disorders: dystrophinopathies, dysferlinopathies, limb girdle dystrophies, Myotonic dystrophy.
- Hereditary breast/ovarian cancer.
- Motor neuron disorders: pathogenic mechanisms during human development and validation of biological markers for therapeutic follow-up.
- Monogenic blood disorders: haemochromatosis, haemophilia A and B, thalassemic syndromes.

### Challenges

- Discovery of new disease genes.
- Characterization of rare disorders.
- Development of personalized medicine.

### Collaborations with other IIB Sant Pau Groups

- Molecular Bases of Disease.
- Development of neuromuscular junction models.
- Development of the mouse spinal muscular atrophy. Spanish Ministry of Economy and Competitiveness.
- Development of neuromuscular pathology using Fluidigm access array system and Next Generation Sequencing (NGS).
- Functional characterization of monogenic muscular dystrophies.

### Active Grants

- CIBERER. University of Oxford, UK.
- CIBERER. University of Oxford, UK.

### Collaborations

- Conception Henández. Genetics Department. Ramón y Cajal Hospital, Madrid, Spain.
- A. Vega. Molecular Medicine Department of the Galician Public Foundation for Genomic Medicine, Hospital Clinico Universitario, Santiago de Compostela, Spain.
- Eladio Velasco. Institute of Biology and Molecular Genetics, University of Valladolid, Spain.
- Spanish National Cancer Research Centre (CNIO), Madrid, Spain.

### Scientific Production

- Publications with an IF
- IF: 4.469
- IF: 4.565
- IF: 3.199
- IF: 2.196
- IF: 1.399
- IF: 0.894
- IF: *Total Impact Factor **Mean Impact Factor - PUBLISHED ON PAPER IN 2012

- IS/ Web of Knowledge Indexed Publications with an IF


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Scientific Production


Metabolic Bases of Cardiovascular Risk

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Main Lines of Research
• HDL and susceptibility to diabetes / atherosclerosis: modification of the relationship by metabolic disorders, genetic modification and drug intervention.
• Genetic determinants of metabolic factors of cardiovascular risk: dyslipidaemia, type 2 diabetes, hyperhomocysteinaemia.
• Positive health effects of phytosterols.
• HDL and susceptibility to diabetes / atherosclerosis: modification of the relationship by metabolic disorders, genetic modification and drug intervention.
• Genetic determinants of metabolic factors of cardiovascular risk: dyslipidaemia, type 2 diabetes, hyperhomocysteinaemia.
• Positive health effects of phytosterols.
• Development, validation and application of new clinical laboratory methods in the field of metabolic and cardiovascular medicine.

Challenges
• Analyse the effects of diabetes mellitus and hyperhomocysteinaemia in reverse cholesterol transport in vivo.
• Determine the pathogenic relevance of alterations in cholesterol metabolism in diabetic retinopathy.
• Compare the effects of niacin and fenofibrate in the HDL of patients with type 2 diabetes.
• Evaluate the importance of liver lipase and endothelial lipase on macrophage-specific reverse cholesterol transport in vivo.

Active Grants
• Blanco F. Role of the lipases involved in lipoprotein metabolism in modulating the anti-atherogenic properties of HDL: reverse cholesterol transport specific to macrophage and antioxidant capacity. FIS Grant. Carlos III Health Institute. January 2009-May 2012.
• Blanco F. Functionality of high density lipoproteins (HDL) and pleiotropic effects in diabesity, retinopathy and breast cancer: effects pleiotrópicos en diabesi-
• Escolà J. Functional analysis of antithero-

Collaborations with other IIB Sant Pau Groups
• Cardiovascular Biochemistry.
• Genomics of Complex Diseases.
• Molecular Bases of Disease.

ISI Web of Knowledge Indexed Publications with an IF


03 Martin-Campos J.M., Roig R., Mayoral C., Martinez S., Marti G., Arroyo J.A., Julve J., Blanco-Vaca F. Identification of a novel mutation in the ANGPTL3 gene in two families diagnosed of familial hypobetalipoproteinemia without APOB muta-

Science 2012
Inflammatory Diseases

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Carlos Zamora HSCSP RI

Main Lines of Research
- The role of the natural immune system in the development of autoimmune and inflammatory processes.
- Immunological response and clinical course in immunomodulator treatment.
- The role of autoantibodies, components of the adaptive immune system, in the pathogenesis of autoimmune processes and their use as diagnostic and prognostic markers in these diseases.
- Mechanisms involved in immunodepression.
- Study of lymphocyte subpopulations involved in chronic graft rejection in cardiac post-transplant patients.

Challenges
- Research into the role of innate immunity molecules in the development and control of inflammatory processes, in the appearance of autoimmune phenomena, immunodeficiencies, infections, cardiovascular diseases and development of tumours.
- Analysis of the evolution of immunological parameters and their correlation with clinical response to treatment with immunomodulators.
- Role of perivascular adipocytes and TLR signalling pathways in the development of atherosclerosis.
- Inflammation and rejection in heart transplantation.
- Effects of immunobiological treatments on immunological variables.

Active Grants
- Juarez C. Perivascular adipocytes and signaling via TLR-like receptors: role in the pathophysiology of atherosclerosis. La Marató de TV3 Foundation. February 2009-February 2012.

Collaborations

Collaborations with other IIB Sant Pau Groups
- Multi-organ Damage.
- Nephrology.
- Digestive Diseases.
- Chronic Respiratory Diseases.

Scientific Production

Publications with an IF

IF: 9.111
IF: 8.249
IF: 2.814

Scientific Production

**TIF**: 35.965  **MIF**: 3.996

IF: 2.645
IF: 4.214
06 Martínez-Martínez L., Vazquez-Ortiz Ma, Gonzalez-Santesteban C., Martin-Naldí A, Vicente A, Plaza A, Badell I, Alasia E., de la Calle-Martin O. From Severe Combined Immunodeficiency to Agranulocytosis due to hematopoietic stem cell transplantation in a RAG1 deficient family. Pediatric Allergy and Immunology; 23(7):660-666.
IF: 3.376
IF: 2.518
IF: 2.57
IF: 3.73
**Endocrinology, Diabetes and Nutrition**

- **Main Lines of Research**
  - Endocrine neoplasms: investigation of tumour dedifferentiation mechanisms through genomic, proteomic and bioinformatic procedures.
  - Autocrine diabetes mellitus (classic type 1 and LADA) and gestational diabetes. Telemedicine and intelligent systems for the therapeutic optimization of diabetes mellitus (telemedical artificial pancreas).
  - Optimization of the treatment of obesity, hyperlipidaemia, metabolic syndrome and complications: design, organization, implementation and validation of telemedicine platforms for monitoring and preventing cardiometabolic risk in the general population.

- **Challenges**
  - Molecular markers of the epithelial lineage expression of the ABCG2 gene/BCRP1 transporter.
  - Importance of thyroglobulin and anti-thyroglobulin antibodies as prognostic prediction markers in differentiated thyroid cancer of epithelial lineage.
  - Transcriptomics and proteomics as prediction and prognostic instruments for epithelial thyroid cancer.
  - Intratumoral CELL-NANO-THYROID project: investigation of human mesenchymal cell capacity as an instrument for administering anti-tumour cell drugs in the form of conjugated nanoparticles.

- **Awards**
  - December 2013.
  - *TIF: 19.187 **MIF: 2.741

- **Collaborations with other IIB Sant Pau Groups**
  - Oncogenesis and Antitumour Drugs.
  - Ophthalmology.

- **External Collaborations**
  - CIBER-BBN.
  - CELL-NANO-THYROID Project.
  - CONCEPTT: Women with type 1 diabetes in pregnancy trial.

- **Active Grants**
  - Laib A. Cell-Nano-Thyroid. CIBER-BBN, Intramural Project.
  - Balsells M., Garcia-Patterson A., Gich I., Corcos R. Major congenital malformations in women with gestational diabetes mellitus: A systematic review and meta-analysis. Diabetes/Metabolism Research and Reviews; 28(3):252-257. IF: 3.968
  - Tundidor D., Garcia-Patterson A., Gich I., Corcos R. Major congenital malformations in women with gestational diabetes mellitus: A systematic review and meta-analysis. Diabetes/Metabolism Research and Reviews; 28(3):252-257. IF: 3.968

- **ISI Web of Knowledge Indexed Publications with an IF**

- **Scientific Production**
  - IF: 6.43

- **Total Impact Factor** **Mean Impact Factor** - PUBLISHED ON PAPER IN 2012

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CIBERBBN

---

**Awards**
### ISI Web of Knowledge Indexed Publications without an IF


### Letters


### Clinical Guide


### Others

Pituitary Gland Disorders

Main Lines of Research

- Morbimortality, low grade inflammation and cardiovascular risk in patients with acromegaly or Cushing syndrome. FIS 06/0048.
- Neuroradiological, neurophysiological and clinical study of endogenous hypercortisolsim: comparison of Cushing syndrome and chronic major depressive disorder. FIS 08/0302.
- Validation of psychological properties of specific questionnaires to evaluate health-related quality of life (HRQoL) in Cushing syndrome and acromegaly.
- Study of signal transduction of GH in muscle by gene expression in a C2C12 cell line stimulated with GH.
- Role of telomeres in endocrine diseases.

Challenges

- Investigate the neuropsychological, neuropsychological and clinical correlation of patients with endogenous hypercortisolism (due to Cushing syndrome or chronic major depressive disorder) or exogenous exposure to low-dose glucocorticoids (due to treatment of adrenal insufficiency or rheumatoid arthritis). Similar studies for acromegaly.
- Study gene expression in cultured muscle cells after exposure to GH, by means of microarrays.
- Correlate neuropsychological status and circadian rhythm of cortisol in patients with hypercortisolism (Cushing syndrome) and without hypercortisolism (non-functional pituitary adenomas) compared to normal controls.

- Evaluate long-term morbidity and mortality in patients who have had Cushing syndrome or acromegaly in the last 25 years.
- Analyze and update the European database of patients with Cushing syndrome (ERCUSYN), in which over 850 patients from 36 countries were included by the end of 2012.
- Conduct in vitro molecular analysis of operated pituitary adenomas within the REMAH (Molecular Registry of Pituitary Adenomas) study, sponsored by the Spanish Endocrinology and Nutrition Society.
- Investigate correlations of telomere length and different clinical and biochemical parameters in patients with Cushing syndrome.

Awards


Science Production

- ISI Web of Knowledge Indexed Publications with an IF

- ISI Web of Knowledge Indexed Publications without an IF
  04 Webb S. Etiopathology of cardiopathy in acromegaly and its relation to body composition.
Collaborations with other IIB Sant Pau Groups

- Parkinson Disease and Movement Disorders.
- Pharmacological Research in Humans.
- Neuroradiology.
- Infectious Diseases.

External Collaborations

CIBERHD Groups:
- Dr. José Such. Hospital General Universitario, Alicante, Spain.
- Dr. Joan Córdoba. Hospital de la Vall d’Hebron, Barcelona, Spain.
Diseases

**Scientific Production**


**Scientific Report 2012**

**Letter**


**Other Publications**


**Other Publications**


**Scientific Production**

- Sant Pau Biomedical Research Institute...
Microbiology and Infectious Diseases

CLINICAL MICROBIOLOGY UNIT
- Study of resistance mechanisms.
- Tuberculosis, epidemiology and antituberculosis resistance mechanisms.
- Molecular biology applications to infectious disease detection, taxonomy and epidemiology.
- Medical care projects.
- HIV and AIDS UNIT
- Restricted-use policies for antibiotic and antimicrobial agents and suitable use of antiretroviral agents.
- Study of infections associated with foreign bodies (joint prostheses, catheters, cardiac prostheses and pacemakers).
- Study of infections due to multiresistant microorganisms or requiring isolation.
- Tuberculosis.
- Cardiovascular risk associated with antiretroviral treatment.
- Comorbid conditions associated with HIV-1 infection.
- Pharmacogenetics (toxicokinetics).
- Bacterial meningitis.

INFECTIOUS PATHOLOGY UNIT
- Development of in vitro models (adipocyte cultures) to study the adipocyte toxicity of antiretroviral drugs.
- Study of infections associated with foreign bodies.
- Study of inflammation in the pathogenesis of lipodystrophy associated with HIV-1 and antiretroviral treatment.
- Metabolism of uridine and its role in the pathogenesis of lipodystrophy.
- Metabolic disorders associated with antiretroviral treatment:
  - In vivo assessment of metabolic toxicity associated with antiretroviral treatment.
  - Development of in vitro models (adipocyte cultures) to study the adipocyte toxicity of antiretroviral drugs.
  - Study of factors contributing to hepatic steatosis in patients receiving antiretroviral treatment.
  - Study of the pathogenic role of FGF21 in insulin resistance in HIV-1–infected patients.
  - Study of role of FABP4 in metabolic disorders associated with antiretroviral treatment.

HIV AND AIDS UNIT
- Continuing with, expanding and, as appropriate, consolidating the care team for HIV-1 infected patients, consisting currently of 3 staff physicians, 4 grant-aided research assistants (including a Rio Hortega-funded research assistant) and 2 nurses.
- Continuing with participation in multi-centre projects (especially the AIDS network, Gesida, VACH, EuroSIDA and ART collaboration).
- Exploration of possible participation in clinical trials of new antiretroviral drugs.
- Increasing the number of HIV-1 infected patients attended to in our hospital (given current mortality rates, an estimated annual increase of 50 patients is required).
- Continuing with current clinical research and mixed basic research-clinical research lines.

Molecular biology applications to infectious disease detection, taxonomy and epidemiology:
- Study of the usefulness of the 16S rRNA gene for microbiological diagnosis and molecular identification.
- Genotype characterization of Cryptosporidium spp. oocysts from stool samples collected by the HSCSP microbiology service.

Rentrovirals:
- Clinical trials of new antiretroviral drugs (phases 2 and 3).
- Ritonavir and non-ritonavir pharmacokinetic potentiation of antiretroviral drugs.

Cardiovascular risk associated with antiretroviral treatment:
- Establishment of a multicentre cardiovascular risk cohort.
- Evaluation of uncontrolled lipodystrophy.
- Development of in vitro models (adipocyte cultures) to study the adipocyte toxicity of antiretroviral drugs.

Comorbid associations associated with HIV-1 infection:
- Study of aping in different tissues associated with HIV-1 infection and the role of MAART.
- Evaluation of the neurocognitive function in patients with HIV-1 infection with and without antiretroviral treatment.
- Participation in multicentre cohort studies to determine the incidence of specific comorbidities (cancer, HCV, cardiovascular disease, osteoporosis/osteopenia).

**Total Impact Factor** **Mean Impact Factor** **PUBLISHED ON PAPER IN 2012**
Infections associated with foreign bodies (prostheses, catheters, cardiac prostheses, pacemakers):
- To reduce incidence.
- To develop effective conservative treat- ment regimes.

- Microbiology and Infectious Diseases
  - Research Centre:
    Sant Pau Biomedical Research Institute

- Infections in transplant patients (heart, haemotopoietic progenitors):
  - To continue with the government department agreement regarding the de- velopment of support function services as follows:
    - To study current epidemiology.
    - To assess the efficacy of prophylaxis and other preventive measures.

- Tuberculosis:
  - To cooperate with studies of resistance and with new treatment regimes for tu- bercolosis.

- Other care projects:
  - To continue with the govern- ment department agreement regarding the de- velopment of support function services as follows:
    - To study current epidemiology
    - To assess the efficacy of prophylaxis and other preventive measures.

- Infections associated with foreign bodies (prostheses, catheters, cardiac prostheses, pacemakers):
  - To reduce incidence.
  - To develop effective conservative treat- ment regimes.

- Infections in transplant patients (heart, haemotopoietic progenitors):
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    - To study current epidemiology.
    - To assess the efficacy of prophylaxis and other preventive measures.

- Tuberculosis:
  - To cooperate with studies of resistance and with new treatment regimes for tu- bercolosis.

- Other care projects:
  - To continue with the govern- ment department agreement regarding the de- velopment of support function services as follows:
    - To study current epidemiology
    - To assess the efficacy of prophylaxis and other preventive measures.
**Microbiology and Infectious Diseases**

*BF* 1750 **MIF: 3.739**

Microbiology and Infectious Diseases

*Total Impact Factor: 175.750 **Mean Impact Factor: 3.739

[References and data from published scientific papers]

**CLINICAL MICROBIOLOGY UNIT**

**HIV AND AIDS UNIT**

**INFECTIOUS PATHOLOGY UNIT**
Multi-organ Damage

### Bone metabolism and osteoporosis:
- Analysis of genetic influence on osteoporosis by means of aggregation studies in families of 3 or more generations with a minimum of 15 members.
- Bone structure study with quantitative CT of hip and spine, analysing the contribution of trabecular and cortical components using HRCT.
- Description of fat values and percentages in a normal population (in collaboration with HIV Unit and CETIR Medical Group).
- Analysis of the influence of an intervention (physical exercise) on changes in bone in patients with history of acromegaly assessed by DXA and HRQCT (in collaboration with the Gastroenterology Department).
- Description of bone structure in patients with history of acromegaly assessed by DXA and HRQCT.

### Hypertension and vascular risk:
- Hypertension and quality of life.
- Refractory hypertension.
- Use of alirocumab in hypercholesterolemia.

### Clinical management, general internal medicine and geriatrics:
- Health care quality indexes (mortality, re-admissions, etc).
- Perioperative medicine.
- Potentially inappropriate prescribing to older patients admitted to the ICU.

### Rheumatology:
1. **Rheumatoid arthritis:**
   - Immunomodulation due to anti-C20D (iri-tuximab) treatment and study of polymorphisms.
   - Pharmacokinetics of methotrexate.
   - Evaluation of bantecib in patients with moderately severe active rheumatoid arthritis who have had an inadequate response to methotrexate or anti-TNF therapy.
   - Evaluation of the JAK-STAT pathway in patients with rheumatoid arthritis treated with tocillizumab.

2. **Systemic sclerosis:**
   - Capillaroscopy patterns and correlation with auto-antibodies and clinical function tests.
   - Evidence-based detection of pulmonary arterial hypertension in systemic sclerosis: the DETECT study.
   - Use of endotelin receptor antagonism to prevent pulmonary arterial hypertension (in collaboration with Hospital Universitari Vall d’Hebron, Barcelona).
   - Genetic studies in systemic sclerosis and collaboration with DÚDG Registry and ALDUS-DE.

3. **Gout:**
   - Epidemiology of hyperuricaemia and gout.

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### Challenges
- To strengthen the vascular risk unit in the HSCSP and its ties with the Puigvert Foundation hypertension unit.
- To establish stable work relations between the HSCSP bone metabolism and complex disease genetics units and the bone metabolism unit of Hospital del Mar Municipal Institute for Research and the Faculty of Biology of the University of Barcelona.

### Active Grants

### Scientific Production
- **ISI Web of Knowledge Indexed Publications with an IF**
- **Scientific Production**
  - To strengthen the ties between the HSCSP rheumatology and immunology departments regarding the study of immunological diseases.

---

**Main Lines of Research**

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  - Ma Àngels Izquierdo
  - Berta Magallanes
  - Patricia Maya
  - Mireia Pardós
  - Carme Rius

---

**Scientific Report 2012**

**Sant Pau Biomedical Research Institute**

*Back* *Areas* *Area 2 Index* *Scientific Report 2012*
Multi-Organ Damage
Multi-organ Damage


Letters


* Córcoles Albane ME, Moya Alvarado P, Sarmiento Guevara MP, Rios Quintanilla A. Complicated pneumonia treated in the internal medicine department: an observational study. ScopusIndexed Publications

Other Publications


AREA 3
Haematological and Oncological Diseases

112 Clinical Oncology
116 Oncogenes and Antitumour Drugs
118 Haematological Diagnosis
120 Molecular Pathology of Gynaecologic Cancer
122 Ear, Nose and Throat Cancers
124 Oncology/Haematology and Transplantation
128 Breast Cancer
Clinical Oncology

Clinical research:
- Development of new therapeutic strategies.
- Studies to improve tumour staging.
- Studies to detect residual disease.

Translational research:
- Personalized anticancer therapy.
- Studies of predictive and prognostic molecular markers.

Cooperative groups

Challenges
- Consolidate clinical research into cancer.
- Foster translational research into cancer in cooperation with other internal and external research groups.
- Consolidate the bank of tumours, DNA and serum for patients with cancer diagnosed and treated in our hospital.

Collaborations with other IIB Sant Pau Groups
- Oncogenetics and Antitumour Drugs.
- Molecular Pathology of Gynaecological Cancer.
- Breast Cancer.
- Genetic Diseases.

Active Grants
- Personalized anticancer therapy.
- Studies of predictive and prognostic molecular markers.

Publications with an IF: 4.469

Cooperative groups

Collaborations with other IIB Sant Pau Groups
- Oncogenetics and Antitumour Drugs.
- Molecular Pathology of Gynaecological Cancer.
- Breast Cancer.
- Genetic Diseases.

Publications with an IF: 4.469

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- Beatriz Nunez
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- Agusti Besada
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- Oscar Gallego
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- Margarita Majem
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- Pablos Maroto
- Marta Martin
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- Helen Ojeda
- Ma Ginta Pallarés
- David Resca
- Teresa Ramón y Cajal
- Ana Seijo
- Anietea Tzou
- Maria Pallarès
- Mercadal

Scientific production
- Publications with an IF: 4.469

Cooperative groups
Clinical Oncology

*Total Impact Factor    **Mean Impact Factor   -   PUBLISHED ON PAPER IN 2012


IF: 7.384


IF: 2.649


IF: 2.973


IF: 5.061


IF: 6.877


IF: 1.147


IF: 3.209


IF: 1.276


IF: 1.276


IF: 1.073


IF: 0.838


IF: 1.276


IF: 1.276

Oncogenesis and Antitumour Drugs

Main Lines of Research

- Development of novel animal models of disseminated disease in solid tumours and haematological neoplasms.
- Study of the role of the oncogene K-ras in colorectal cancer metastasis.
- Development of an inhibitor of focal adhesion as an anticancer agent in acute myeloid leukaemia and non-Hodgkin B lymphoma and study of its mechanism of action.
- Development of molecular markers predictive of the response to genotoxic therapy in head and neck squamous cell carcinoma.
- Development of a nanoparticle for targeted drug delivery of antitumour drugs.

Challenges

- Obtain funding to ensure stable employment of senior researchers and reinforce current collaborations with clinicians.
- Develop inhibitors of focal adhesion signalling as novel antitumour drugs.
- Develop molecular markers for therapeutic decision-making in head and neck carcinomas.
- Demonstrate targeted drug delivery and improved therapeutic threshold of antitumour drugs using a nanoparticle vehicle.
- Increase the number of industrial contracts in the preclinical development of antitumour drugs.
- Enhance international collaborations and participation in EU projects.

Active Grants

- Mangues R. Oncogenesis by HTLV-1. Inhibition of focal adhesions as a therapeutic strategy. Spanish Ministry of the Economy and Competitiveness Grant. December 2010-December 2013.


Collaborations

Collaborations with other IIB Sant Pau Groups

- Oncology/Haematology/Transplantation.
- Pharmacy.
- General and Digestive Surgery.
- Ear, Nose and Throat Cancer.
- Clinical Oncology.
- Haematological Diagnosis.

External Collaborations

- Achilles Bittencourt. Conselho Nacional de Desenvolvimento Científico e Tecnológico, Brazil.
- Paolo Michieli. Institute for Research and Treatment of Cancer, Candiolo, Turin, Italy.
- Eduard Batlle, Biomedical Research Institute, Barcelona, Spain.
- Alberto Bardelli. Institute for Research and Treatment of Cancer, Candiolo, Turin, Italy.

**TIF: 44.917 **MIF: 8.963

ISI Web of Knowledge Indexed Publications with an IF

<table>
<thead>
<tr>
<th>Title</th>
<th>Authors</th>
<th>Journal</th>
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*Total Impact Factor    **Mean Impact Factor   -   PUBLISHED ON PAPER IN 2012
Haematological Diagnosis

Malignant haemopathies:
- Diagnosis and morphological, immunophenotypic, cytogenetic and molecular characterization of malignant haemopathies, particularly acute leukemias.
- Impact of biological characteristics in response to treatment.
- Studies of new treatments aimed at molecular targets using cell line models.
- Applications of the genomic platform (mi-croarrays) and proteomic platform to the diagnosis of malignant haemopathies.

Non-neoplastic haemopathies:
- Diagnosis and characterization of thrombocytopenias, thrombocytopenopathies and other platelet pathologies, especially complex pathologies (if genetic, mixed or unknown origin) and including unusual presentations of common diseases.
- Study of the relationship between platelets and thrombotic phenomena, including clinical, diagnostic and therapeutic aspects.
- In the framework of the GAIT-2 (genetic analysis of idiopathic thrombophilia, phase 2) project, to seek new phenotypes that favour the development of thrombosis, specifically related to the structure and function of platelets and other blood cells.

Challenges
- Consolidate the functional structure of the group that characterises haematological tumours and complex, rare and genetic non-neoplastic haemopathologies.
- Include the results of mass-analysis genomic and proteomic platforms in diagnostic algorithms and establish prognostic factors for haematological disorders, preferably complex or genetic non-neoplastic and non-neoplastic pathologies.
- Develop functional models: cell cultures and simple animal models.

Active Grants

Scientific Production

Collaborations with other IIB Sant Pau Groups
- Oncology/Haematology Transplantation.
- Oncogenes and Anti tumour Drugs.
- Genetic Diseases.
- Translational Molecular Oncology.
- Molecular Bases of Disease.

External Collaborations
- Dr. J. Fitzgibbon. European Consortium on hereditary AML. Barts Cancer Research UK Centre. Queen Mary University of London, UK.
- Prof. A. Orfao. Flow-cytometry. CIC University of Salamanca, Spain.
- Prof. G. Gaidano. CLL and ERIC studies. University of Eastern Piedmont, Novara, Italy.
- Prof. G. Saglio. CML and PCR standardization. University of Torino, Orbassano, Italy.

ISI Web of Knowledge Indexed Publications with an IF

IF: 0.894

IF: 2.764

IF: 3.846

IF: 7.384

IF: 7.384

IF: 3.846

IF: 7.384

*Total Impact Factor    **Mean Impact Factor   -   PUBLISHED ON PAPER IN 2012

Back Areas Area 3 Index
Molecular Pathology of Gynaecologic Cancer

Main Lines of Research
- Pathogenic mechanisms of endometrial/ovarian cancer.
- Clinical application of prognosis markers.
- Molecular biology of uterine and extra-uterine carcinomas.
- Progress as a productive translational gynaecological cancer research group capable of competing with other highly visible groups in Barcelona that publish regular articles in reputable journals and cooperate with other groups at the national and international levels.

Challenges

Active Grants

External Collaborations
- Spanish Association Against Cancer (AECC). Molecular alterations related to progression in endometrial cancer:
  - Dr. Jaume Reventós. Vall d’Hebron Research Institute, Barcelona, Spain.
  - Dr. Xavier Mattas-Guix. Biomedical Research Institute of Lleida, Spain.

Scientific Production

Letter

Publications

Other Publications
- Prat J. Ovarian carcinomas: Five distinct diseases with different origins, genetic alterations, and clinicopathological features. Virchows Archiv; 466(3):237-249. IF: 2.676
- Prat J. Ovarian carcinomas: Five distinct diseases with different origins, genetic alterations, and clinicopathological features. Virchows Archiv; 466(3):237-249. IF: 2.676
Ear, Nose, Throat Cancer

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Joan Monterrat
HSCSP
César Orús
HSCSP
Ma del Prado Venegas
HSCSP

Main Lines of Research
- Genetic and molecular predictors of response to head and neck cancer: collaboration with the Oncogenesis and Antitumour Drugs group.
- Molecular mechanisms of inflammation in head and neck cancer: collaboration with the inflammation laboratory.
- Nasoal endoscopic surgery: innovations in skull base techniques.
- Internal ear: aspects related to severe deafness, cochlear implants and otoneurological surgery of tumours.

Challenges
- Promote clinical and translational research in the field of head and neck cancer with a very large database of head and neck cancers.
- Study relevant clinical issues in depth (second-third neoplasms, staging concerns, prognostic factors, etc) and investigate translational aspects such as genetic and molecular predictors.

Active Grants

Collaborations with other IIB Sant Pau Groups
- Angiology, Vascular Biology and Inflammation.
- Oncogenesis and Antitumour Drugs.

Scientific Production

Publications with an IF

01 Esteller E., Leon X., De Juan M., Quer M. Delayed carotid blow-out syndrome; A new complication of chemoradiotherapy treatment in pharyngolaryngeal carcinoma. Journal of Laryngology and Otology; 126(11):1189-1191. IF: 0.481


Other Publications
Oncology/Haematology and Transplantation

Main Lines of Research

- Study of the molecular and cellular pathophysiology of haematological cancers.
- Study of the prognostic value of clinical and biological parameters in haematological malignancies.
- Design of new modalities of chemotherapy, biotherapy and drug treatment addressed to targeting molecular mechanisms.
- Biological diagnosis and innovation in infectious complications related to immunodepression.
- Innovative modalities of haematopoietic stem-cell transplantation and cell therapy.
- Psychological intervention and quality of life in patients with haematological malignancies.

Collaborators

- Maria José Moreno
- Jordi Sierra
- Jessica de Rueda
- Silvia Barea Miqueleiz
- Albert Esquirol
- Montserrat Hoyos
- Rosalba Rosal
- Josep Corbella
- Oriol Granell
- Joan Pla
- Enric Cerda
- Jordi Sierra
- Jessica de Rueda
- Silvia Barea Miqueleiz
- Albert Esquirol
- Montserrat Hoyos
- Rosalba Rosal
- Josep Corbella
- Oriol Granell
- Joan Pla
- Enric Cerda

Challenges

- Identification of new prognostic parameters for risk and therapeutic stratification.
- Evaluation of targeted therapy in cell lines and animal models (in cooperation with the Oncogenesis and Antitumour Drugs group) so as to better understand the cell physiopathology of these diseases and to test new drugs (in cooperation with the Oncogenesis and Antitumour Drugs group).
- Reduction in the toxicity of allogeneic transplants.
- Cell immunotherapy to prevent and treat infectious complications.
- Dissection of graft versus tumour effect from graft versus host disease.
- Molecular characterization of acute myeloid leukaemia. Determination of the prognostic value of known genes and other genes of uncertain significance in cooperation with the haematology laboratory.

Collaborations with other IIB Sant Pau Groups

- Oncogenesis and Antitumour Drugs.
- Haematological Diagnosis.
- Microbiology and Infectious Diseases.
- Inflammatory Diseases.

ISI Web of Knowledge Indexed Publications with an IF


04 Sant Pau Biomedical Research Institute

Oncology/Haematology and Transplantation

Areas

124 Sant Pau Biomedical Research Institute

Back

125 Scientific Report 2012

Back
none for the treatment of relapsed or reliving multiple myeloma: The Spanish experience. Leukemia and Lymphoma; 53(9):1714-1721.


Breast Cancer

Coordinator
Enrique Lerma
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Researchers
Laura Lopez
HSCIP R

Technicians
Maitane Pérez
HSCIP R
Tania Vázquez
HSCIP R

Main Lines of Research

- Pathogenic mechanisms of breast cancer.
- Identification and validation of therapeutic targets derived from previous studies.

Challenges

- Progress as a breast cancer research group publishing regular articles and cooperating with other groups in our centre and at the national and international levels.

Collaborations

- Collaborations with other IIB Sant Pau Groups
  - Clinical Oncology
  - Molecular Pathology of Gynaecologic Cancer

External Collaboration

- Gloria Peiró. Hospital Universitario de Alicante Research Institute, Spain.

Scientific Production

*Total Impact Factor **Mean Impact Factor

ISI Web of Knowledge Indexed Publications with an IF


IF: 5.082


IF: 2.843

Other Publications

ISI Web of Knowledge Indexed Publications without an IF


IF: 3.929

Scientific Report 2012
Neurological, Mental Disorders and Ageing

- Cerebrovascular Diseases
- Dementias
- Neuromuscular Diseases
- Parkinson Disease and Movement Disorders
- Molecular Neuropharmacology
- Pharmacological Research in Humans
- Clinical Psychiatry
- Genetics in Neurodegenerative Diseases
- Human Experimental Neuropsychopharmacology
- Neurobiology of Dementia
- Neuroradiology
- Ageing Institute
- Addictive Behaviours
Cerebrovascular Diseases

Main Lines of Research

- Neurogenesis and neurorepair after ischaemic stroke.
- Growth of haematoma in the acute phase of spontaneous brain haemorrhage.
- Endothelial progenitor cells in ischaemic stroke.
- Monitoring the effect of thrombolysis in acute ischaemic stroke.
- Benefit and risk of thrombolysis in acute ischaemic stroke.
- Beta-amyloid and cerebral haemorrhage: diagnostic and prognostic studies.
- Risk of cerebral haemorrhage in patients receiving oral anticoagulant therapy.
- Sonothrombolysis.

Collaborations with other IIB Sant Pau Groups

- Neuroradiology.
- Thrombosis and Haemostasis.
- Cardiovascular Biochemistry.
- Neurobiology of Dementia.
- Molecular Pathology and Therapeutics of Ischaemic and Thrombotic Diseases.

External Collaborations

- Dr. García-Verdugo. University of Valencia, Spain.
- Dr. Carles Ariús. Faculty of Sciences, Autonomous University of Barcelona, Spain.
- Dr. Anna Planas. Hospital Clinic, Barcelona, Spain.
- Dr. Turgut Duranlar. Catalán Photonic Institute, Castelldefels, Barcelona, Spain.
- Dr. Tomás Sobrino. Hospital General Universitario Santiago de Compostela, Spain.
- Dr. Israel Fernández, Dr. Joan Montaner. Hospital Vall d’Hebron (Barcelona, Spain).
- Dr. Blanca Fuentes. Hospital La Paz, Madrid, Spain.
- Dr. Antonio Gil. Hospital Gregorio Marañón, Madrid, Spain.
- Dr. Ángel Chamorro. Hospital Clinic, Barcelona, Spain.
- Dr. Antonio Dávalos. Hospital Germans Trias i Pujol, Badalona, Spain.
- Dr. Francesc Purroy. Hospital Arnau de Vilanova, Lleida, Spain.

Active Grants


Collaborators

- Dr. Francesc Purroy. Hospital Arnau de Vilanova, Lleida, Spain.
- Dr. Anna Planas. Hospital Clinic, Barcelona, Spain.
- Dr. Turgut Duranlar. Catalán Photonic Institute, Castelldefels, Barcelona, Spain.
- Dr. Tomás Sobrino. Hospital General Universitario Santiago de Compostela, Spain.
- Dr. Israel Fernández, Dr. Joan Montaner. Hospital Vall d’Hebron (Barcelona, Spain).
- Dr. Blanca Fuentes. Hospital La Paz, Madrid, Spain.
- Dr. Antonio Gil. Hospital Gregorio Marañón, Madrid, Spain.
- Dr. Ángel Chamorro. Hospital Clinic, Barcelona, Spain.
- Dr. Antonio Dávalos. Hospital Germans Trias i Pujol, Badalona, Spain.
- Dr. Francesc Purroy. Hospital Arnau de Vilanova, Lleida, Spain.

*TIF: 128.122 **MIF: 9.855

ISI Web of Knowledge Indexed Publications with an IF

- Barcelona, Dr. Anna Planas at Clinic Hospital, Dr. Turgut Duranlar at C P.
- Regional authorities and the Catalan Ins-.
- Regional and national authorities and the Catalan Institute of Cardiovascular Sciences and the Hae.
- Dr. Joan Martí Fàbregas. Hospital Arnau de Vilanova, Lleida, Spain.
- Dr. Antonio Dávalos. Hospital Germans Trias i Pujol, Badalona, Spain.
- Dr. Ángel Chamorro. Hospital Clínic, Barcelona, Spain.
- Dr. Tomás Sobrino. Hospital General Universitario Santiago de Compostela, Spain.
- Dr. Israel Fernández, Dr. Joan Montaner. Hospital Vall d’Hebron (Barcelona, Spain).
- Dr. Blanca Fuentes. Hospital La Paz, Madrid, Spain.
- Dr. Antonio Gil. Hospital Gregorio Marañón, Madrid, Spain.
- Dr. Ángel Chamorro. Hospital Clinic, Barcelona, Spain.
- Dr. Antonio Dávalos. Hospital Germans Trias i Pujol, Badalona, Spain.
- Dr. Francesc Purroy. Hospital Arnau de Vilanova, Lleida, Spain.
### Cerebrovascular Diseases

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**ISI Web of Knowledge Indexed Publications without an IF**


**Other Publications**


### Dementias

**Coordinator**

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**NOTE**

In 2012, Dr. Gomez-Isla developed only around 5% of her work in the HSCSP. Most of the content reflected in her publications has been developed at the Massachusetts General Hospital (Boston, USA), where she currently works.

**Main Lines of Research**

- Development and characterization of new in vitro models of Alzheimer disease.
- Development and characterization of new in vivo models of Alzheimer and other neurodegenerative diseases.
- Identification of signaling pathways and molecular mechanisms involved in neurotoxicity mediated by beta amyloid.
- Study of mechanisms involved in neuron and synapse resistance in the Alzheimer pathology in human brains.
- Development of new in vitro, mouse and human disease models recapitulating the most apparent features of Alzheimer disease, investigating the usefulness of these models for understanding the pathophysiology of the disease and for testing new neuroprotective strategies and evaluating individual susceptibility to the disease.
- Development and characterization of new mouse disease models for the testing of new therapeutic strategies in Alzheimer disease and for molecular imaging in vivo.
- Study of the brains of individuals who meet Alzheimer histopathology criteria but who never developed symptoms in life, designed to identify the molecular pathways responsible for disease resistance and new potentially useful therapeutic targets for Alzheimer and other neurodegenerative diseases.
- Exchange and training of basic and clinical research personnel and collaborative projects between the HSCSP and Massachusetts General Hospital attached to Harvard University (Boston, USA).

**Challenges**

- Development and characterization of newmouse disease models for the testing of new therapeutic strategies in Alzheimer disease.
- Study of the brains of individuals who meet Alzheimer histopathology criteria but who never developed symptoms in life, designed to identify the molecular pathways responsible for disease resistance and new potentially useful therapeutic targets for Alzheimer and other neurodegenerative diseases.
- Exchange and training of basic and clinical research personnel and collaborative projects between the HSCSP and Massachusetts General Hospital attached to Harvard University (Boston, USA).

**Scientific Production**

- Development of new mouse disease models for the testing of new therapeutic strategies in Alzheimer disease.
- Study of the brains of individuals who meet Alzheimer histopathology criteria but who never developed symptoms in life, designed to identify the molecular pathways responsible for disease resistance and new potentially useful therapeutic targets for Alzheimer and other neurodegenerative diseases.
- Exchange and training of basic and clinical research personnel and collaborative projects between the HSCSP and Massachusetts General Hospital attached to Harvard University (Boston, USA).

**ISI Web of Knowledge Indexed Publications with an IF**

IF: 5.624

IF: 2.728

IF: 4.345

**Scientific Production**

- Development of new mouse disease models for the testing of new therapeutic strategies in Alzheimer disease.
- Study of the brains of individuals who meet Alzheimer histopathology criteria but who never developed symptoms in life, designed to identify the molecular pathways responsible for disease resistance and new potentially useful therapeutic targets for Alzheimer and other neurodegenerative diseases.
- Exchange and training of basic and clinical research personnel and collaborative projects between the HSCSP and Massachusetts General Hospital attached to Harvard University (Boston, USA).
Neuromuscular Diseases

Immune-mediated neuromuscular diseases:
- Immuno-pathogenesis studies with characterization of new targets and innate immunity studies in immune-mediated neuromuscular diseases (myasthenia gravis, immune neuropathies, CIDP, GBS, MN).
- Analysis of the impact of new immuno-modulating therapies on functional aspects of immune system cells (response to ligands, production of antibodies, etc).

Muscular dystrophy, dysferlinopathy and distal myopathies:
- Clinical characterization, new diagnostic tests for dysferlinopathy and distal myopathies:
- Study of muscular dystrophies caused by mutations in the DYSF gene by analysing in vivo the frequency of carriers of dysferlinopathy in a Caucasian population.
- Use of muscular dystrophies as models for muscular dystrophies.
- Advance knowledge of truncated forms of dysferlin with possible therapeutic implications.

New therapies in genetic diseases:
- A bone marrow transplant in dysferlinopathy (animal model).
- Advanced therapy with stem cells and muscle regeneration mechanisms in muscular dystrophy resulting from dysferlin deficiency.
- Implement cell therapy in mouse models of muscular dystrophy using mesoangioblasts and bone marrow to study possible applications in humans and to study immune system response to cell therapy in mouse models of human disease.
- Clear access to manipulate cells for use in humans.
- Evaluate the effects of treatment with vitamin D in carriers of a DYSF gene mutation.

Challenges
- Advance knowledge of the immunological mechanisms involved in the pathogenesis of immune-mediated neuromuscular diseases (CIDP, MNM) and inflammatory myopathies (DM, PM).
- Search for new antigens and develop diagnostic tests with new biomarkers in CIDP and myasthenia.
- Implement new diagnostic methods for muscular dystrophies resulting from dysferlinopathy and other myopathies (bio-markers, MRI, etc).
- Advance knowledge of the pathogenic mechanisms involved in muscular dystrophy resulting from dysferlin deficiency.
- Implement cell therapy in mouse models of muscular dystrophy using mesoangioblasts and bone marrow to study possible applications in humans and to study immune system response to cell therapy in mouse models of human disease.
- Clear access to manipulate cells for use in humans.
- Evaluate the effects of treatment with vitamin D in carriers of a DYSF gene mutation.

Collaborations
- Collaborations with other IBIB Sant Pau Biomedical Research Institute Research Groups:
  - Inflammatory Diseases.
  - Genetics in Neurodegenerative Diseases.

External Collaborations
- Dr. Andreu, Dr. Martí, Mitochondrial Disorders.
- Dr. Xavier Suárez, Dr. Josefina Araque, Estíbaliz Gallardo, Susana Segovia, Inna Pastoret.

Main Lines of Research
- Immune-mediated neuromuscular diseases:
  - Pathogenesis studies with characterization of new targets and innate immunity studies in immune-mediated neuromuscular diseases (myasthenia gravis, immune neuropathies, CIDP, GBS, MN).
  - Analysis of the impact of new immunomodulating therapies on functional aspects of immune system cells (response to ligands, production of antibodies, etc).

Muscular dystrophy, dysferlinopathy and distal myopathies:
- Clinical characterization, new diagnostic tests for dysferlinopathy and distal myopathies:
  - Study of muscular dystrophies caused by mutations in the DYSF gene by analysing in vivo the frequency of carriers of dysferlinopathy in a Caucasian population.
  - Use of muscular dystrophies as models for muscular dystrophies.

New therapies in genetic diseases:
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- Implement cell therapy in mouse models of muscular dystrophy using mesoangioblasts and bone marrow to study possible applications in humans and to study immune system response to cell therapy in mouse models of human disease.
- Clear access to manipulate cells for use in humans.
- Evaluate the effects of treatment with vitamin D in carriers of a DYSF gene mutation.

Scientific Production
- ISI Web of Knowledge Indexed Publications with an IF

Active Grants
- ISF: 71.99 **MIF: 4.799
Parkinson Disease and Movement Disorders

Cognitive impairment and behavioural dysfunctions in Parkinson disease:
- Knowledge and detection of the neural correlates of cognitive performance in Parkinson disease using neuropsychological techniques (event-related brain cognitive potentials) and structural and functional neuroimaging (voxel-based morphometry, cortical thickness and spectroscopy).
- Development of more sensitive tools for cognitive and functional assessment in Parkinson disease to detect subtle changes in cognitive performance and treatment response.
- Prospective follow-up analysis of cognition and mood in patients with deep brain stimulation of the subthalamic nucleus.
- Physiological correlates and pharmacological approach to apathy in Parkinson disease and other movement disorders.
- Surgery and treatments of continuous infusion in Parkinson disease.
- Follow-up and etiologic study of weight loss in patients treated with continuous infusion of intraduodenal levodopa.
- Follow-up and etiologic study of weight loss in patients treated with continuous infusion of intraduodenal levodopa.

Essential tremor and other movement disorders:
- Molecular neuroimaging in essential tremor.
- Clinical, neurophysiological and neuroimaging assessment of patients with FX-TAS (fragile X-associated tremor/ataxia syndrome).

Translational research - Parkinsonian animal models:
- Assessment of behavioural and cognitive modulations exerted by distinct antiparkinsonian drugs in murine models of Parkinson disease with lesions in particular neurotransmitter systems (dopaminergic and noradrenergic).

Huntington disease:
- Development of the specialized unit oriented to the diagnosis, monitoring and comprehensive treatment of patients with Huntington disease and their families. The team consists of an interdisciplinary group of neurologists, neuropsychologists and nurses working in synergy with the dietetic, rehabilitation and psychiatry services of the HSCSP. Current research lines are: active participation in the registry study of the European Huntington Disease Network (EHDN) with the inclusion, to date, of 51 new participants.
- Participation in two EHDN multicentre subprojects in Spain: 1) study on nutrition in Huntington disease (PI: Esther Cubés, Barcelona, Spain). 2) validation study of the PBA-R scale for the Spanish population (PI: Jesús Idiago, Barcelona, Spain).
- Development of new therapeutic interventions in essential tremor.
- Development of specific tools to assess and track cognitive changes in Parkinson disease.
- Study and understanding of the neural substrates of cognitive impairment in Parkinson disease so as to improve diagnostic and therapeutic approaches.
- Prospective follow-up analysis of cognitive changes in Parkinson disease.
- Genetic studies and genotype-phenotype correlations in essential tremor.
- Neurochemical and structural neuroimaging studies on the pathophysiological bases of essential tremor.

Cognitive and behavioural dysfunctions in Parkinson disease:
- Development of sensitive tools for the assessment and tracking of cognitive impairment in Parkinson disease.
- Participation in two EHDN multicentre subprojects in Spain: 1) study on nutrition in Huntington disease. 2) validation study of the PBA-R scale for the Spanish population.
- Development of the specialized unit oriented to the diagnosis, monitoring and comprehensive treatment of patients with Huntington disease and their families. The team consists of an interdisciplinary group of neurologists, neuropsychologists and nurses working in synergy with the dietetic, rehabilitation and psychiatry services of the HSCSP.
- Active participation in the registry study of the European Huntington Disease Network (EHDN) with the inclusion of 51 new participants.
- Participation in two EHDN multicentre subprojects in Spain: 1) study on nutrition in Huntington disease. 2) validation study of the PBA-R scale for the Spanish population.
- Development of new therapeutic interventions in essential tremor.
- Development of specific tools to assess and track cognitive changes in Parkinson disease.
- Study and understanding of the neural substrates of cognitive impairment in Parkinson disease so as to improve diagnostic and therapeutic approaches.
- Prospective follow-up analysis of cognitive changes in Parkinson disease.
- Genetic studies and genotype-phenotype correlations in essential tremor.
- Neurochemical and structural neuroimaging studies on the pathophysiological bases of essential tremor.

Challenges:
- Neurochemical and structural neuroimaging studies on the pathophysiological bases of essential tremor.
- Behavioural, physiological and pharmacological characterization of animal models of Parkinson disease with combined dopaminergic and noradrenergic lesions.
- Neurophysiopathology of motor, cognitive and behavioural complications linked to antiparkinsonian drugs in animal models of Parkinsonism.

Collaborations with other IIB Sant Pau Groups:
- Genetics in Neurodegenerative Diseases.
- Neurobiology of Dementia.
- Digestive Diseases.
- Molecular Bases of Disease.
- Neuroradiology.

External Collaborations:
- Montserrat Mínguez Rodríguez-Revenga. Department of Biochemistry and Molecular Genetics, Hospital Clinic, Barcelona, Spain.

Awards:
- Pagonabarraga J. Communication selected within the top 20 communications in cognitive impairment in Parkinson disease. 16th International Congress of Parkinson Disease and Movement Disorders, Dubrovnik, Croatia.
- Pagonabarraga J. Radiological Society of North America Trainee Research Prize. MRI detection of selective cortical thinning and neurophysiological correlations: a comparison from normal cognition to dementia in Parkinson disease.
- Kulisevsky J. Spanish Neurology Society. Novisys Award for Published Article on Movement Disorders. Dementia risk in Parkinson disease: disentangling the role of MAPT haplotypes.
Parkinson Disease and Movement Disorders

**Letters**

**Scopus Indexed Publications**

**Other Publications**

**Web of Knowledge Indexed Publications with an IF**
02 Filippi M, Kulisevsky J. Advances with adren in parkinson’s disease. From freezing to destination Neurology; 79(22):2222-2223.
Molecular Neuropharmacology

Coordinator
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Technicians
Anna Hervera
Sergi Leñez
Roger Negrete

Collaborators
Gemma Gou
Jesús M. Martín-Campos
Roberto Motterlini

• The role of nitric oxide and carbon monoxide in the development and expression of acute and chronic pain.
• The involvement of the nitric oxide-carbon monoxide/cGMP/PKG signalling pathway in the antinociceptive effects and expression of opioid and cannabinoid receptors during acute and chronic pain.
• Molecular and behavioural characterization of opioid and cannabinoid receptors during acute and chronic pain.
• The prevention/reversal of opioid tolerance in several chronic pain models.

Challenges
• Identify new therapeutic strategies for the treatment of chronic pain.
• Determine the main genes involved in the regulation of inflammatory and neuropathic pain.

• Study the mechanisms implicated in the regulation of opioid and cannabinoid receptor gene expression in different pain models.
• Evaluate possible interactions between nitric oxide and carbon monoxide during acute and chronic pain.

Active Grants
• Pol O. New strategies in the treatment of chronic inflammatory and neuropathic pain. La Marató de TV3 Foundation. February 2008-February 2012.

Collaborations with other IIB Sant Pau Groups
• Metabolic Bases of Cardiovascular Risk.

* TIF: 6.322 ** MIF: 3.161

ISI Web of Knowledge Indexed Publications with an IF

IF: 3.73

IF: 2.592

Other Publications
• Pol O. La biotecnologia, crucial en la recerca de nous tractaments per al dolor crònic. Biocat. La Veu dels Experts, No. 34, 2012.
Pharmacological Research in Humans

Clinical trials that offer no therapeutic benefits to volunteer participants:

- Phase I clinical trials (healthy volunteers) whose main objectives include: first-time in-humans, safety and tolerability (local and systemic – dermatological, ophthalmological, vaginal), pharmacokinetics, bioavailability and bioequivalence (generic drugs), pharmacodynamics, interactions (drug-drug, drug-food), evaluation and characterization of biomarkers, proof of concept, acceptability and preference studies.

- Follow-up studies in populations with same or different characteristics: the elderly, obese volunteers, postmenopausal volunteers, patients with liver or kidney disease.

- Collaboration with clinical services to conduct phase II or phase III studies.

- Consolidate and strengthen leadership in this field in Spain, conserve relationships with the pharmaceutical industry on a national level and strengthen and extend relations abroad with multinational enterprises and industries from other sectors.

- Broaden the range of questions to address in research projects along the lines of neuro-physio-pharmacology of sleep/wake states, not focusing only on pharmacotherapeutic objectives but also on physiopathologic objectives in related fields, such as dream.

- Develop the performance of neurophysiologic recordings in ambulatory conditions, simplifying participation of volunteers but not lowering the quality of data obtained (non-negotiable element of their application as a research variable).

Neuro-physio-pharmacology of sleep/wake states:

- Investigate human brain activity in sleep and wakefulness, mechanisms involved in these two states, problems derived from sleep disturbances and possible interventions to treat these.

- Approach the phenomenon as a continuum, that is, that appropriate interpretation of the impact of a certain intervention, whether pharmacological or not, should take into account the complementarity of evaluations performed during sleep and during wakefulness. The phenomenon under study cannot be evaluated without taking this interactivity into account: to develop studies that consider the 24-hour day/night cycle.

- Psychomotor performance tests, subjective evaluation scales, neurophysiologic recordings (quantitative EEG, evoked somatosensory potentials and polysomnography), psychophysiological tests and testometric tests.

- Promote dissemination of our activity with a double objective: to return the knowledge generated to the society and to demystify research in humans, bringing it closer to the community so as to foster participation in clinical trials (particularly in specific sectors of the populations, such as the elderly).

- Set up educational activities related to the two main research lines, i.e., the application of good clinical practices (GCPs) in clinical research sleep medicine and its medical (pathology and treatment) and social (quality of life, prevention of accident risk) consequences.

Active Grants

- ISF Web of Knowledge Indexed Publications with an IF


  09 Díaz Santos RG., Graza E., Valle M., Ballesta M.R., Bouso J.C., Domenech J.F., Homs R., Barbancho M.J., Ich F. Ribas A. Obesity, psychopathy, life atti-


  11 Pica M., Concepcion M., Amea- nez-Urqui C., Goñi J., Hernandez-Gia V, Roman E., Guainer-Arce G., Ich I., Soriano G., Guainer C. Role of Albumin Treatment in Patients With Spontaneous Bacterial Peritonitis. Clinical Gastroen-

  12 Bossu J.C., Gonzalez D., Fondevilla S., Cutzech M., Fernandez K., Ribero-Barbo-


  14 Cuadra-Gallego F., Riba J., Ventura M., Gonzalez D., Faver M., Barbancho M.J., Bouso J.C. 4-Bromo-2,5-dimethoxy-


  17 Bossu J.C., Gonzalez D., Fondevilla S., Cutzech M., Fernandez K., Ribero-Barbo-

  18 Cuadra-Gallego F., Riba J., Ventura M., Gonzalez D., Faver M., Barbancho M.J., Bouso J.C. 4-Bromo-2,5-dimethoxy-


- ISF Web of Knowledge Indexed Publications without an IF


- Others


  02 Gisin N., De Prost J., Cardona D., Mar-tinez-Vegas R., Ich I., Cardero J., Mar-gues M.A. Viscosity changes in thickened water due to the addition of highly prescribed drugs in geriatrics (Cambios en la viscosidad del agua con excesos por la adición de farmacos altamente prescritos en geriatricia). Nutri-

  03 Bossu J.C., Gonzalez D., Fondevilla S., Cutzech M., Fernandez K., Ribero-Barbo-

  04 Cuadra-Gallego F., Riba J., Ventura M., Gonzalez D., Faver M., Barbancho M.J., Bouso J.C. 4-Bromo-2,5-dimethoxy-

Back Areas Area 4 Index Scientific Report 2012
Clinical Psychiatry

Main Lines of Research

- Psychotic disorders (first episodes).
- Affective disorders (major depression).
- Borderline personality disorder.
- Mental health therapy.

Challenges

- Foster research that reduces the healthcare, social and personal costs of mental illness by exploring areas such as epidemiology, etiopathogenesis, physiopathology, prevention and treatment.
- Foster research into mental health therapies.
- Foster research to improve quality of life of patients with mental disorders.

Research into psychotic disorders:

- Neuroimaging studies in early psychotic episodes.
- Study of environmental, biological and genetic factors in psychosis.
- Efficacy and effectiveness studies of anti-psychotic drugs.
- Efficacy and effectiveness study of psychotherapy for hallucinations.

Research into affective disorders:

- Identification and evaluation of new therapeutic targets in depression.
- Neuroimaging studies in early psychotic episodes.
- Biological and genetic markers in affective disorders.
- Implementation of new therapeutic programmes, depression evaluation and social aspects of depression.

Research into personality disorders:

- Clinical trials regarding the usefulness of mixed treatment in patients with borderline personality disorder (BPD) and validation of diagnostic instruments.
- Genetic-neuroimaging studies of borderline personality disorder.

Active Grants


Collaborations with other IIB Sant Pau Groups

- Addictive Behaviour.
- Neuroradiology.
- Pituitary Gland Disorders.

CIBERSAM Grants

**Clinical Psychiatry**

*Total Impact Factor    **Mean Impact Factor   -   PUBLISHED ON PAPER IN 2012

**ISI Web of Knowledge Indexed Publications with an IF**


**Scientific Production**

**Scientific Production**

**Other Publications**

**ISI Web of Knowledge Indexed Publications without an IF**


- Alvarez E, Perez V, Doghman M, Loft H, Artiga F. A double-blind, randomized, placebo-controlled, active-refer-

**Scopus Indexed Publications**


Genetics in Neurodegenerative Diseases

Main Lines of Research

- Study of genetic risk factors related to neurodegenerative disorders.
- Cloning and evaluation of novel genes associated with neurodegenerative disorders.

Challenges

- Genetic architecture of complex diseases caused by neurodegenerative processes:
  - Research into familial aggregation for specific diseases to determine genetic link and clone new genes.
  - Genetic association studies to establish genetic and genomic risk factors for different diseases.


Active Grants


Collaborations with other IIB Sant Pau Groups

- Neurobiology of Dementia.
- Parkinson Disease and Movement Disorders.
- Neuromuscular diseases.

Scientific Production

ISI Web of Knowledge Indexed Publications with an IF

05 Kalinderi K., Bostantopoulou S., Katakiou Z., Clarimon J., Fidani L. Lack of association between C9ORF72 and T120M polymorphisms and risk of Parkinson’s disease in a Greek population. Genetic Testing and Molecular Biomarkers; 16(8):974-977. IF: 1.444

External Collaborations

- Dr. John Hardy. Institute of Neurology, University College London, UK.
- Dr. Ekaterina Rogaeva. Tanz Centre for Research in Neurodegenerative Diseases, Toronto, Canada.
- Dr. Coro Paisán-Ruiz. Mount Sinai School of Medicine, New York, USA.
- Dr. Llana Fidani. Medical School, Aristotle University of Thessaloniki, Greece.

*IIF: 31.277 **MIF: 3.909

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Laia Múñoz

Technicians
Inés Martin
Laia Muñoz

Collaborators
Laura Cervera
Maite Sampredo

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Sant Pau Biomedical Research Institute
Scientific Report 2012

Back
Areas
Area 4 Index

Scientific Report 2012

151
AREA 4 · Neurological, Mental Disorders and Ageing

150
AREA 4 · Neurological, Mental Disorders and Ageing
Human Experimental Neuropsychopharmacology

Coordinator
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Collaborators
José Carlos Bouso
Rafael Guimarães

Human Experimental Neuropsychopharmacology

- Pharmacological modulation of the different neurotransmission systems so as to study the role of these systems in advanced cognitive functions (executive control) and emotion.

Neuropsychopharmacology of abused substances:
- Study of the effects on the central nervous system of psychodysleptic drugs such as ayahuasca, salvinorin A, dimethyltryptamine and THC.
- Assessment of the impact of long-term drug use on brain function (fMRI) and structure (VBM, DTI).

Main Lines of Research

- Consolidate existing research lines and extend them through possible cooperation agreements with other groups and according to the growth of the group itself.
- Obtain emerging-group recognition for the group.
- Obtain stable funding for the group and support in terms of technical staff.

Challenges

- Communicate our activities.
- Maintain existing external cooperation agreements.
- Establish new cooperation agreements within the HSCSP Research Institute.

Active Grants


Scientific Production

Publications with an IF

- IF: 4.061

- IF: 4.061

- IF: 1.945

- IF: 3.374

- IF: 3.73

06 Riba J., McIlhenny E.H., Valle M., Bouso J.C., Barker S.A. Metabolism and disposition of N,N-dimethyltryptamine and harmala alkaloids after oral administration of ayahuasca. Drug testing and analysis; 4(41493):610-616.
- IF: 3.167

* TIF: 20.338 ** MIF: 3.389

Collaborations

- Pharmacokinetic/Pharmacodynamic Modelling and Simulation.
- Parkinson Disease and Movement Disorders.
- Clinical Psychiatry.

Collaborations with other IIB Sant Pau Groups

- ISI Web of Knowledge Indexed
# Neurobiology of Dementia

## Challenges
- Maintain and increase scientific production and funding in the next 5 years.
- Develop a training plan for researchers entering the group while maintaining its translational nature.
- Establish new cooperation agreements that support applications for European and international projects.
- Establish links with technological innovation groups and companies to foster partner applications and set up contracts.

## Awards
- Fortea J. NeuroBioPharma Award.

## Publications with an IF

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## Main Lines of Research

- **Identification of new biochemical markers in cerebrospinal fluid (CSF) in Alzheimer disease and other neurodegenerative dementias:**
  - CSF biomarkers in Alzheimer disease and frontotemporal dementia.
  - Amyloid imaging in neurodegenerative dementia.

## Collaborations with other IIB Sant Pau Groups
- Genetics in Neurodegenerative Diseases.
- Neuropsychology.
- Molecular Physiology of the Synapse.

## Collaborations
- Martin Ingelsson, Uppsala University, Sweden.
- Pieter J. Visser, Amsterdam, Netherlands.
- Taapo P. Outoter, University of Gottingen, Germany.
- Jordi Magrané, Cornell University, New York, USA.

## External Collaborations

**ISI Web of Knowledge Indexed**

**Letter**


**Awards**

- Fortea J. NeuroBioPharma Award.
**Neuroradiology**

**Main Lines of Research**
- Ours is a multidisciplinary research group, which has the added value of combining neuroimaging skills of the members of the neuroradiology clinical unit at HSCSP with technological knowledge from PIC/IFAE investigators at the Autonomous University of Barcelona (Spain).
- Our main focus is the search for neuroimaging biomarkers in diseases involving the central nervous system, including neurodegenerative and neuropsychiatric conditions.
- A secondary focus is the implementation of automatic procedures and software tools to improve neuroradiological practice.

**Challenges**
- Achieve visibility for our research group and for neuroradiology—often considered by clinicians more a technical tool rather than a discipline in itself—as a defined field of knowledge.

**Active Grants**
- De Juan M. Predicting response to cognitive behaviour therapy in schizophrenia using high-field MRI (3T) (structural and diffusion-tensor imaging). SERAM Grant. November 2009-October 2012.

**Scientific Production**

**ISI Web of Knowledge Indexed Publications with an IF**

**Awards**
Ageing Institute

Main Lines of Research

- Health research into ageing:
  - Healthy ageing, physical activity, nutrition and cognition.
  - Frequent health problems among older adults: falls, frailty and sarcopenia, functional loss, Alzheimer and other demen- ties, malnutrition and other geriatric syndromes.
  - Epidemiological studies.
- Health and social services research:
  - Research into caregivers of older adults.
  - Promotion of active ageing among older people.
  - ICT applications to health and social services and active ageing.

Health research area:

- Area mainly focused on health promotion and disability prevention to improve quality of life among older people.
- Clinical and epidemiological research undertaken includes both observational and intervention studies, with the main lines of research referring to mobility, nutrition and cognition.

Health and social services research:

- Social care and healthcare as key for the maintenance of autonomy, with a focus on the following topics:
  - Models of social and health care.
  - The organization of health and social services.
  - Comprehensive needs assessment.
  - Quality of care.
  - Good caregiving practices.
- Assessment of dependence.
- Home care services.
- Analysis of economic costs.

Research into ICT applications to health, social services and active ageing:

- ICTs are capable of offering new resources that are useful and easy to use for the elderly, their families, caregivers and professionals. The group works with technology companies to develop systems aimed at monitoring health, facilitating participation and ensuring safety.
- Interest in this area mainly focuses on the following topics:
  - Social appropriation of ICTs.
  - E-Health development.
  - Development of new technological products to promote active aging.

Collaborations with other IIB Sant Pau Groups

- Primary Care Research.
- Evaluation of Public Health Policies and Programmes.

Collaborations

- Antón Salvà. Randomized clinical trial to evaluate the efficacy of memory training workshops in elderly people aged 65 to 80. FIS Grant. Carlos III Health Institute. 2012-2013.

Active Grants


Other Publications

Addictive Behaviours

Main Lines of Research

Alcohol:
- Study of the usefulness of the EMCA, IRISA and SPACT scales with IBZM as possible predictors of outcomes in alcohol-dependent patients during the first 12 weeks of recovery.
- Clinical study with escitalopram for treatment of depression and anxiety associated with alcoholism.
- Randomised, double-blind, parallel, placebo-controlled study on the efficacy of naloxone in alcohol-dependent patients.

Smoking:
- Multicentre, open, randomized clinical trial to measure the efficacy of proactive telephonic follow up as an aid to smoking cessation in comparison with in situ methods.
- Multicentre interventional project on smoking in psychiatric patients. Treatment of tobacco smoking with varenicline in psychiatric patients.

Cocaine:
- Evaluation of cocaine craving during hospitalization conditions.

Opiates:
- Patient satisfaction concerning maintenance treatment with opioid agonists.
- Satisfaction of the heroin-dependent patient regarding methadone and methadone pharmacogenetics.

Challenges

- Establish bidirectional links between clinical practice and investigation both to develop clinical research studies into the perspective of patients with addictions.
- Participate in controlled clinical trials on the treatment of addictive disorders.
- Develop clinical research studies into routine medical practice to assess the effectiveness of procedures.
- Evaluate the validity and reliability of frequently used clinical evaluation procedures.

Collaborations

Collaborations with other IIB Sant Pau Groups
- Clinical Psychiatry.
- Genetics in Neurodegenerative Diseases.

Active Grants

ISI Web of Knowledge Indexed Publications with an IF

*Total Impact Factor **Mean Impact Factor - PUBLISHED ON PAPER IN 2012

Other Publications

Scopus Indexed Publications
- Pérez de los Cobos J. A case-control study to assess the association between heroin-dependent patient satisfaction with methadone maintenance treatment and methadone pharmacogenetics. FIS Grant. January 2010-December 2012.
- Pinet C. Phase 4, randomized, double-blind, active drug and placebo controlled, multicentre study to evaluate the safety and neuropsychiatric efficacy of twice daily 1 mg varenicline tartrate and twice daily 150 mg bupropion hydrochloride for 12 weeks to treat smoking addiction in subjects with and without a history of psychiatric disorders. Pfizer. 2012-2013.
- Trujols J. The perspective of patients with schizophrenia in the identification, prioritization and measurement of pragmatic outcomes variables: meta-synthesis and systematic review of studies evaluating preferences. FIS Grant. January 2010-June 2012.
- Pérez de los Cobos J. Case-control study to assess the association between heroin-dependent patient satisfaction with methadone maintenance treatment and methadone pharmacogenetics. FIS Grant. January 2010-December 2012.
AREA 5
Uronephrology and Experimental Surgery

164 General and Digestive Surgery
167 Neurosurgery
169 Nephrology
General and Digestive Surgery

Gastrointestinal surgery:
- Application of laparoscopic surgery in diseases of the spleen.
- Application of laparoscopic surgery in disorders of the esophagogastric junction.
- Advanced application of colorectal laparoscopy.
- New stratification and treatment options in colorectal cancer.
- Surgery for primary hepatic tumours: determination of efficient prognostic parameters for surgical resection of hepatocarcinoma and likelihood of tumour recurrence after resection.
- Introduction of the laparoscopic methodology in biliary lithiasis.
- Surgery for sarcomas: participation in GIST research through GES (Spanish Sarcoma Research Group) and other entities.
- Surgery for sarcomas: participation in the development and results of surgery for retroperitoneal tumours.

Emergency care:
- Collaborative project on clinical safety for the introduction of safe practices in polytraumatised patients.

Oncological and hepatobiliary pancreatic surgery:
- Surgery for liver metastasis in colorectal cancer.
- Development of diagnostic and therapeutic techniques in the global context of treatment for liver metastasis in colorectal carcinoma.
- Application of laparoscopic surgery in disorders of the oesophagogastric junction.
- Studies of the value of nutrition in patients undergoing aggressive surgery for highly debilitating cancer.
- Suitable stratification of GIST tumours in accordance with an anatomo-pathological classification.
- Viability of surgical interventions considering the likelihood of disease recurrence.

Scientific Production

Gastrointestinal surgery:
- Design, develop and manage a dry laboratory for endoscopic surgery, creating a multifunctional research and teaching space to conduct applied technological research in minimally invasive surgery.

Hepatobiliarypancreatic surgery for cancer:
- Development of techniques to study liver volume and function.
- Development of experimental studies on the function and healing of bile-intestinal sutures.
- Studies of the value of nutrition in patients undergoing aggressive surgery for highly debilitating cancer.

Endoscopic and cervical surgery:
- Technical innovations in surgery.

Active Grants


- Targarona E. Prediction of pathological features of the mesorectum after laparoscopic resection of low rectal cancer, based on preoperative pelvicometry and volume analysis after 3D reconstruction of the pelvis and its contents. FIS Grant. January 2010-December 2012.


- IF: 0.871


- IF: 3.427


- IF: 0.871

ISI Web of Knowledge Indexed Publications with an IF


- IF: 0.871


- IF: 0.871


- IF: 1.915

Scientific Report 2012
General and Digestive Surgery

**ISI Web of Knowledge Indexed Publications without an IF**

**Letters**

**Other Publications**

**Book Chapters**

**Main Lines of Research**
- Study of biomaterials.
- Tumour biology: gliomas, hypophysis adenomas.
- Anatomy of the skull base.
- Clinical evaluation of neurostimulation techniques in different neurological entities (treatment-resistant depression and neuropathic pain).

**Challenges**
- Monitor, jointly with the psychiatric department, the clinical trial on treatment for treatment-resistant depression using deep brain stimulation techniques.
- Evaluate neurostimulation for other disorders: cluster headache.

**Cooperation with research into gliomas:**
- Oncogenesis and Antitumour Group (GDA-HSCSP PI: Dr. R. Mangues) in cooperation with the HSCSP Neurosurgery Department.
- Cooperation with the Cardiovascular Research Institute (managed by Drs. J. Blanco and N. Rubio) investigating the development of antitumour cell therapy strategies for the treatment of malignant gliomas.
- Cooperation with the endocrinology group regarding hypophysyal tumour biology.
- Anatomical studies to develop new surgical approaches to skull base tumours in cooperation with the University of Barcelona Hospital Clínic anatomy professor.
Neurosurgery

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Scientific Production

Nephrology

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Researchers
Elisabet Arx
Beatriz Bardají
Jordi Rovira
Gemma Bullrich
Lluisa Carrero
Elisabet Coii
Joan Manel Diaz
Isa Morante Diaz
Estefania Eurgal
Parisa Fernandez
Elena Guilell
Luisa Guirado
Irene Silva
Roser Forns

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Main Lines of Research

- Proteomics applied to nephrology and hypertension induced by anti-calcineurin agents.
- Hereditary kidney diseases: genetic and clinical studies in disorders such as polycystic kidneys, Alport syndrome, membranous glomerulopathy and vasculitis with renal involvement.
- Chronic kidney disease (CKD) and cardiovascular risk: early diagnosis, studies of genetic damage in patients with chronic renal insufficiency, epidemiological studies, clinical studies of chronic renal insufficiency, hyperparathyroidism, renal anaemia, renal osteodystrophy and haemodialysis techniques.
- Mechanisms of epithelial mesenchymal transition and renal fibrosis.

Challenges

- Maintain the level of national and international publications.
- Continue with active collection of research samples from CKD and transplant patients.
- Continue with both clinical and basic research in all previously described areas.
- Participate in the elaboration of clinical nephrology guidelines.

Active Grants

Nephrology

**TIF: 72.061 **MIF: 3.792


03 Cabrera-Lopez C., Marti T., Catala V., Torres F., Matos S., Ballarin J., Torra R. Assessing the effectiveness of rapsyrmin on angiomyolipoma in tuberculous sclerosis: a two years trial. Orphanet Journal of Rare Diseases; 7(1). IF: 4.315


AREA T1
Epidemiology, Public Health and Healthcare Services

- Clinical Epidemiology and Healthcare Services
- Transport and Health: Injuries and Mobility
- Transmissible Diseases
- Health Inequalities
- Epidemiology of Addictions
- Primary Care Research
- Evaluation of Public Health Policies and Programmes
Clinical Epidemiology and Healthcare Services

Areas of interest:
- Evidence-based medicine.
- Cancer.
- Perioperative medicine.
- Cardiovascular medicine.
- Public health.
- Appropriateness.

Active Grants

1. ISI Web of Knowledge Indexed Publications with an IF:


Clinical Epidemiology and Healthcare Services

176

AREA T1 · Epidemiology, Public Health and Healthcare Services

**Sant Pau Biomedical Research Institute Scientific Report 2012**

**Total Impact Factor 297.996 | Mean Impact Factor 5.959**

- PUBLISHED ON PAPER IN 2012

Clinical Epidemiology and Healthcare Services

- Perioperative glycaemic control for diabetic patients undergoing surgery
- Cochrane database of systematic reviews

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# Clinical Epidemiology and Healthcare Services

**Scientific Production**

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<th>*TIF: 297.996 *<em>MIF: 5.959</em></th>
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48 Garin N., De Pourcq J.T., Cardona D., Martin-Venegas R., Gich I., Cardenete J., Mangues M.A. Viscosity changes in thickened water due to the addition of highly prescribed drugs in geriatrics. [Cambios en la viscosidad del agua con espesantes por la adición de fármacos altamente prescritos en geriatría]. Nutricion Hospitalaria; 27(4):1298-1303. IF: 1.305 |

49 Martí-Carvajal A.J., Solà I. Vitamin K for upper gastrointestinal bleeding in patients with acute or chronic liver diseases. Cochrane database of systematic reviews (Online); 9. IF: 5.703 |

50 Sitja-Robert M., Rigau-Comas D., Fort-Vanmeerhaeghe A., Santoyo-Medina C., Roque-i-Figuls M., Romero-Rodriguez D., Bonfill-Cosp X. Whole-body vibration training for patients with neurodegenerative disease. Cochrane database of systematic reviews (Online); 2. IF: 5.703 |

**Other Publications**

- **Letter**

- **Scopus Indexed Publications**
Transport and Health: Injuries and Mobility

Main Lines of Research

- Public health injury surveillance.
- Evaluation of road safety strategies at the urban level.
- Evaluation of road safety strategies in Spain.
- Indicators of mobility exposure and risk of traffic injuries.
- Determinants of walking as a mode of transport.
- Social inequalities in fatality injuries.

Participation in international projects:

- Road safety data collection, transfer and analysis.
- Joint action on monitoring injuries in Europe.
- Social and spatial inequalities in terms of traffic safety.

Research projects in the planning and design phase:

- Record linkage of health and police registers to study road traffic injury determinants.

Challenges

- Study of the nature of injuries and their severity according to the characteristics of the collision and the vehicles involved, particularly in urban settings.
- Evaluate road safety policies and interventions.

- Develop exposure denominators for the calculation of risk indicators.
- Study motorized and non-motorized mobility and its impact on health.

Active Grants


- Pérez C. Mobility practices and risk of road accidents: social, cultural and regional inequalities in France and Spain. Agence Nationale de la Recherche Française. 2010-2012.


Scientific Production

ISI Web of Knowledge Indexed Publications with an IF


02 Rocha K., Pérez K., Rodríguez-Sanz M., Okoli J.E., Borrell C. Perception of environmental problems and common mental disorders (CMD). Social Psychiatry and Psychiatric Epidemiology; 47(9):1671-1684. IF: 2.861


* TIF: 8.950 ** MIF: 2.237

Sant Pau Biomedical Research Institute
Scientific Report 2012
Transmissible Diseases

Application of the new technologies to TB control:
- Produce scientific knowledge of relevance on the control, diagnosis, treatment and prevention of Tuberculosis (TB). From website visits and discussion forum comments, it is clear that this group continues to play a key role in Spain and in Latin America.

Clinical trials for the prevention and treatment of TB:
- Fix the basis for shortening treatment times for TB infection and, by extension, ensure compliance and control over the disease.
- Investigate the transmission of hepatitis B in autochthonous and immigrant populations.
- Improve detection and research into hepatitis B at gay saunas.
- Improve daily self-administration of 300 mg isoniazid (270 doses) for 9 months. Centers for Disease Control and Prevention (USA). 2003 (open).
- Cayla J.A. Validating of a predictive “score” for quitting the tuberculosis treatment. SEPAR. 2011-2012.

Collaboration and treatment of TB:
- Clinical trials for the prevention of Tuberculosis (TB). From website visits and discussion forum comments, it is clear that this group continues to play a key role in Spain and in Latin America.
- The inclusion of community health workers has led to important changes in TB programme teams and has led to the creation of new TB consensus protocols.

Community health workers’ role in the control of communicable diseases:
- Study legionella and TB outbreaks.
- Improve detection and research into causes of hepatitis C.

Collaboration with other IIB Sant Pau Groups:
- Microbiology and Infectious Diseases.
- Study legionella and TB outbreaks.
- Investigation of the transmission of hepatitis B in autochthonous and immigrant populations.
- Improve daily self-administration of 300 mg isoniazid (270 doses) for 9 months. Centers for Disease Control and Prevention (USA). 2003 (open).
- Cayla J.A. Validating of a predictive “score” for quitting the tuberculosis treatment. SEPAR. 2011-2012.

Collaborations

Main Lines of Research

- Community health workers’ role in the control of communicable diseases:
- The inclusion of community health workers has led to important changes in TB programme teams and has led to the creation of new TB consensus protocols.

Challenges

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ISI Web of Knowledge Indexed Publications with an IF


Transmissible Diseases

*TIF: 88.306 **MIF: 3.270


Tortajada C., Porta R., Riba M., Santor- ma M.J., Palacios E., Espanol M. Nosoco- mial outbreak due to Listeria monocytogenes in a neonatal unit (Brote nocosomial por Listeria monocytogenes en una Unidad de Neonatos). Enfermedades Infecciosas y Microbio- logía Clinica; 30(3):143-146.


*ISI Web of Knowledge Indexed Publications without an IF


• Garcia de Olalla P, Reyes JM, Caylà JA. Delay in diagnosis of HIV infection increases the tuberculosis trials consortium. Journal of Infectious Diseases; 206(7):1030-1040.


Health Inequalities

Social and political determinants of health and their impact on policy building and interventions:
- Evidence of the macroeconomic determinants of health inequalities between countries.
- The impact of the political context on the health of the population and the conclusion that countries with better developed welfare states have better levels of health.
- In-depth health inequalities according to social class in Spain and worldwide.
- Exploitation of information at the census section level as the maximum disaggregation unit and at a higher geographical aggregation level such as the neighbourhood, town and region.

Gender inequalities in health:
- Sexual division between productive and reproductive work (gender roles) and differences in male and female identities as the two main structural factors that generate gender inequalities in health.
- Gender inequalities in health:
  - Separate studies of social determinants of health in terms of social class and gender, with the purpose of integrating these 2 axes and analysing inequalities among immigrants.
  - Research into the impact of area of residence, especially smaller urbanized areas, on the health of the population.

Gender equality in health:
- Gender equality in health:
  - Further explore the theoretical framework and explanatory charts developed to guide comprehension of the gender determinants that affect health.

Social and political determinants of health and impact on policy building and interventions:
- Early establishment of policies on the health of populations and on social inequalities in health.
- Sex and reproductive inequalities in health:
  - Establish a line of research to investigate the different axes of sexual and reproductive health (sexuality, contraception, pregnancy, birth, miscarriage, abortion, birth rates, etc.).
  - Study the influence of policies on the health of populations and on social inequalities in health.


ISI Web of Knowledge Indexed Publications with an IF

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<td>- Evidence of the macroeconomic determinants of health inequalities between countries.</td>
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<td>Garcia G, Artazaeh L, Díez E, Prize awarded under the Comprehensive Healthy Food and Physical Activity Plan of the Catalan Public Health Agency for ‘Activa’t as parcs de Barcelona’. 2012</td>
<td>2.516</td>
<td>2012</td>
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<tr>
<td>- Analysis of differences in male and female identities as the two main structural factors that generate gender inequalities in health.</td>
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Active Grants
- Díez E. Health impact assessment of a comprehensive urban renewal project (Llei de Barris) in the Barceloneta area of Barcelona. Carlos III Health Institute. 2010-2012.
- Malumb D. Award for the top 10 submissions by presenters under 35 years old 28th Scientific Meeting of the Spanish Epidemiology Society (SE). Gender and chronic disorders perspectives: achievements and drawbacks of health surveys in Spain.

Collaborations
- Primary Care Research.

Challenges
- In-depth health inequalities according to social class in Spain and worldwide.
- Exploitation of information at the census section level as the maximum disaggregation unit and at a higher geographical aggregation level such as the neighbourhood, town and region.

Health inequalities according to different inequality axes:
- Separate studies of social determinants of health in terms of social class and gender, with the purpose of integrating these 2 axes and analysing inequalities among immigrants.
- Research into the impact of area of residence, especially smaller urbanized areas, on the health of the population.

Gender inequalities in health:
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  - Study the influence of policies on the health of populations and on social inequalities in health.


Collaborations with other IIB Sant Pau Groups
- Primary Care Research.
Health Inequalities

*TIF: 68.589 **MIF: 2.286

**Total Impact Factor   **Mean Impact Factor   -   PUBLISHED ON PAPER IN 2012

**Letters**


**Scopus Indexed Publications**

- Puigposos-Riera R, Pons-Vigues M, Serral G, Rodríguez-Arjona M.O, Pascarin M.I. I have intention to get a mammogram: Stages of adoption for monitoring mammography in women of different social and cultural background [Tengo intención de hacerme una mamografía: Estadías de adopción para realizar control mamográfico en mujeres de distintos origen cultural y social]. Psicoonología; 9(1):7-23.

**Others**

- ATLAS: The IneqCities Project (online). University College London, UK.

**Scientific Production**

- Espelt A, Kunst A.E, Palencia L, Guavi
Study of the epidemiology of drug consumption and patterns of use:
- Estimating the incidence of cocaine use and consumption patterns.
- Estimating the incidence of heroin use and consumption patterns.
- Estimating the prevalence of problematic cocaine, heroin and alcohol users.
- Analysis of the social and health discrepancies between immigrants and natives drug users.

Health problems associated with drug use:
- Study of quality of life and psychiatric comorbidity in cocaine users.
- Analysis of service use in cocaine and alcohol users.
- Analysis of factors associated with retention in treatment programmes for cocaine addicts and alcoholics.
- Study of violent behaviour and aggressive attitudes in young cocaine consumers.
- Analysis of mortality and its determinants in cohorts of people with substance abuse disorders (alcohol, heroin and cocaine).
- Analysis of factors associated with acute health problems developing after cocaine and heroin use.
- Analysis of the social and health discrepancies between immigrants and natives drug users.

Evaluation of health policies:
- Study of social inequalities in the evaluation of results and adherence to treatment centres.
- Infectious disease related to drug use.
- Evaluation of the brief motivational intervention programmes as an alternative to treatment for teens who use psychoactive substances.
- Evaluating the role of the workplace in drug consumption.

Challenges
- Study of social inequalities in evaluating results and adherence to treatment centres.
- Infectious disease related to drug use.
- Evaluation of the brief motivational intervention programmes as an alternative to treatment for teens who use psychoactive substances.
- Evaluating the role of the workplace in drug consumption.

ISI Web of Knowledge Indexed Publications with an IF

**Total Impact Factor**   **Mean Impact Factor**   -   PUBLISHED ON PAPER IN 2012

04 Folch C., Casabona J., Brugal M.T., Majo K., Moreno M., Espelt A., Gonzalez V. Characteristics of intravenous drug users who share injection equipment in Catalonia (Spain) (Perfil de los usuarios de drogas por vía parenteral que mantienen conductas de riesgo relacionadas con la inyeccion en Cataluna). Gaceta Sanitaria; 26(1):37-44. IF: 1.116
11 Cuenca-Royo A.M., Sanchez-Niubo A., Forero C.G., Torres M., Suelves J.M.,
# Scientific Production

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# Primary Care Research

## Coordinator

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<tr>
<td>Carlos Brotons</td>
<td><a href="mailto:carlosbrotons@sardenya.cat">carlosbrotons@sardenya.cat</a></td>
</tr>
</tbody>
</table>

## Researchers

<table>
<thead>
<tr>
<th>Name</th>
<th>EAP Sardenya</th>
</tr>
</thead>
<tbody>
<tr>
<td>Albert Casaco</td>
<td>EAP Sardenya</td>
</tr>
<tr>
<td>Mario del Hoyo</td>
<td>EAP Sardenya</td>
</tr>
<tr>
<td>Begoña Ibarz</td>
<td>EAP Sardenya</td>
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<tr>
<td>Rosa Monteserin</td>
<td>EAP Sardenya</td>
</tr>
<tr>
<td>Cintia Palaus</td>
<td>EAP Sardenya</td>
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<tr>
<td>Ma. Amor Peix</td>
<td>EAP Sardenya</td>
</tr>
<tr>
<td>Cristina Reyes</td>
<td>EAP Sardenya</td>
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<tr>
<td>Núria Soriano</td>
<td>EAP Sardenya</td>
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<tr>
<td>Irene Micó</td>
<td>EAP Sardenya</td>
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<tr>
<td>Mireia Pigo</td>
<td>EAP Sardenya</td>
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</tbody>
</table>

## Main Lines of Research

- Cardiovascular prevention in primary care settings.
- Health promotion in primary care settings.
- Aging.
- Hypertension.
- Diabetes.
- Bone metabolism.
- Mouth breathing in children.
- Paediatric immunization.

## Challenges

- Encourage research into medical ethics in family medicine training.
- Enlarge the research team by linking up with other primary care centres associated with the ACEBA Family Medicine Teaching Unit.
- Collaborate with other research teams in IBP Sant Pau.
- Collaborate with other European institutions in implementing projects on risk prevention and health promotion in primary care settings.

## Active Grants

- *Monteserin R.*, *Ibarz B.* Screening frailty in the elderly according to cognitive status. FIS Grant. Carlos III Health Institute.

## Collaborations with other IIB Sant Pau Groups

- *Pharmaceutical Research in Humans.*
- *Clinical Epidemiology and Healthcare Services.*

## Scientific Production

**ISI Web of Knowledge Indexed Publications with an IF**: 84.843 **MIF**: 7.070

<table>
<thead>
<tr>
<th>Title</th>
<th>IF</th>
<th>Journal</th>
</tr>
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<tbody>
<tr>
<td>Brugal MT. The role of prison health care in preventing and treating the consumption of illegal drugs. Revista Española De Sanidad Penitenciaria 2012;14(1):1-2.</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

## Other Publications


Primary Care Research

Scientific Production


Active Grants

- Pérez A. Randomized clinical trial to evaluate the effectiveness of memory training workshops for people aged 65 to 80 years. Carlos III Health Institute. January 2012-December 2014.

Other Publications

- Cuixart CB. The new markers of cardiovascular risk: Where did we come from, where are we, where are we going? Clínica e Investigación; 2012;62(2):89-91.

ISI Web of Knowledge Indexed Publications without an IF

Evaluation of Public Health Policies and Programmes

**TIF: 56.344 **MIF: 2.449

**ISI Web of Knowledge Indexed Publications with an IF**

<table>
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<tr>
<th>Year</th>
<th>Title</th>
<th>Journal</th>
<th>Impact Factor</th>
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<tbody>
<tr>
<td>2012</td>
<td>Secondhand smoke exposure at home and leisure time according to the day of the week (working and non-working day) in Barcelona</td>
<td>Espacio y salud</td>
<td>0.696</td>
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<td>2012</td>
<td>The power of hyphenated chromatography for the analysis of aminoglycosides</td>
<td>Journal of Chromatography A</td>
<td>3.386</td>
</tr>
<tr>
<td>2012</td>
<td>Nutritional education for prevention of prenatal exposure to tobacco smoke: evidence of the failure of the Spanish model</td>
<td>Tobacco Control</td>
<td>1.198</td>
</tr>
<tr>
<td>2012</td>
<td>Multiresidue method for pesticide residue analysis in food of plant origin</td>
<td>Analyst</td>
<td>3.73</td>
</tr>
<tr>
<td>2012</td>
<td>Coauthorship and institutional collaborations on cost-effectiveness analyses: a systematic network analysis</td>
<td>PloS one</td>
<td>2.591</td>
</tr>
<tr>
<td>2012</td>
<td>Hydride interaction chromatography for the analysis of amino- glycosides</td>
<td>Journal of Separation Science</td>
<td>4.111</td>
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</table>

**Other Publications**


**Awards**


Molecular, Genomic, Cellular and Kinetic-Dynamic Bases for Diseases and their Treatment

- Genomics of Complex Diseases
- Molecular Bases of Disease
- Pharmacokinetic/Pharmacodynamic Modelling and Simulation
- Generation of Advanced Therapy Medicines
**Main Lines of Research**

- **Genomics of complex diseases:**
  - Genetic epidemiology and bioinformatics.
  - Genomic analysis of idiopathic thrombophilia (GAIT).
  - Genetic analysis of osteoarthritis (GAO).
  - Genetics of chronic venous insufficiency.
  - Genetics of abdominal aortic aneurysms (TAAA).
  - Genomic analysis of idiopathic thrombosis.

- **Pharmacogenomics:**
  - Markers of genetic susceptibility and pharmacogenomics of cardiovascular diseases.

**Challenges**

- Establish pharmacogenomic agreements with biopharmaceutical companies.
- Increase human and material resources to achieve goals defined for different projects.
- Coordinate an international cardiovascular genomic project.

**Awards**

- *TIF: 37.814 **MIF: 6.302*

**ISI Web of Knowledge Indexed Publications with an IF**


02 Souto J.C., Soria J.M. Predicting individual risk of venous. Blood. 120(3):500-501. IF: 9.06


Molecular Bases of Disease

Thrombosis and haemostasis:
- Structural and functional investigations of blood coagulation factors, with emphasis on thrombin generation by the prothrombinase complex and on thrombin interactions with both physiological substrates (factor V, factor VIII and protease-activated receptors) and with exogenous inhibitors from haematophagous animals (e.g. anophelin from Anopheles mosquitoes).

Lipid metabolism and dyslipidemias:
- Structural and functional analysis of mutant apolipoprotein A-V proteins identified in individuals with hypertriglyceridaemia.

Neurodegenerative diseases:
- Analysis of mutations that affect the SMN genes, whose deficiency results in spinal muscular atrophy.
- Structural and functional investigations of proteins associated with inherited forms of Parkinson disease (PARK1, DJ-1 and Parkin).

Cancer and innate immune responses:
- Structural and functional analysis of innate immune responses mediated by toll-like receptors (TLRs) and, in particular, the role of the major adaptor MyD88.
- Analysis of mutations and SNPs that affect the TET2 gene and implications for acute myeloid leukaemia.
- Structural and functional analysis of the microsomal prostaglandin E2 synthase (mPGES-1) as a target for the generation of novel anti-inflammatory drugs with fewer side-effects.

Challenges
- Consolidate and extend research within the HSCIP Research Institute and the rest of the IIB Sant Pau in a context of limited access to financial support. To this end, the group needs to participate in at least one financed structure-function project in each of the three major research areas (cardiovascular diseases, neurodegenerative diseases and cancer and innate immune responses).

Active Grants

Collaborations with other IIB Sant Pau Groups
- Metabolic Bases of Cardiovascular Risk.
- Parkinson Disease and Movement Disorders.
- Haematological Diagnosis.
- Genetic Diseases.
- Angiology, Vascular Biology and Inflammation.

External Collaborations
- Dr. Pereira. Institute of Molecular and Cellular Biology, Porto, Portugal.
- Dr. Paul E. Bock. Vanderbilt University, Nashville, Tennessee, USA.
- Dr. Ricardo Gutiérrez-Gallego. IMIM-UPF, Barcelona, Spain.

Scientific Production

Collaborators
- Coordinator: Pablo Fuentes-Prior, HSCIP RI
- Technicians: Ma Ángeles Corral, HSCIP RI
- Collaborators: Elena de Mendoza, HSCIP RI; Erick Hernández, HSCIP RI

Coordinator
Pablo Fuentes-Prior
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Technicians
Ma Ángeles Corral
HSCIP RI

Collaborators
Elena de Mendoza
HSCIP RI
Erick Hernández
HSCIP RI

*ISI Web of Knowledge Indexed Publications with an IF

*Total Impact Factor **Mean Impact Factor - PUBLISHED ON PAPER IN 2012
Pharmacokinetic/Pharmacodynamic Modelling and Simulation

Main Lines of Research
- Populational pharmacokinetic analysis aimed at establishing the pharmacokinetic characteristics of medical products and at differentiating and quantifying the degree of intra- and inter-individual variability.
- Continuous response analysis aimed at the analysis of effects (in the presence or absence of drug) where the variable being evaluated changes values gradually.
- Non-continuous response analysis for responses most frequently observed in clinical practice and including categorical responses and categorical survival, frequency and censored responses.
- Simulation of clinical trials and therapy applications, aimed at assisting with the planning of clinical trials from the perspectives of developing new drugs and maximizing data yield and also aimed at studying the therapeutic application of narrow therapeutic-margin drugs.

Challenges
- Obtain recognition as an emerging group.
- Maintain existing external cooperation agreements.
- Establish new cooperation agreements within the HSCSP Research Institute.
- Generate sufficient financial resources to maintain and expand group staffing.
- Communicate the group's activities.

Active Grants
- Valle M. Quantification of the side effects following the administration of delta-9 tetrahydrocannabinol and cannabidiol: populational pharmacokinetic/pharmacodynamic approach to evaluating their interaction and determining the risk/benefit ratio. FIS Grant. Carlos III Health Institute. January 2009-December 2012.

Collaborations
- Collaborations with other IIB Sant Pau Groups
  - Human Experimental Neuropsychopharmacology.
  - Pharmacological Research in Humans.
  - Pharmacy.

Collaborations
- Collaboration with the Fight AIDS Foundation (Lluita contra la SIDA). Germans Trias i Pujol Hospital, Badalona, Spain.
- Collaboration with Pharmacy Service. Hospital del Mar, Barcelona, Spain.
- Collaboration with Department of Pharmacology, Liverpool University, UK.

ISI Web of Knowledge Indexed Publications with an IF


Generation of Advanced Therapy Medicines

*Total Impact Factor    **Mean Impact Factor   -   PUBLISHED ON PAPER IN 2012

**TIF: 1.358 **MIF: 1.358

**ISI Web of Knowledge Indexed Publications with an IF


**Main Lines of Research

- Bio processing for cell and tissue production.
- Regeneration of locomotor systems.
- Stem cell therapy for lymphohematopoietic system.
- Stem cell therapy for multiple sclerosis.

**Challenges

- Create a section within the Blood and Tissue Bank with the structure of a pharmaceutical enterprise, capable of developing, trialling, registering and commercializing advanced therapeutic drugs.

**Active Grants

- Garcia J. REDONTAP. Continuous proliferation and simultaneous maturation of haematopoietic stem cells into blood cell lineages. European Union Grant. 2010-2014.
- Garcia J. Production of 100 doses of human cardiac stem cells all derived from a single human cardiac stem cells clone, or derived from a reduced number of clones, all from the same master cell stock. Stem Cells OpCo. 2012-2013
Associated Groups

- Emerging Processes in Prevalent Diseases (210)
- Radiophysics and Radioprotection (213)
- Ophthalmology (214)
- Paediatrics (216)
- Chronic Respiratory Diseases (218)
- Palliative Care (221)
- Nuclear Medicine (222)
- Intensive Medicine (224)
- Anaesthesiology (226)
- Pharmacy (230)
- Dermatology (232)
- Plastic Surgery (234)
- Andrology (236)
- Urology (238)
- Multiple Sclerosis and Epilepsy Research (241)
- Radiation Oncology (242)
- Locomotor System Research (244)
- Reproductive Health (246)
- Nursing Care Research (249)
- Translational Molecular Oncology (250)
- Molecular Physiology of the Synapse (252)
Emerging Processes in Prevalent Diseases

- Pneumonia in the emergency department. PI: Melian Mateo.
- Noninvasive ventilation. PI: Miquel Turbau.
- Pulmonary embolism. PI: Laura Lozano.

**Cardiovascular system**

- Miquel Santaló.
  - Acute coronary syndrome in elderly patients. PI: Josep Antoni Montiel.
  - Acute coronary syndrome in women. PI: Marta Blázquez.
  - Ultrasensitive markers in acute coronary syndrome. PI: Leopoldo Higa.
  - Complications in patients implanted with an ICD. PI: Olga Trejo.
  - Cardiac failure. PI: Aitor Alquézar.
  - Supraventricular arrhythmias. PI: Aitor Alquézar.

**Drug abuse-HIV**

- HCV in patients with HIV. PI: Josep Ma Guardiola.
- Acute intoxication. PI: Hector Hernández.

**Respiratory system disorders**

- Salvador Benito.
  - Respiratory pattern analysis in the return to spontaneous breathing. PI: Ivan Díaz.
  - Ventilatory pattern analysis in heart failure. PI: Sergio Herrera.

**Emerging processes in prevalent diseases**

- The study and analysis of processes frequently observed in emergency department services so as to transfer the results to clinical practice and provide better care to patients.

**Clinical organization and management**

- Mireia Puig and Josep Rius.
  - Patient safety and emergency service quality. PI: Mireia Alvarez.
  - Nosocomial infection. PI: Albert Mauri.

**Organization and coordination**

- Francisco Caballero and Jesús Leal.

**Scientific Production**

**Publications with an IF**

- IF: 4.565
- IF: 4.565

**Other Publications**

- guardiola jm, mauro a, pachon g, et al. hcv combination therapy. antimicrobial agents and chemotherapy; 56(12):2987-2993. if: 4.565

**Book Chapters**

- IF: 3.974

**ISI Web of Knowledge Indexed Publications with an IF**

- IF: 29.978
- IF: 5.848

- IF: 4.565
- IF: 5.848

- IF: 4.565
- IF: 5.848
Emerging Processes in Prevalent Diseases

Subgroup: Organ Donation and Coordination

Kidney preservation with pulsatile perfusion machine RMJ: assessment and recovery of kidneys for transplantation from expanded criteria brain dead donors. PI: Francisco Caballero.

Pathways to consent for organ donation for transplantation (research workshop in collaboration with the University of Leeds and Leeds General Infirmary, UK). PI: Francisco Caballero.


Coordination with the University of Leeds General Infirmary, UK. PI: Francisco Caballero.

Characterization of various in vivo dose measurement detectors for radiation therapy treatments with intensity modulation therapy (IMRT).

Validation of dose calculation algorithms for external beam radiotherapy planning systems.

Optimization of QA procedures for IMRT, stereotactic body radiation therapy (SBRT) and gating respiratory treatments.

Computed tomography dosimetry:

- Index dose assessment for multislice CT.

Biological dosimetry:

- Cytogenetic evaluation of the relative biological efficacy of low-energy X-rays (in cooperation with the Autonomous University of Barcelona team led by Dr. María Rosa Caballero).

External beam radiotherapy:

- Biological dosimetry:
  - Cytogenetic evaluation of the relative biological efficacy of low-energy X-rays (in cooperation with the Autonomous University of Barcelona team led by Dr. María Rosa Caballero).

Characterization of various in vivo dose measurement detectors for radiation therapy treatments with intensity modulation therapy (IMRT).

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Ophthalmology

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Fernando Rodríguez
Teresa Solans
Jesús Téllez
José Ignacio Vela

Technicians
Eva García
Eva Sáez
Fernando Sánchez

Main Lines of Research
- Optimization of the functional rehabilitation of patients after cataract surgery using multifocal intraocular lens.
- Evaluation of vision quality in terms of parameters such as visual acuity, sensitivity to contrast and aberrometry.
- Ocular repercussions of allogeneic medullary transplants and evaluation of the different clinical manifestations and response to treatment in graft-versus-host disease.
- Comparison of the efficacy and safety of intravitreal ranibizumab versus laser photocoagulation in patients with visual impairment secondary to diabetic macular oedema.

Active Grants

Collaborations with other IIB Sant Pau Groups
- Neurobiology of Dementia.

External Collaborations
- José Vicente Pérez Moreiras.
- Hospital de Bellvitge, L’Hospitalet de Llobregat, Spain.
- Institute of Applied Ophthalmology and Biology (IOBA), Valladolid, Spain.
- Hospital Universitario Cruces, Barakaldo, Spain.
- Clínica Universitaria de Navarra, Pamplona, Spain.
- Hospital Universitario de Canarias, Canary Islands, Spain.
- Hospital Universitario de Gran Canaria Dr. Negrín, Canary Islands, Spain.
- Hospital Universitario Virgen de la Victoria, Málaga, Spain.
- Hospital La Paz, Madrid, Spain.
-Complejo Hospitalario Torrecárdenas, Almería, Spain.
- Wisum, Madrid, Spain.
- Hospital Universitario de La Princesa, Madrid, Spain.
- Hospital Universitari La Fe, València, Spain.
- Hospital Son Llàtzer, Palma de Mallorca, Spain.
- Clínica Oftalmológica Barraquer, Barcelona, Spain.

Scientific Production
- ISI Web of Knowledge Indexed Publications with an IF
  IF: 0.912

- ISI Web of Knowledge Indexed Publications without an IF

- Others

- Letter
**Main Lines of Research**

- Transplant haematopoietic progenitor cells from alternative donors.
  - Make pre-implant genetic diagnoses.
  - Transplant haematopoietic progenitor cells in congenital metabolic pathologies.
- Research congenital immunodeficiencies.
- Research Fanconi anaemia (group recognized by the Autonomous University of Barcelona, Spain).

- **Challenges**
  - Apply adaptive cell immunotherapy for tumours.
  - Intervention in post-asphyxia neuronal damage in asphyctic infants by applying therapeutic hypothermia (in the context of a Catalan network).
  - Polytraumatized patient care programme. PPT implementation code in HSCSP and in CatSalut central register.
- Implementation of a multidisciplinary institutional massive transfusion protocol in the HSCSP.

**Active Grants**

- Make pre-implant genetic diagnoses.
- Transplant haematopoietic progenitor cells in congenital metabolic pathologies.
- Research congenital immunodeficiencies.
- Research Fanconi anaemia (group recognized by the Autonomous University of Barcelona, Spain).

**Scientific Production**

- **ISI Web of Knowledge Indexed Publications with an IF**


  05. Martinez-Martinez L, González-Santesteban C, Badell I, de la Calle-Martin O. The polymorphism g219r of CD107d does not cause immunological alterations in vivo. Conclusions from a X-linked hyper IgM syndrome kindred. Molecular Immunology, 52(1367):237-241. IF: 2.645


**Scopus Indexed Publications**


**Letters**


Chronic Respiratory Diseases

**Asthma:**
- Asthma exacerbations.
- Severe asthma.
- Good clinical practice guidelines for asthma.
- Bronchial inflammation.
- Experimental asthma and pathogenic mechanisms.
- Multicentre biobank specializing in bronchial biopsies for research into asthma.
- Bronchial thermoplasty.
- Clinical trials.

**COPD and respiratory failure:**
- Non-invasive mechanical ventilation.
- Respiratory rehabilitation.
- Pathophysiology.
- Exacerbation.

**Obstructive sleep apnoea (OSA):**
- Physiology and clinical, diagnostic and treatment consequences of sleep disorders.
- Obesity-hyperventilation syndrome.
- Analysis of airflow inpatients with OSA.

**Main Lines of Research:**
- Consolidate a leading clinical trial unit in respiratory diseases.
- Capture pre-clinical development concepts from the pharmacological and biotechnology industry, using the capabilities of our basic research lab and experimental patients and animal models.
- Recruit research trainees seeking a doctoral degree.
- Support the development of multidisciplinary research networks such as the Barcelona Respiratory Network and the Programme for Integrated Research for Asthma in the Spanish Society of Pneumology and Thoracic Surgery (SEPAR), and collaborate with or become involved in existing networks such as the Respiratory CIBER (CIBERES).

**ISI Web of Knowledge Indexed Publications with an IF:**

  *IF: 10.026*  
  *IF: 2.439*  
  *IF: 29.978*  
  *IF: 2.814*  
  *IF: 68.025*  
  *IF: 1.372*  
  *IF: 1.372*  
- Plaza V. Toll-like receptor expression in cells in induced sputum from asthmatic patients. Relationship to phenotype, severity and level of asthma control. [FUCAP Grant. January 2012-December 2014.](http://www.fucap.org)
Chronic Respiratory Diseases

*Total Impact Factor    **Mean Impact Factor   -   PUBLISHED ON PAPER IN 2012

Scientific Production

Other Publications

ISI Web of Knowledge Indexed Publications without an IF

Other Grants

Challenges

Main Lines of Research

Palliative Care

Active Grants

Scopus Indexed Publications

Coordinator
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Emest Guell
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Adedola Ramos
HSCP

Technicians
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HSCP

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Maria Ruffo
Cristina Secanella
HSCP

Symptom evaluation and control: pain, dyspnoea, cognitive failure, complex situations.

End-of-life ethical issues: sedation, expression of a desire for death and euthanasia.

Psychosocial care for patients and families:
  - Art therapy.
  - Adaptation to the terminal situation, grief, spiritual needs.
  - Training in palliative care: training needs and outcomes.
  - Integrated care: analysis and care of end-of-life emotional, social and spiritual dimensions and adequate ethical reflection in decision making.


PSCA-FP7-AIDS-2008-222833.


Impact factor: 1.372

Impact factor: 6.355

Impact factor: 6.355

Impact factor: 1.429

Impact factor: 2.894

Impact factor: 3.535

Impact factor: 4.535

Impact factor: 4.535

Impact factor: 4.535

**Main Lines**

Nuclear Medicine

Main Lines of Research

Oncology:
- Design of new diagnostic methods based on identifying and visualizing molecular targets from metabolic mechanisms, receptor systems, hypoxia, angiogenesis and apoptosis.
- Development of new applications for sentinel ganglion and radioguided surgery models.

Cardiovascular research:
- Cardiovascular functional studies.
- New methods for assessing cardiac innervation and determining applications.

Functional neuroimaging:
- Development of new functional imaging methods for evaluating neurogenerative diseases whether or not they involve dementia (Parkinson, Parkinson-Plus, Alzheimer, MCI).
- Dopaminergic system studies using IBZM and Daltscan.

Challenges

- Introduce new technologies to clinical research, given that imaging techniques are evolving very rapidly towards multimodal systems that integrate biological, molecular, anatomical and functional information in a single examination. The group aims to include these technologies, mainly PET/CT and PET/MR, in its own and the hospital’s research activities.

New molecular imaging techniques:
- The group has developed pre-clinical and clinical molecular imaging models using SPECT and conventional nuclear medicine techniques and, in the next 5 years, plans to develop new hybrid molecular imaging technologies, mainly PET/CT and PET/MR.

PET imaging biomarkers:
- The group uses radioactive tracers to view in vivo diagnostic and therapeutic targets and, in the next 5 years, plans to develop new PET radioactive tracers to be used as biomarkers in new imaging techniques.

Scientific Production

ISI Web of Knowledge Indexed Publications with an IF

IF: 0.429

IF: 5.114

IF: 0.863

IF: 6.024

05 Ferrusola E.V., Garzon J.R.G., Lopez A.P., Peter M.S., Cabero S.F., Solanes M.M., Gil E.R., Gasset J.C., Caballero F.J. Patterns of spread of gastrointestinal stromal tumors (GIST) treated with imatinib (Gleevec®) by PET/CT 18F-FDG [Patrones de extensión de los tumores del estroma gastrointestinal (GIST) tratados con imatinib (Gleevec*) mediante PET/TC con 18F-FDG]. Revista Española de Enfermedades Digestivas; 104(7):360-366.
IF: 1.652

IF: 3.364

IF: 5.114

Scientific Report 2012

Letter
Challenges

- Acute respiratory failure and artificial ventilation.
- Non-invasive ventilation.
- New ventilation modes: proportional-assist ventilation and NIV.
- Prolonged decubitus in acute respiratory distress syndrome.
- Artificial ventilation withdrawal.
- Expert ventilation systems.
- Sleep and artificial ventilation.
- Early and active mobilization of the critically ill patient.

- Consolidate clinical and physiological research into ventilation in critically ill patients through multicentre and multinational networking.
- Create a stable and well-trained group of researchers in this discipline.

Study of the usefulness of new biomarkers in critically ill patients:

- BNP in weaning from mechanical ventilation.
- Use of the NGLA protein in the renal prognosis of critically ill patients.
- Strict control of blood glucose in critically ill patients.
- Propofol in the use of gastric mucosal injury in critically ill patients.
- Study of the haemodynamic effects of different antipruritic drugs in critically ill patients.
- Influence of position change to supine position in intradialysis pressure.

Scientific Production

Letter


ISI Web of Knowledge Indexed Publications with an IF


- Scopus Indexed Publications


- Other Publications

Anaesthesiology

Main Lines of Research

Critical analysis of new clinical technologies:
- Anaconda-inhaled sedation in patients undergoing postoperative mechanical ventilation.
- New monitoring systems for anaesthesia depth and cerebral oxygen status.

Rationalization of perioperative fluid therapy and blood products:
- Institutional protocolization of massive transfusions.
- Monitoring of coagulopathy due to massive bleeding from thromboelastography.
- Identification and recovery from preoperative anaemia in surgery with extensive bleeding.
- Prevalence of perioperative transfusions.
- Monitoring of perioperative fluid therapy.

Perioperative medicine:
- Institutional protocolization of care in clinical cases of cardiorespiratory arrest.
- Clinical pathways for patients with severe femoral neck fracture, total knee replacement, and fast-track colorectal surgery.
- Epidemiological study of perioperative morbidity and mortality in collaboration with the epidemiology department of the HSCSP (Iberoamerican Cochrane Centre) and the European Society of Anaesthesiology.

New health service delivery systems:
- Professional team preoperative evaluations.
- Zero preoperative stay.

Physiology, pharmacology and anaesthetic techniques:
- Intravenous anaesthesia.
- Efficacy and safety of levosimendan in patients with severe cardiac failure.

Scientific Production

ISI Web of Knowledge Indexed Publications with an IF


Other Publications

ISI Web of Knowledge Indexed Publications without an IF

**Subgroup:** Pain and Neurosciences

**Main Lines of Research**
- Involvement of brain areas and release of substances in acute and chronic neuropathic pain (in conjunction with HSCSP neuroradiology unit and the Autonomous University of Barcelona).
- Sleep disturbance on initiating systemic opioid treatment in patients with severe chronic pain and altered sleep patterns.
- Influence of herniated lumbar disc anatomy on the effectiveness of epidural corticosteroids by the interlaminal, parasagittal, and caudal routes.
- Profile in terms of demographics, comorbidities, kind of pain, physical and mental status and disability of patients.

**Challenges**
- Establish the possible differences in brain area involvement between acute and chronic pain.
- Establish the different brain substances expressed in patients affected by acute and chronic neuropathic pain.
- Determine the extent of chronic pain according to the involvement of different brain areas.
- Determine whether the intensity of chronic neuropathic pain assessed by the patient is correlated with the patient's psychopathology, essentially anxiety, depression and catastrophizing.
- Determine the profile of patients who would benefit from treatment with major systemic opioids in relation to night rest and establish the recommendable opioid.

**Active Grants**
Pharmacy

Main Lines of Research

- Pharmaceutical care.
- Artificial nutrition.
- Oncohaematology.
- Independent clinical trials.

Challenges

- Evaluate the impact on effectiveness and safety of pharmacological treatments in different pharmaceutical care programmes: clinical pharmacokinetics, health education for outpatients, medicine reconciliation and identification and prevention of medication-related problems.
- Evaluate the impact of artificial nutrition on the clinical evolution of patients.

Study the stability of cytostatics in different conditions of use.
- Predict response to anti-tumour treatment in a number of tumoural processes.
- Develop focal adhesion inhibitors, e.g. anti-tumour agents.
- Actively cooperate in independent clinical trials performed in the HSCSP.

Active Grants


Collaborations with other IIIB Sant Pau Groups

- Oncogenes and Antitumour Drugs.
- Haematological Diagnosis.
- Dermatology.
- Neuromuscular Diseases.
- Digestive Diseases.

Scientific Production

ISI Web of Knowledge Indexed Publications with an IF


02 Garin N., De Pourcq JT., Cardona D., Martin-Venezias R., Gich I., Cardemete J., Mangues M.A. Visosity changes in thickened water due to the addition of highly prescribed drugs in geriatrics [Cambios en la viscosidad del agua con esparitones por la adición de farmacos altamente prescritos en geriatria]. Nutrición Hospitalaria; 27(4):1298-1303. IF: 1.305


Awards

- Best Health Idea of 2012 (Research and Pharmacology). Diario Médico.

Other Publications

Dermatology

Main Lines of Research

- Biologic therapy in dermatology.
- Genome-wide association studies in psoriasis.
- Medical and physical treatment options for vascular tumours.
- Psychopathological studies of patients with chronic dermatological disorders.

Challenges

- Ensure a stable clinical research infrastructure and staff.
- Foster interdepartmental collaborative research.

Active Grants


Collaborations

- Collaborations with other IIB Sant Pau Groups
  - Parkinson Disease and Movement Disorders.

ISI Web of Knowledge Indexed Publications with an IF


ISI Web of Knowledge Indexed Publications without an IF


*Total Impact Factor  **Mean Impact Factor - PUBLISHED ON PAPER IN 2012

Scientific Production

> ASSOCIATED GROUPS

15 Sant Pau Biomedical Research Institute

*Scientific Report 2012

Back Areas AG Index
Plastic Surgery

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HSCSP
Elena Rodríguez
HSCSP
Lidia Sánchez-Porro
HSCSP
Carmen Vega
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Main Lines of Research

Perforator microsurgery:
- Application of imaging techniques to preoperative studies of perforators using MRI without contrast (in collaboration with Clínica Creu Blanca Radiology Department).
- Anatomical studies of the variability of perforators in the following regions: internal mammary artery, descending genicular artery, deep and superficial inferior epigastric system, and superficial circumflex inferior system (in collaboration with the University of Barcelona Human Anatomy Department).
- Locating new donor anatomical areas for morphological and functional reconstruction of oncology post-surgery defects.
- Radiological, anatomical and clinical study to characterize the internal mammary perforator flap.

Lymphoedema:
- Study and characterization of the anatomy and pathophysiology of the superficial and deep lymphatic system.
- Preoperative magnetic resonance study of the lymphatic system in order to define surgical indication patterns.
- Preoperative magnetic resonance study to plan lymphatic-venous anastomosis for lymphoedema treatment.
- Pre-operative planning and post-operative assessment of lymphaticovenous anastomosis for lymphoedema treatment by KGS lymphangiography.
- Validation of the second sentinel node after lymph node transfer in post-mastectomy patients.
- Lymphogenesis study in experimental animals (sheep) after vascularized lymph node tissue transplantation (popliteal lymph nodes).
- Validation of protocol for lymphoedema evaluation results obtained by members of the International Framework for Surgical Treatment of Lymphoedema.
- Radiological, anatomical and clinical study to characterize the internal mammary perforator flap.

Regenerative surgery:
- Development of regenerative lymphatic system surgery in the context of primary lymphoedema through specific lymphatic system vascular endothelial growth factors (VEGF-C and VEGF-D).
- Preoperative studies of perforators using MRI without contrast (in collaboration with the University of Barcelona Human Anatomy Department).
- MRI without contrast (in collaboration with the University of Barcelona Human Anatomy Department).
- Radiological, anatomical and clinical study to characterize the internal mammary perforator flap.

Breast cancer surgery:
- Industry-funded clinical trial (Allergan Medical, USA). SeriScaffoldTM use in reconstruction post-market study for tissue support and repair in direct-to-implant breast reconstruction surgery.
- Viability assessment of autologous fat grafting in breast conservation surgery.
- Multicentre clinical study of quality of life after breast conservation surgery and radiotherapy versus mastectomy and immediate breast reconstruction.
- Preoperative planning and post-operative assessment of lymphaticovenous anastomosis for lymphoedema treatment by KGS lymphangiography.
- Validation of the second sentinel node after lymph node transfer in post-mastectomy patients.
- Lymphogenesis study in experimental animals (sheep) after vascularized lymph node tissue transplantation (popliteal lymph nodes).
- Validation of protocol for lymphoedema evaluation results obtained by members of the International Framework for Surgical Treatment of Lymphoedema.
- Radiological, anatomical and clinical study to characterize the internal mammary perforator flap.

General plastic surgery:
- Phase III multicentre, open-label, prospective, controlled, randomized, blinded clinical trial to intra-individually compare the efficacy and tolerability of Oleogel-S10 with the reference treatment to accelerate healing of the donor site in partial thickness skin grafts.

Scientific Production

*TIF: 1.041  **MIF: 1.041

ISI Web of Knowledge Indexed Publications with an IF
IF: 1.041

ISI Web of Knowledge Indexed Publications without an IF
**Total Impact Factor** 48.717 **Mean Impact Factor** 4.428

**ISI Web of Knowledge Indexed Publications with an IF**


05 Krausz C., Giachini C., Lo Giacco D., Daguin F., Chianese C., Ars E., Ruiz-Castané E., Forti G., Baldi E. High Resolution X Chromosome-Specific Array-CGH Detects New CNVs in Infertile Males. PLoS ONE; 7(10). IF: 3.73


07 Krausz C., Giachini C., Lo Giacco D., Daquini F., Chianese C., Ars E., Ruiz-Castané E., Forti G., Rossi E. High Resolution X Chromosome-Specific Array-CGH Detects New CNVs in Infertile Males. PLoS ONE; 7(10). IF: 3.73


10 Gutierrez Hernandez P.R. Inauguration of the Master of Clinical Andrology [Inauguración del Máster de Andrología Clínica]. Revista Internacional de Andrología; 10(2):79-80. IF: 0.256

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**Main Lines of Research**

**Infertility and preimplantation genetic diagnosis:**

- Development of a project on the genetic causes of cryptorchidy in humans.
- Collaboration in externally financed Carlos III Health Institute projects (University of Barcelona, Hospital Vall d’Hebron) studying genetic anomalies, spermatogenesis and preimplantation genetic diagnosis.
- Development of an animal model of erectile dysfunction (cavernous nerve injury in rats), enabling research into the mechanisms of endothelial damage and erectile dysfunction in different situations, substances and/or surgeries, with a focus on identifying preventive strategies and transferring results to research in humans.

**Male sexual dysfunction:**

- Extension of investigation into the mechanisms that trigger endothelial damage and erectile dysfunction so as to develop new treatment strategies.
- Development of an animal model of erectile dysfunction (cavernous nerve injury in rats), enabling research into the mechanisms of endothelial damage and erectile dysfunction in different situations, substances and/or surgeries, with a focus on identifying preventive strategies and transferring results to research in humans.

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**Letter**

Tissue engineering:
- Application to urological oncology and congenital urogenital malformations, focusing on vascular reconstruction (since 2002). The endpoints have high clinical translational potential as the objective is organ procurement for genitourinary reconstruction, especially in urology paediatrics.

New techniques (surgical techniques and healthcare products):
- Application to urological oncology and benign urogenital pathology (e.g. incontinence, benign hyperplasia of the prostate, lithiasis).
- As a referral centre for treatment of urological disorders, the Puigvert Foundation performs studies, particularly at a clinical level, aimed at determining the best techniques for disorder diagnosis and treatment.

Genetics (diagnostic and prognostic markers):
- Application to urological oncology to identify diagnostic and prognostic markers of urological cancers (this line of study has led to a patent related to bladder cancer).
- Development of studies of the prostate and collaboration with other centres, universities, and biotechnology labs (Progenika, Onyzon, Neocodex) to develop new diagnostic and prognostic markers in blood, urine and tissues that will optimize patient management in oncology.

Urology

Scientific Production

Active Grants

- Rodríguez O. Relationship between phenotype of chronic inflammatory cells and stromal fibroblasts, and development of tumour recurrence and progression of bladder urothelial carcinoma. Pedro Clueitantes Diaz Research Grant, 2010-2012.

External Collaborations

- Spanish Association of Urology (AES). Three national tumour registries (prostate, bladder and kidney).

Coordinated

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Yolanda Aire – Puigvert Foundation
Alberto Breda – Puigvert Foundation
Jorge Cañucci – Puigvert Foundation
Shaila Fernández – Puigvert Foundation
Félix Millán – Puigvert Foundation
Joan Palou – Puigvert Foundation
Oscar Rodríguez – Puigvert Foundation

Collaborations

Coordination

Sant Pau Biomedical Research Institute

Awards

- Best in Class Award to the Urology Department, Madrid, Spain.


Multiple Sclerosis and Epilepsy Research

Challenges

- Participation in the European registry of pregnant women with epilepsy (EURAP).
- Epidemiological study to determine diagnosis and follow up in patients with a first demyelinating episode suggestive of multiple sclerosis (EPI-CIS study).
- Registration of new cases of multiple sclerosis in Catalonia (Epidecat register).

Collaborations

- Study of the effects of immunomodulatory and immunosuppressive treatments on the cognitive functions of patients with multiple sclerosis.
- Determination of the pharmacogenetic variations involving different responses to antiepileptic treatment.
- Study of neuropsychological alterations in patients diagnosed with juvenile myoclonic epilepsy.

External Collaborations

- Study of the effects of immunomodulatory and immunosuppressive treatments on the cognitive functions of patients with multiple sclerosis.

Science Production

- Multiple Sclerosis and Epilepsy: what is new? ISRN Urology 2012;581539.
- Determination of the pharmacogenetic variations involving different responses to antiepileptic treatment.
- Study of neuropsychological alterations in patients diagnosed with juvenile myoclonic epilepsy.
- Study of the effects of immunomodulatory and immunosuppressive treatments on the cognitive functions of patients with multiple sclerosis.

Scientific Production

- Scientific Indexing of Knowledge

- Scopus Indexed Publications

- *TIF: 67.068 **MIF: 3.193

- ISI Web of Knowledge Indexed Publications without an IF

  - Multiple Sclerosis and Epilepsy: what is new? ISRN Urology 2012;581539.
  - Determination of the pharmacogenetic variations involving different responses to antiepileptic treatment.
  - Study of neuropsychological alterations in patients diagnosed with juvenile myoclonic epilepsy.
  - Study of the effects of immunomodulatory and immunosuppressive treatments on the cognitive functions of patients with multiple sclerosis.

- Others

  - Scopus Indexed Publications

  - *TIF: 10.819 **MIF: 5.409

- ISI Web of Knowledge Indexed Publications with an IF


- Main Lines of Research

  - Neuropsychological impairment in patients with multiple sclerosis.
  - Pharmacogenetics in epilepsy.
  - Neuropsychological impairment in juvenile myoclonic epilepsy.

- Collaborations

  - Participation in the European registry of pregnant women with epilepsy (EURAP).
  - Epidemiological study to determine diagnosis and follow up in patients with a first demyelinating episode suggestive of multiple sclerosis (EPI-CIS study).
  - Registration of new cases of multiple sclerosis in Catalonia (Epidecat register).

- Challenges

  - Participation in the European registry of pregnant women with epilepsy (EURAP).
  - Epidemiological study to determine diagnosis and follow up in patients with a first demyelinating episode suggestive of multiple sclerosis (EPI-CIS study).
  - Registration of new cases of multiple sclerosis in Catalonia (Epidecat register).
Radiation Oncology

Collaboration with other IIB Sant Pau Groups
- Radiophysics and Radioprotection.
- Nuclear Medicine.

External Collaborations
- Pedro C. Lara. Radiation Oncology Service, Hospital Universitario de Gran Canaria Dr. Negrín, Spain.

**Main Lines of Research**
- Establishment of relatively radioresistant cell lines compared with the parental cells from which they derive (by clonal selection).
- Determination of the resistant phenotype in cultures and xenografts.
- Determination of molecular radioresistance.
- Evaluation of the effect on carcinomas of SRC and HMG-CoA reductase inhibitors in combination with anti-EGFR.

**Challenges**
- Exploration of signal transduction changes in the EGFR-MAPK pathway and SRC-EGFR/SRC-STAT3 cooperation induced by SRC and HMG-CoA reductase inhibitors.

**Planning of radiation therapy based on PET/CT functional imaging for lung and HNSCC:**
- Implementation of planning techniques for radiotherapy treatment with PET-CT for chest locations and head and neck tumours.
- Image-guided radiotherapy (IGRT) and respiratory movement control.
- Salvage brachytherapy for local recurrence after external beam radiotherapy in prostate cancer.
- Hypofractionated IGRT in prostate cancer.

**SBRT for patients with lung cancer and with oligometastases:**
- Launch in 2012 of stereotactic body radiotherapy techniques in radical treatment of patients with early-stage non-surgical lung cancer and for selected patients with non-surgical oligometastases.

**Scientific Production**

- ISI Web of Knowledge Indexed Publications with an IF

**Antisporitivs in Orthopedic and Trauma Surgery:**

- Effect of zoledronic acid (Actelion) on peri-osteal bone mineral density in patients undergoing total knee arthroplasty. Study approved by the HSCSP ethics committee and authorized by the Spanish Medicines and Health Products Agency (AEMPS) for the off-label condition indication of Actelion.

**Knee:**

- Haemostasis: Blood loss control using tranexamic acid in primary prosthetic and knee revision surgery.
- Retrospective study of revision knee arthroplasty to compare the effects of intravenous tranexamic acid and normal haemostasis.
- Clinical trial comparing outcomes for intravenous tranexamic acid with fibrin glue (Tiss-otic®) and normal haemostasis in primary knee prosthetic surgery.
- Observational study of blood loss in redon drainage over time in prothetic hip fractures.

**Cartilage:**

- Regeneration of cartilage defects using tissue engineering and a matrix seeded with autologous chondrocytes.

Meniscus:

- Effect of normal and growth factor-enriched cell cultures on the meniscal collagen network and glycosaminoglycan expression.
- In vitro experimental study of the feasibility of a polyurethane replacement meniscus pre-seeded with stem cells.
- Evolution of allogenic meniscal transplants and relationship with exuus.

**Upper Limb:**

- Anatomical study of stabilising ligaments in the trapeziometacarpal joint: the role played by dorsal and anterior oblique liga-
ments in Bennett and Rolando fractures.
- Surgical treatment of middle-third claviclar fractures in high-energy trauma in young patients.
- Retrospective study of the use of vascularised bone graft using the 1,2-ICSR artery in the repair of scaphoid pseudarthrosis.

**ISI Web of Knowledge Indexed Publications with an IF**

dica Belgica; 78(1):68-74. IF: 0.429

02. Enriqueta J, Gelber PE, Cardona-Munoz JF, Porr F, Teix T, Monllau J.C. There is no relation between mild malalign-
ment and meniscal extrusion in trauma emergency patients. Injury, 43(SUPPL. 2):S68-S72. IF: 1.931

03. Abat F, Gelber PE, Enriqueta J, Porr F, González-Lucena G, Monllau J.C. SU-
ture-only fixation technique leads to a higher degree of extrusion than bony
fixation in meniscal allograft transplantation. American Journal of Sports Medi-
cine; 40(7):1591-1596. IF: 4.439

04. Gelber PE, Torres R, Garcia-Grall N, Er-
quicia J, Abat F, Monllau J.C. Host serum is not indispensable in collagen perf-
mance in viable meniscal transplantation at 4-week incubation. Knee Surgery, Sports Traumatology, Arthroscopy; 20(9):1681-1688. IF: 2.676

05. Gelosi A.H, Filardo G, Aimproz FK, Bugbee WD, Jelich L, Monllau J.C., Pud-

bromas. Voxchir Archivos 46(12):117-125. IF: 2.676

**Active Grants**

- Abat F, Gelber PE, Enriqueta J, Porr F, González-Lucena G, Monllau J.C. SU-
ture-only fixation technique leads to a higher degree of extrusion than bony
fixation in meniscal allograft transplantation. American Journal of Sports Medi-
cine; 40(7):1591-1596. IF: 4.439

- Gelber PE, Torres R, Garcia-Grall N, Er-
quicia J, Abat F, Monllau J.C. Host serum is not indispensable in collagen perf-
mance in viable meniscal transplantation at 4-week incubation. Knee Surgery, Sports Traumatology, Arthroscopy; 20(9):1681-1688. IF: 2.676

**Other Publications**

- Aguileora X, Alvarez C, De Caso J, Pulido MC, Trujillo L, Puig M, Marti-
nez-Zapata MJ. Estudo observacional, unicéntrico para evaluar en el tiempo, el surgimiento por las redes de una cohorte prospectiva de pa-
cientes intervenidos de fractura periprostática de femur. Traumaonline 2012;21(2):70-76. MAFFRE Foundation

- Abat F, Gelber PE, Sarraquyet J. Reparación artroscópica de la luxa-
ción acromioclavicular aguda con sistema de suspensión coracohi-
volar. Técnica anatómica e isométrica. Cuadernos de Artroscopia

- Peiró A. Prevention of postoperative bleeding in massive bone tumour resections: multicentre, randomized, open, three-arm, pa-

- Monllau J.C. Prevention of cartilage defects by tissue engineer-
ing with allogenic, chondrocytes seeded ma-

- Monllau J.C. Prevention of postoperative bleeding in massive bone tumour resections: multicentre, randomized, open, three-arm, para-
Reproductive Health

Subgroup: Prenatal Diagnosis and Treatment

**Main Lines of Research**

- Qualitative study of foetal motility by means of 2D ultrasound in foetuses with muscular atrophy.
- Value of foetal nuchal translucency as a marker of neuromuscular diseases and other oenogenetic diseases.
- Usefulness of Doppler ultrasound of the umbilical artery during the second trimester as a discriminator of pregnancies at high risk of poor perinatal outcomes.
- Cutoff point for foetal pyelectasis as a nephrourologic pathology discriminator.
- Value of ultrasound in the control of foetal anaemia.

**Challenges**

- Consolidate a line of work with the HSCSP genetics department concerning possible early clinical manifestations detectable using 2D and 4D ultrasound in foetuses affected by genetic diseases, particularly neuromuscular disorders, given that the HSCSP is a referral centre for a particular group of rare diseases.
- Screen for chromosomal abnormalities from the ultrasound and biochemistry points of view, investigating the potential usefulness of the markers used either alone or in combination as indicators of populations at risk of placental insufficiency.
- Investigate the usefulness of new technologies such as 3D power Doppler angiography of the placenta in the diagnosis and control of certain foetal diseases.

**Collaborations with other IIB Sant Pau Groups**

- Genetic Diseases.

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Reproductive Health

Subgroup: Reproduction Endocrinology

**Main Lines of Research**

- Research into polycystic ovary syndrome and its relation to alterations of the reproductive system and metabolic control of carbohydrates. This relationship determines changes in ovulation, given that insulin acts on the steroidogenic cells of the ovarian theca.

**Challenges**

- Assessment of the impact of changes induced by exercise and diet on the results of an in vitro fertilization to identify media tors between obesity and fertility control.
- Coordination of a state-wide multicentre study on the impact of lifestyle on fertility, confirming the strength of metabolic-reproductive lifestyles as a key direction for research into reproduction.
- Advancement of research into study methodologies and incentives for patients to adopt healthy lifestyles, using tools developed for external and self-control of physical activity when assessing the degree of compliance of patients advised to include regular exercise in their weight loss program.
- Optimization programmes for controlled stimulation and multiple follicular development, preservation of fertility in young cancer patients and application of pre-implantation genetic diagnoses.

**Active Grants**

- Espínós JJ. Multicentre study of the influence of diet and different lifestyle habits on the results of IVF. JSCI. Merck Serono-Spanish Society of Fertility. 2012-2014.
- Guinot M. Double-blind, randomized, placebo-controlled trial to evaluate the efficacy and tolerability of the combination of soy isoflavones and extract of red clover (Phytoestrogen) in the treatment of hot flashes in menopausal women. Fis Caein Laboratories. 2010-2012.
- Guinot M. Open, randomized study to evaluate the safety and efficacy of monthly Actonel and Denosumab in postmenopausal women after treatment with alendronate weekly or daily. AMGEM Laboratories. 2010-2012.
Reproductive Health
Subgroup: Reproduction Endocrinology


Nursing Care Research

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Marta Romero
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María Solà
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Main Lines of Research

- Fall prevention and analysis of fall-related factors.
- Translation and validation of care evaluation questionnaires.
- Constipation and ageing.
- Quality of life related to nursing care.
- Development and application of health science methods: qualitative and quantitative methods, test analysis and discourse analysis.
- Patient satisfaction with nursing care.
- Attention to the family.
- Pain.
- Technological innovations in nursing care.

Challenges

- Strengthen implemented research lines and disseminate the results of active projects.
- Explore the impact of nursing care for patients, strategies for care improvement and the application of results in care models.
- Improve the development and understanding of qualitative research in the context of the health sciences and disseminate qualitative methods and analysis of text and discourse as tools in health science research.
- Create the synergies necessary to consolidate the group’s activities.

Active Grants

- Ricart M. Anxiety in patients discharged from intensive care units. HSCSP Private Foundation. 2011-12.
- Robleda G. Pilot study to evaluate the impact of the implementation of clinical guidelines for sedation and analgesia for critically ill mechanically ventilated patients who cannot communicate. COIB Grant. 2012-13.
- Romero M. Qualitative and quantitative-designed research study of the critically ill patient’s perception of nursing care: an approach to the concept of satisfaction. FIS Grant. 2011-14.

*if: 14.839 **mif: 2.473

ISI Web of Knowledge Indexed Publications with an IF
IF: 3.163
IF: 3.174
IF: 1.303
IF: 3.163
IF: 1.518
IF: 1.518

ISI Web of Knowledge Indexed Publications without an IF
- Calaf J, Borrego RS, Campos EF, de la Vida E, Lleí J. Multicentre, cross-sectional study about the beliefs and attitudes of Spanish women regarding the new oral contraceptive containing natural oestradiol. Revista Iberoamericana de Fertilidad y Reproducción Humana; 29(2).
### Translational Molecular Oncology

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UAB  

- Virginia Gómez  
UB  

- Esteban Gonzalez  
I. Bonanova  

- Adrián Martínez  
UB  

- Elisenda Raga  
UB

**Collaboration with other IIB Sant Pau Groups**
- Haematological Diagnosis.
- Ear, Nose and Throat Cancer.

**External Collaborations**
- Alberto Villanueva. Catalan Oncology Institute (ICO)-Bellvitge Biomedical Research Institute, Barcelona, Spain.

#### Main Lines of Research

- In vitro and in vivo studies by genetic manipulation of new biomarkers of poor prognosis in squamous cell carcinoma (SCC) in tumour progression and as potential therapeutic targets. The studies are focused on genes involved in development and hypoxia.
- Preclinical head and neck SCC models to identify resistance subpopulations of tumour initiating cells and study alternative treatments.

#### Challenges

- Evaluate survival pathways, epithelial-mesenchymal transition, enrichment of cancer stem cells and the resistance to chemotherapeutic treatment involving the studied genes.
- Improve a mouse model of head and neck carcinoma, based on implantation of human primary tumour.

#### Active Grants


#### Scientific Production

**ISI Web of Knowledge Indexed Publications with an IF**

Molecular Physiology of the Synapse

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Grant Holders
Gemma Gou
HSCSP RI
Adriana Roca
HSCSP RI

Main Lines of Research
• Molecular and cellular analyses of the vertebrate synapse.
• Molecular and cellular dysfunctions underlying intellectual disability and autism.
• Research into animal models of mental and behavioural disorders.
• Development of new biochemical methods to study the synapse.

Challenges
• Characterize the molecular roots of cognition and behaviour.
• Identify the synaptic molecules and mechanisms involved in mental and behavioural disorders, mainly intellectual disabilities and autism spectrum disorders.
• Identify drugs which might help treat mental and behavioural disorders.
• Study the reversibility after birth of neurodevelopmental disorders affecting cognition.

Active Grants

Collaborations with other IIB Sant Pau Groups
• Neurobiology of Dementia.

External Collaborations
• Prof. Seth GN Grant. University of Edinburgh, UK.
• Dr. Noboru Komiyama. University of Edinburgh, UK.
• Prof. Jesus Giraldo. Autonomous University of Barcelona, Spain.
• Dr. Montserrat Milà. Hospital Clínic de Barcelona, Spain.

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Scientific Production
*TIF: 3.73 **MIF: 3.73